

2008 TAC Sustainable Urban Transportation Award

City of Quebec's Application Exposé

Écolobus service in Old-Quebec

A CUSTOMIZED ÉCOLOBUS SERVICE IN THE HISTORIC HEART OF THE CITY

Old-Quebec's historical district, a major tourist attraction in Canada, continues to be the main catalyst for economic and cultural activities in the heart of Quebec City. The area's landform, however, inherited from its history, does not allow it to support the traffic that is generated by city busses, tourist coaches, cars and trucks.

For this reason, the City of Quebec has implemented a route for electric minibuses, called Écolobus. Since June 2008, these easily accessible routes have been providing direct service between the Upper City and the Lower City, between the intermodal terminals and the parking lots that surround the area and serving the employment pool and the area's tourist attractions.

The project concerns the public transportation component of the Integrated Management Plan for Transportation in Old-Quebec. Its implementation will sustainably reduce the presence of noisy and polluting vehicles and encourage residents to stay in order to preserve the heart of the city's authentic character. Other measures along with the Écolobus service will allow for the remote conversion of bus lanes and include dynamic signage in the vehicles and at the stops.

THE PLAYERS INVOLVED

The implementation of this project is the result of close collaboration between the Land Use Planning Service, Property Services, the City of Quebec's La Cité district and the RTC.

The project is the public transportation component of the integrated approach of Transport Canada's Urban Transport Showcase Program (UTSP) which also includes the remote conversion of the signs for bus lanes, real time display systems at stops and in the busses, the creation of pedestrian areas, improved intermodality between bicycles and public transportation by means of bicycle stands at the main Écolobus stops, regulations to reduce truck traffic and the creation of a drop-off zone for tourist coaches.

The project is the result of fifteen years worth of studies, urban planning and consultation with the public.

The completion of the project was made possible with the financial support of the *Ministère des Transports du Québec* in connection with the *Programme d'aide gouvernementale à l'amélioration de l'efficacité énergétique* and Transports Canada's Urban Transportation Showcase Program.

The Écolobus service is free, like the public transport service in downtown Winnipeg and Portland (Oregon).

In 2005, the *Centre d'évaluation des véhicules électriques du Québec* (CEVEQ) received the mandate to evaluate the electric minibuses that were available on the American and European markets. Following the CEVEQ's analysis, the Gulliver models from the Italian Tecnobus manufacturer were chosen for the Écolobus service. They were also charged with ensuring that the Italian minibusses would meet Canadian standards and they continue to act as consultants for the Écolobus project.

A CONTINUING PROJECT

The project is part of an integrated transportation management plan that aims to reduce greenhouse gas emissions and other air pollutants, decrease the amount of motorized vehicle traffic inside Old-Quebec and improve the modal share of public transportation.

This project is a continuation of various plans that have been implemented over the past 15 years:

- 1993, Vieux-Québec/Basse-Ville/Cap-Blanc Management Plan
- 1995, Tourism Signage Management Plan
- 1999, Old-Quebec Transportation Plan
- 2000, Region of Quebec Transportation
- 2001, Tourist Capitalization Plan

- 2003, Integrated Management of Travel in Old-Quebec Plan
(<http://www.tc.gc.ca/Programmes/environnement/pdtu/quebec.htm>)
- 2005, 2005-2014 Strategic Plan to develop Capital Transport Network Services
(www.rtcquebec.ca/_site/documents/applications/pdf/Plan_strategique_final.pdf)
- 2005, City of Quebec Planning and Development Management Plan
(<http://www.ville.quebec.qc.ca/apropos/administration/planification/pdad/#pdad>)

A UNIQUE EXPERIENCE IN NORTH AMERICA

This innovative project enables the evaluation of the long-term performance of a fleet of electric busses with a large ridership in Quebec's topographical and climatic conditions.

The Écolobus is a public transportation vehicle that is propelled solely by electricity. This is the first time that this type of bus has been built for use in North America. Its ridership during the summer of 2008 surpassed the City and the RTC's estimates.

For all of these reasons, several challenges arose during the months following its introduction:

- managing a fleet of eight electric vehicles according to the battery life while providing 19 consecutive hours of service, seven days a week;
- avoiding vehicle overloads due to heavy tourist ridership in the summer;
- promoting awareness among bus drivers that driving an electric bus is completely different from driving a standard bus;
- training technicians to maintain electric motors using entirely new technology;
- adjusting battery overheating caused by the combined effect of passenger overload, steep hills to climb and drivers' lack of practice;
- managing technical exchanges with a foreign supplier who is accustomed to different technical standards in a language other than French or English;
- adapting certain vehicle components because they were not made for use in winter conditions.

Close collaboration between the public transportation planning service of the RTC and the City's land use planning service were contributing factors in the success of a project for integrated transportation management. In fact, the integration of the transportation offer begins with the integration of the services that it comprises.

The Écolobus service is part of an integrated transportation management plan. Its planning and implementation allowed the City's Land Use Planning Service and the Planning and Development Service of the Transportation Network of the Capitale to collaborate more closely

in order to find solutions that promote intermodality with the other means of public transportation.

The desire to find integrated solutions to the complex transportation problems of the downtown area of a heritage city was expressed at the beginning of the project's planning stage, as soon as the need for this type of service by the population and business people of the district was identified in the Vieux-Québec/Basse-Ville/Cap-Blanc Management Plan.

For example, the Écolobus route was planned around the parking lots in Old-Québec, the pedestrian walkways made by the City over the years, the parking needs of cyclists and service to the intermodal terminals such as the train station, the cruise terminal, the tourist centre and the other tourist coach parking lots.

While looking for a solution to the large number of city busses in the area, other solutions were added in order to limit the access of large trucks and manage the inflow of tourist coaches in summer.

The Écolobus service also showed the City and the RTC that it was necessary to provide the downtown area with public transportation that was attractive, distinctive, intermodal, performed well and was non-polluting due to the high density of users, the diversity of their motives and their means of transportation which characterize the intensity of a downtown area.

The experience also showed that an innovative project must have a team that is open to innovation. The technical and human challenges that arise from this kind of project require men and women who will meet them with reactivity, curiosity and perseverance that are found in a team that is used to competition.

THE PROJECT'S SUSTAINABLE ADVANTAGES

The objective of the project for the RTC vehicles is to reduce:

- fuel consumption in standard busses by 67,500 litres/year;
- CO2 emissions by 186 tons per year;
- the distance travelled by standard busses by 112,500 km per year.

It provides an environmentally friendly transportation alternative in a historic area that is over-used, especially by large vehicles. The electric minibuses, which are smaller than regular busses, can easily manoeuvre through the area's narrow streets and help reduce traffic congestion in Old-Quebec during the summer.

These minibuses are light and silent; they do not pollute the air or produce any particles that are damaging to vegetation and the facades of the ancestral buildings in the area. They cause much less vibrations in these buildings than city busses.

The City analyzes the qualitative data provided by the following sources:

- organizing a project steering committee with local representatives;
- semi-annual satisfaction surveys of the various targeted clientele, residents, workers, business people, visitors and students;
- results of a dedicated phone line for comments and complaints from the public.

The Réseau de transport de la Capitale (RTC) and the City compile the following field-data:

- annual calculation of greenhouse gas emissions, air and noise pollution;
- RTC operating statistics: ridership and kilometres travelled;
- evolution of the number of participants in the employer program;
- number of hours annually that bus lanes are in use on the route;
- semi-annual counting of vehicles at the entrance to Old-Quebec before, during and after the implementation of the project;
- MDBF (moyenne de bon fonctionnement d'un véhicule) (*average effective vehicle operation*) measure: how many kilometres does a vehicle travel before it needs servicing;
- satisfaction of foremen, mechanics, drivers and operating personnel. The Écolobusses have been in service since June 14 of last year. Between June 14 and October 14, 2008, their use has already resulted in savings of:
 - 32,937 km that were no longer travelled and 18,807 litres of diesel that were not used by standard busses;
 - 51 tonnes (equivalent CO2) of greenhouse gas that was avoided thanks to the Écolobus.

Noise and pollution measures will be implemented after the festivity period for Quebec's 400th anniversary at the close of 2008.

All of the advantages of the Écolobus contribute to improving the quality of life in Old-Quebec.

A PROFITABLE EXPERIENCE FOR ALL

Combined with parking in surrounding areas, free high frequency bus service in the downtown area has proven itself in several cities in Europe and is gaining popularity in North America. For daily travel in the downtown area, this service compliments walking and is an effective remedy against time wasted in traffic jams and desperately looking for parking spaces in a crowded urban area.

Other Canadian municipalities are interested in several areas of the experience acquired by the City and the Réseau de transport de la Capitale during this showcase program in several areas:

- it allows other public transportation companies to foresee the limitations of operating a fleet of electric busses and avoid the energy management limitations that can result from the types of routes and the frequency of the busses;
- it provides other municipalities with new perspectives regarding sustainable management of mobility with transportation services that have zero greenhouse gas emissions.
- the cost of operations, the life cycle for the Écolobus and its components as well as the environmental gains that come from operating an electric vehicle that is made in Europe are evaluated according to real operating conditions in a Canadian city.

The project was presented to other participating UTSP cities and regions at the annual UTSP workshops held in Halifax in 2007 and Toronto in 2008: Montréal, Gatineau, Ottawa, Greater Toronto, London, Region of Waterloo, Greater Vancouver, Halifax, Cape Breton, Whitehorse and Winnipeg.

The Écolobus was presented to Trans-Expo visitors at the 2008 annual CUTA convention, in workshops and during guided tours.

The Écolobus was also presented:

- at the Association de transport urbain du Québec (ATUQ) convention in Laval in the fall of 2007 where all of Quebec's transportation companies were present;
- at the MUTA international forum held in Mont Tremblant in the fall of 2007;
- in the city of Sherbrooke and to the Société de transport de Sherbrooke in the winter of 2007.

More recently, McGill University has expressed interest in operating an electric minibus service for its Montréal campus.

BENEFITS FOR THE COMMUNITY

Originally, the project's main objectives were to fulfill a need that had been expressed by residents of Old-Quebec and to provide service for commuters who use public transportation to travel to work in Old-Quebec.

If nothing had been done to reduce the problems caused by vehicles, residents and tourists would have progressively lost interest. Without them, the historic district would no longer be a lively inhabited area.

The project meets the demand of the residents of Old-Quebec to reduce the number of polluting and noisy vehicles that enter the sector. On average, 250 city busses enter Old-Quebec every day, plus an additional 300 tourist coaches in the summer.

This project has allowed the city and the RTC to set an example by reducing the number of standard RTC busses by 76% in the summer and 60% during the rest of the year.

From the beginning of the project, the City has received the support of the Comité des Citoyens du Vieux-Québec, the Chambre de commerce et d'industrie du Québec Métropolitain, the Coopérative des commerçants et des artisans du Petit-Champlain, Université Laval, Université du Québec, the Administration portuaire de Québec, the National Battlefields Commission and Parks Canada.

The experience has shown that a much larger clientele was targeted, tourists for whom access to a high frequency minibus is an ideal complement to walking in a pedestrian area.

Since its implementation, the Écolobus has been used by an average of 2000 persons per day in the summer. This success has largely surpassed our estimated ridership. The Écolobus has allowed thousands of people to discover or rediscover public transportation.

According to the latest poll of Écolobus users, taken between November 22 and 27, 2008, over 82% of respondents said they were satisfied or very satisfied with the Écolobus service.