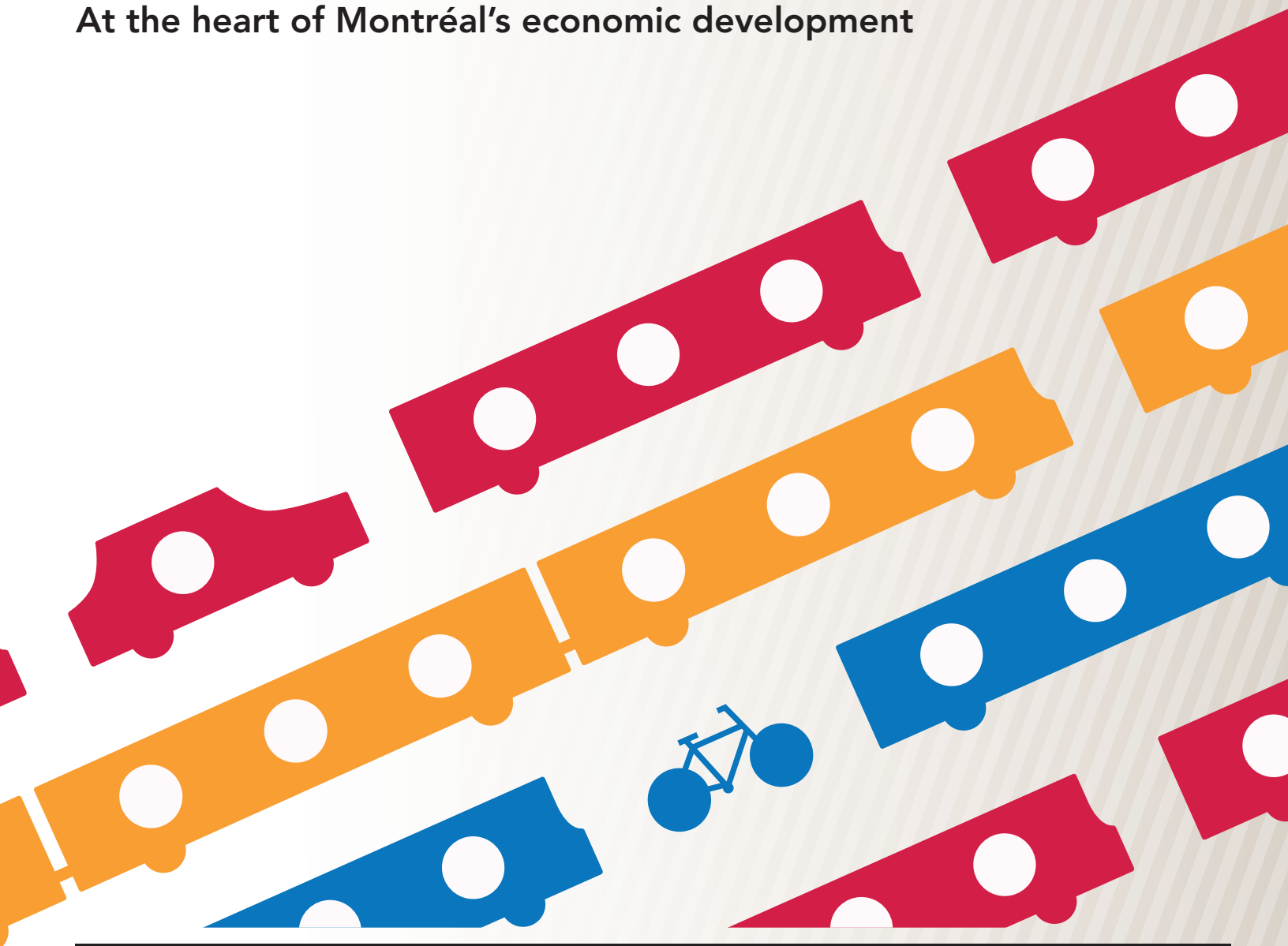




Chambre de commerce  
du Montréal métropolitain  
Board of Trade of Metropolitan Montreal

# PUBLIC TRANSIT

At the heart of Montréal's economic development



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THE ART OF BUSINESS

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## Message from the President and CEO



**Michel Leblanc**  
President and CEO  
Board of Trade of Metropolitan Montreal

Over eight million trips are taken each day in the Montréal area, an astronomical figure that will continue to rise as our population and economy expand.

And this is not a bad thing. On the contrary, it bespeaks a vibrant, growing and increasingly prosperous city. It does, however, come with some negative, counterproductive consequences which, if nothing is done, will jeopardize our quality of life and social equilibrium.

The first negative effect, and increasingly a topic of discussion, is mounting, crippling and debilitating traffic. Too many people in Montréal, Laval, Longueuil, the North Shore and the South Shore waste millions of hours travelling back and forth to work, school and recreational activities. And thousands of trucks get stuck in traffic trying to deliver or pick up merchandise from local businesses and retailers.

In short, this wasted time makes our society less productive and invariably translates into considerable economic loss.

One answer is to build and maintain efficient road infrastructures, which would certainly help in that it would improve roadways and traffic management. However, this alone is not enough. No city in the world today can hope to resolve the challenge of millions of daily trips just by building more roads.

The real answer is to intelligently and systematically deploy public transportation facilities and increase the public transit mode share.

Public transportation reduces traffic congestion, commute time, merchandise shipping time, traffic accidents and air pollution. Its multifaceted impact – economic spinoffs, smooth traffic flow, higher property values, safety and public health – contributes to our prosperity and quality of life. Users are therefore not the only ones to benefit from investments in public transit; all of society gains.

The Board of Trade of Metropolitan Montreal believes that public transit is an essential key to our prosperity. The findings announced today are more than an update of our 2004 study; they are the basis for a solid argument in favour of massive investments in the transportation network.

Backed by figures, it quantifies all the positive, direct and indirect effects of injecting money into public transit and underscores both its environmental and economic benefits. Lastly, it suggests areas of reflection that merit prompt consideration to maximize these benefits, without losing sight of the limited means at our disposal.

In our view, it is essential to highlight these invaluable benefits. Public transit will no doubt play a larger role in the years ahead. Our job is to ensure that the decisions taken recognize the importance of deploying a road network and public transit system that lives up to our aspirations for Montréal.

# SUMMARY

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## 1. Introduction

Cities are fertile ground for population growth and economic development. With each passing year, wealth is becoming more concentrated in cities, particularly major urban centres.

The transportation of people and goods plays a strategic, central role in the expansion and development of urban centres and public transit is a major contributor in this regard. The government, the business community and the population have all come to better appreciate its benefits and now promote this form of transportation, with the result that decision makers are increasingly making public transit a key element of their urban planning and development projects.

## 2. Public transit in metropolitan Montréal

Public transit has managed to gain market share in the last few years despite the challenges of suburbanization and the dispersal of people and jobs in metropolitan Montréal.

For a number of years now, the strongest demographic growth has been observed in Montréal's suburbs. Although they are increasing in these areas, jobs are still concentrated on the Island of Montréal. As a result, commuter needs and travel to Montréal have grown.

There are approximately 8 million trips per day in the metropolitan region, including 2 million during morning rush hour. At 19% (whole day) and 23% (morning peak), the public transit mode share has risen 3 points since 2003.

## 3. Economic activities generated by public transit

The operating and capital expenditures of metropolitan Montréal's public transit authorities generate hundreds of millions of dollars in economic spinoffs per year.

In 2009, they spent \$1.8 billion, which generated \$1.1 billion in added value in the Quebec economy and supported 14,110 job-years. The impact on provincial and federal government revenues was estimated at \$217.1 million and \$85.9 million respectively.

Moreover, the impact of public transit on the Quebec economy is almost three times greater than equivalent expenditures for travel by car, which has a negative effect on Quebec's trade balance.

### ECONOMIC IMPACT OF PUBLIC TRANSIT ACTIVITIES ON METROPOLITAN MONTRÉAL

Added value generated by expenditures	\$1.1 billion
Direct and indirect jobs	14,110 person-years
Provincial government revenues	\$217.1 million
Federal government revenues	\$85.9 million

## 4. The economic benefits of public transit

The development of efficient means of transportation generates economic benefits that contribute significantly to productivity and wealth creation. Public transit benefits include more purchasing power for households, easy mobility, reduced congestion costs and increased property values in the area.

Transportation is a one of the biggest expenses for a household. Three times cheaper than travelling by car, public transit gives Montréal households \$800 million more to spend on other things, which has a greater economic impact (20%) than expenditures on travel by car.

A 3% increase in the public transit mode share (the increase recorded between 2003 and 2008) would save Montréal's suburban households \$75.7 million and \$56.1 million in transportation and parking expenditures respectively.

Public transit also helps drive economic activity by making it easier for people to get around. In Montréal, the overall cost of congestion in the metropolitan area is estimated at \$1.4 billion or 1% of GDP. A 3% increase in the public transit mode share would cut these costs by \$63.8 million per year.

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## 5. Public transit, the environment and quality of life

Public transit also has a positive effect on urban development and the value of residential and commercial properties in the neighbourhoods served, a fact confirmed by a case study of a metro station (Longueuil) and a commuter train station (Mascouche).

A society's growth hinges on the ability to provide its citizens with a pleasant and safe living environment. Public transit is a safe, green alternative that enhances quality of life. These benefits are valued at several million dollars per year.

Public transit is a sustainable solution that meets mobility needs, reduces pollution and its effect on public health and improves road safety.

Public transit causes much less pollution, ten times fewer accidents and takes up six times less space on the road than travel by car.

### IMPACT OF A 3% INCREASE IN THE PUBLIC TRANSIT MODE SHARE IN METROPOLITAN MONTRÉAL

Additional savings for Montréal households	\$75.7 million
Decrease in parking expenditures for Montréal households	\$56.1 million
Decrease in number of parking spaces required	17,949
Decrease in congestion-related costs	\$63.8 million
Decrease in accident-related costs	\$18.1 million
Decrease in pollution-related costs	\$6.4 million

## 6. Areas of reflection

Maximizing public transit's contribution to economic development hinges on three key factors:

- 1- The collective will to provide sufficient funding;
- 2- The ability to set up an effective governance structure;
- 3- The deployment of modern, efficient and appealing transit facilities.

This reflection will help shape the development and enhance the benefits of public transit. However, before any of the recommendations can be implemented, public transit will have to become a central part of the city's development priorities.

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# INTRODUCTION

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Big cities are the engine of the global economy. Their competitiveness hinges on, among other things, their ability to develop an efficient, appealing public transit system.

*[...] the wealthier and more vibrant Montréal becomes, the greater the number of trips.*

– 1.1

### **BIG CITIES AND ECONOMIC DEVELOPMENT**

The past century has witnessed exponential demographic growth, with the global population quadrupling to 6.8 billion people since 1910. This growth has led to increased urbanization, a trend that is projected to continue gaining momentum.<sup>1</sup>

The world's urban population is growing by about 70 million each year, mostly in emerging countries. Today, more than half of the people on the planet live in cities and two thirds will do so by 2025. In 2005, there were 400 cities in the world with a population of more than 1 million, versus 179 in 1975.

Cities are also engines of global economic activity.<sup>2</sup> Wealth and a growing proportion of newly created wealth are concentrated in cities, particularly in major urban centres, which contribute more than their proportional share to their country's GDP.

– 1.2

### **THE CONTRIBUTION OF TRANSPORTATION TO URBAN DEVELOPMENT**

Infrastructures play a central, strategic role in ensuring the efficiency and economic development of big cities, especially in the area of transportation.

The transportation of people and goods is central to a large city's operation. From the perspective of volume and speed with which people and goods can be transported to production and consumer sites, we could say that transportation accelerates economic activity. It therefore follows that improving trip efficiency will stimulate both productivity and consumption. Transportation is at the core of a virtuous circle, fed by increased demand and competitiveness.

There is, in fact, a close relationship between the number of daily trips and per capita income: rich societies also have the greatest mobility.<sup>3</sup> This presumably holds true for big cities as well, meaning the wealthier and more vibrant Montréal becomes, the greater the number of trips. Moreover, in a world where business productivity increasingly hinges on tight inventory control and just-in-time supply, smooth road transportation is critical.

Among the various transportation modes available, public transit makes a particularly structuring contribution, generating numerous economic benefits, which includes reducing the unit cost of user trips, traffic congestion and non-productive hours. It also clearly affects the quality of life of city dwellers.

Public transit's contribution to the economy amounts to hundreds of millions of dollars per year, as we shall see later. The government, the business community and the population have all come to better appreciate this form of transportation. Its benefits – cost savings, better living environment and accessibility – are all essential ingredients for the sustainable economic development of a big city.

<sup>1</sup> Figures 1 and 2 in the Appendix (p. 47) show the change in urbanization and the global population.

<sup>2</sup> A comparison of the GDP of several large cities and certain countries shows the importance of big city economies (see Table 1 in the Appendix, p. 48).

<sup>3</sup> See Figure 3 in the Appendix (p. 48).

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*New cities sprouting around the world are being designed with proximity in mind and organized around mass transit.*

– 1.3

#### **PUBLIC TRANSIT, A KEY COMPONENT OF URBAN PLANNING**

New trends in sustainable urban development call for reducing energy- and pollution-related costs and improving city dwellers' well-being and quality of life. These goals are prompting decision makers to promote public rather than individual modes of transport and compact rather than dispersed urbanization. Therein lies the crux of today's urban development issues: the search for a greener, more pleasant and vibrant city. New cities sprouting around the world are being designed with proximity in mind and organized around mass transit.

While citizens reap most of the benefits of public transit systems and the better quality of life that comes with less traffic, businesses also benefit in no small measure from an efficient transportation system. Aside from the procurement related advantages such a system provides, businesses are increasingly aware of how big a role mass transit plays in a city's appeal to qualified workers, be they local or foreign.

This has been true for some time now. Municipalities are seeing the undeniable financial and economic benefits of public transportation. For example, the densification of areas served by public transit is clearly conducive to development, which leads to higher property and land values.

Consequently, a growing number of urban planners are mixing residential and commercial uses, while maximizing the efficiency of public transit and encouraging people to leave their cars at home. This idea is not new, and examples abound in North America and around the world. For the past few years, Montréal has been making public transit an increasingly important part of its urban planning. However, shifting from a model predicated almost entirely on vehicle use to one that revolves around public transportation naturally poses some major transition challenges.

At this point, it seems relevant to reiterate the contribution public transit and its activities make to the metropolitan economy and to highlight the many benefits.

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<sup>4</sup> The example of the Brewery Blocks of Portland, Oregon is presented in the Appendix (p.49).



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*For the past few years, Montréal has been making public transit an increasingly important part of its urban planning.*

The chapters that follow will be devoted to:

- › PUBLIC TRANSIT IN METROPOLITAN MONTRÉAL;
- › THE ECONOMIC ACTIVITIES GENERATED BY PUBLIC TRANSIT;
- › THE ECONOMIC BENEFITS OF PUBLIC TRANSIT;
- › THE IMPACT OF PUBLIC TRANSPORTATION ON THE ENVIRONMENT AND QUALITY OF LIFE;
- › AREAS OF REFLECTION TO MAXIMIZE THE POSITIVE SPINOFFS OF PUBLIC TRANSIT.

# PUBLIC TRANSIT IN METROPOLITAN MONTRÉAL

Public transit has managed to gain market share in the last few years despite the challenges of suburbanization and the dispersal of people and jobs in metropolitan Montréal.

- › The strongest demographic growth has been in Montréal's suburbs.
- › Although they are increasing in these areas, jobs are still concentrated on the Island of Montréal. As a result, commuter needs and travel to Montréal have grown.
- › There are approximately 8 million trips per day in the metropolitan region, including 2 million during morning rush hour, a 3% increase since 2003.
- › The public transit mode share is increasing. It has reached 19% (whole day) and 23% (morning rush hour), a 3 point increase since 2003.

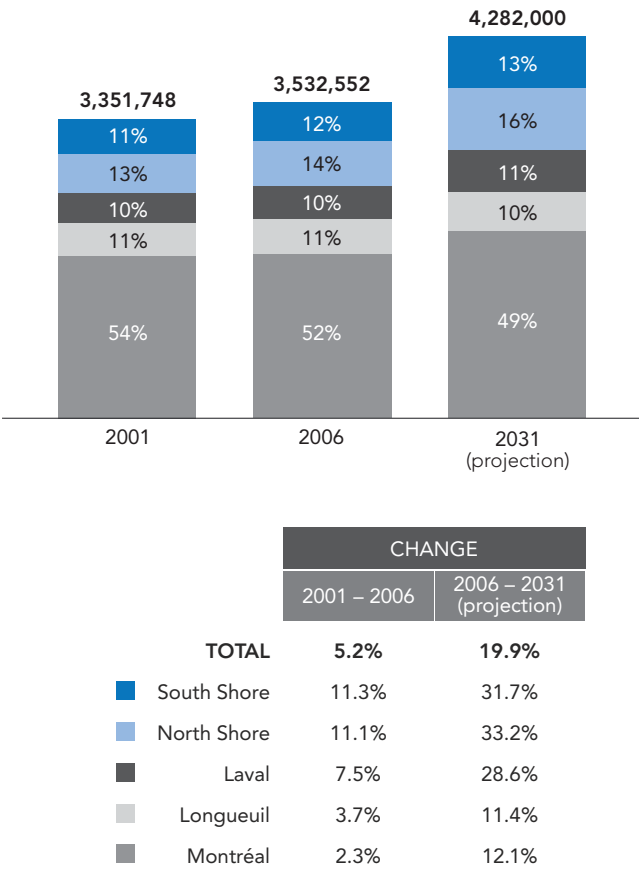
– 2.1

**SOCIOECONOMIC PROFILE OF METROPOLITAN MONTRÉAL**

Metropolitan Montréal plays a key role in the Quebec and Canadian economies. With a GDP of \$120.5 billion in 2009, it accounted for 49% of Quebec’s and 9% of Canada’s economic activity.

In 2006, metropolitan Montréal was home to 3.5 million people and 1.5 million households, or 46% of Quebec’s population. Most of these people (52%) and households (56%) lived on the Island of Montréal. However, its demographic weight is down from 2001 (54%), and population growth lags behind other areas. From 2001 to 2006, the North Shore, South Shore and Laval recorded the sharpest increase, a trend that is expected to continue until 2031 according to the Institut de la statistique du Québec (ISQ).

FIGURE 4 / POPULATION OF METROPOLITAN MONTRÉAL / 2001-2031



Sources: 2006 Census, Statistics Canada; ISQ, "Perspectives démographiques du Québec et des régions", 2006-2056, 2009 edition.

*[...] the growing number of people living in the suburbs is becoming a daunting challenge, driving up mobility needs and the number of trips, particularly towards the city centre.*

According to demographic projections, metropolitan Montréal will see its population grow until 2031 in all age groups except the 25- to 29-year-old cohort. Although to a lesser extent than the rest of Quebec, the city will feel the effects of the aging population. The consequences for public transit will be twofold. First, the growth in the number of residents will increase traffic, in absolute terms. Second, the aging population could cause the public transit mode share to decline given that seniors tend to use public transportation less than their younger counterparts. However, this is assuming that the new, older cohort will behave in the same way as their predecessors and that we will not succeed in adjusting the public transit offer to respond to the needs of an older clientele.

Metropolitan Montréal accounts for 1.7 million jobs, or 46% of all jobs in Quebec, a proportion in line with its demographic and economic weight. The way these jobs break down across the territory attests to the economic drawing power of the city centre: the Island of Montréal accounts for two thirds of the jobs and the city of Montréal for more than half (56%). However, the growing number of people living in the suburbs is becoming a daunting challenge, driving up mobility needs and the number of trips, particularly towards the city centre. This places ever more pressure during rush hour.

TABLE 2 / JOB DISTRIBUTION IN METROPOLITAN MONTRÉAL<sup>1</sup>

	NUMBER	% OF TOTAL
ISLAND OF MONTRÉAL	1, 145,595	65.7%
CITY OF MONTRÉAL	985,455	56.5%
LAVAL	137,190	7.9%
LONGUEUIL – AGGLOMERATION	158,675	9.1%
NORTH SHORE	185,950	10.7%
SOUTH SHORE	116,230	6.7%
TOTAL METROPOLITAN REGION	1, 743,640	46.3% (OF QC TOTAL)
TOTAL QUEBEC	3, 765,400	

Source: 2006 Census, Statistics Canada.

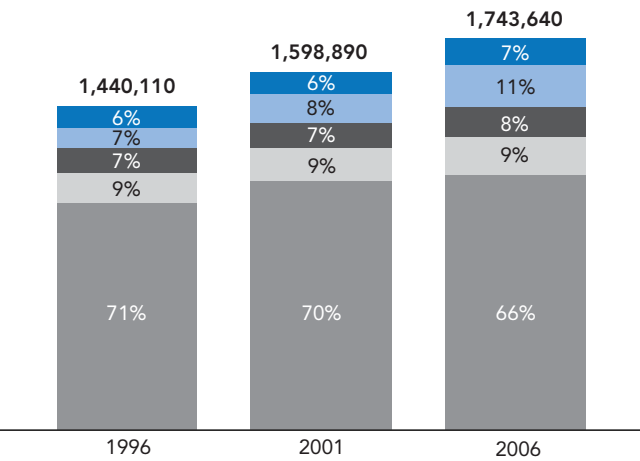
<sup>1</sup> A more detailed breakdown is shown in Table 2B in the Appendix (p. 50)

[...] jobs are increasingly moving to densely populated areas [...].

While jobs are still concentrated on the Island of Montréal, suburbanization has taken jobs with it. As such, between 1996 and 2001, employment grew faster on the South Shore (+19%), the North Shore (+20%) and Laval (+14%) than in Longueuil and Montréal (8% and 9% respectively). Between 2001 and 2006, jobs grew even faster on the North Shore (+49%), remained stable on the South Shore (+15%), in Laval (+16%) and in Longueuil (+15%), but was quite modest on the Island of Montréal (+3%).

Jobs are gradually being created or migrating to areas with strong demographic growth. This trend, combined with the dearth of certain skills, is creating a new dynamic: jobs are increasingly moving to densely populated areas whereas in the past, people used to move to where the jobs were. This will ultimately create major challenges in terms of adapting our transportation system.

FIGURE 5 / JOB GROWTH IN METROPOLITAN MONTRÉAL



	CHANGE	
	1996 – 2001	2001 – 2006
TOTAL	11%	9%
South Shore	19%	15%
North Shore	20%	49%
Laval	14%	16%
Longueuil	8%	12%
Montréal	9%	3%

Source: 2006 Census, Statistics Canada.

## – 2.2

### TRIPS IN METROPOLITAN MONTRÉAL

<sup>2</sup> The Origin Destination (O-D) surveys are the main source of information for people's travel patterns. They have been conducted in metropolitan Montréal since 1970, about every five years. The latest O-D survey was carried out in 2008 and the results revealed in winter 2010.

<sup>3</sup> Comparison made for comparable territories ("Highlights," Origin-Destination Survey, 2008).

According to the last Origin-Destination<sup>2</sup> survey conducted in 2008, there were 8.1 million daily trips in the region, including 2 million during morning rush hour, mainly to go to work (49% of trips) and school (32%). Trips during this period rose by 3% between 2003 and 2008 and 9% between 1998 and 2008.<sup>3</sup>

TABLE 3 / TRIPS BY PURPOSE IN METROPOLITAN MONTRÉAL

TRIP PURPOSE	PER DAY (24 HOURS)		MORNING RUSH HOUR	
	NUMBER OF TRIPS	PROPORTION	NUMBER OF TRIPS	PROPORTION
WORK	1, 579,575	20%	996,886	49%
SCHOOL	828,525	10%	645,218	32%
SHOPPING	612,234	8%	23,747	1%
RECREATION	549,254	7%	35,534	2%
OTHER	914,618	11%	272,464	13%
RETURN HOME	3,617,573	45%	71,782	4%
<b>TOTAL</b>	<b>8,098,686</b>		<b>2,046,231</b>	

TABLE 4 / TRIPS BY MODE OF TRANSPORTATION IN METROPOLITAN MONTRÉAL

MODE OF TRANSPORTATION	PER DAY (24 HOURS)		MORNING RUSH HOUR	
<b>MOTORIZED</b>				
CAR	(76%)	5,357,252	(69%)	1,263,619
PUBLIC TRANSIT	(19%)	1,375,641	(23%)	414,874
OTHER MOTORIZED	(5%)	338,630	(8%)	146,163
<b>TOTAL MOTORIZED</b>	<b>(87%)</b>	<b>7,071,522</b>	<b>(89%)</b>	<b>1 824,655</b>
NON-MOTORIZED (ON FOOT OR BY BICYCLE)	(13%)	1,027,164	(11%)	221,575
<b>TOTAL</b>		<b>8,098,686</b>		<b>2,046,231</b>

Source: Origin-Destination Survey, 2008.

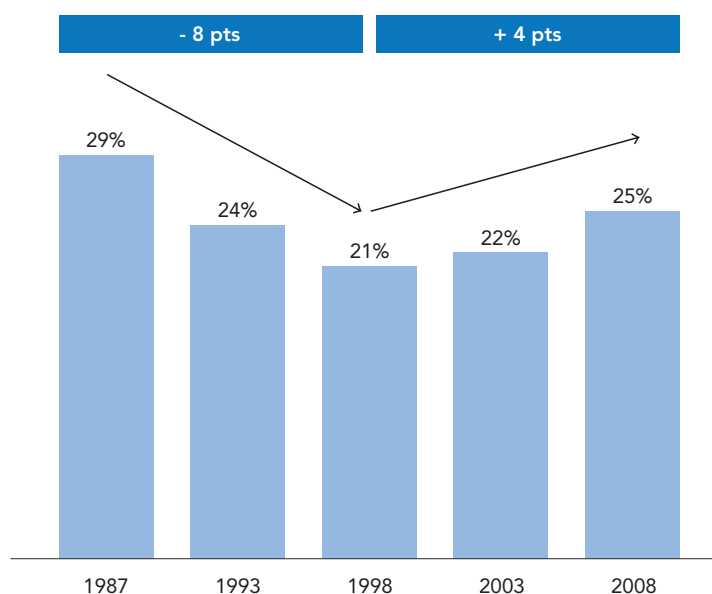
## *[...] car commutes dipped slightly between 2003 and 2008 [...].*

Source (previous page): Origin-Destination Survey, 2008. Of the 2 million trips surveyed for the morning rush hour, 87% of people used a motorized mode of transportation (individual or public). The public transit mode share, i.e. the proportion of public transit among the motorized modes, was 19% (whole day) and 23% (morning rush hour). The public transit mode share during morning rush hour was higher given the main purpose of the trips (work, school), traffic congestion and the increased service at this time of the day.

The public transit mode share in the metropolitan region has been growing for the last decade and especially since 2003. In fact, for a comparable territory, the mode share during morning rush hour was estimated at 21% in 1998 and 22% in 2003, against 25% in 2008. These past 10 years mark a departure from the previous decade. Still, the increases have not been enough to make up the ground lost since 1987 when the mode share during morning rush hour was 29%. Meanwhile, car commutes dipped slightly between 2003 and 2008, i.e. 1% or 15,000 trips. The average annual decrease observed for this period was 0.2% versus a 1.4% average annual increase for 1987 to 2003.

This means that the demographic growth in the suburbs and high worker mobility (given that economic activity is concentrated in the centre of the city) have not necessarily translated into greater car use since 2003. The recent investments in public transit aimed at increasing service – three new metro stations in Laval and improvements to the commuter train system – have certainly helped in this regard.

**FIGURE 6 / PUBLIC TRANSIT MODE SHARE, MORNING RUSH HOUR<sup>4</sup> / 1987-2008, FOR A COMPARABLE TERRITORY**



Source: Origin-Destination Survey, Highlights 2008.

<sup>4</sup> In order to make a comparison with the 1987, 1993, 1998 and 2003 survey data, the largest common territory was used, i.e. that of the 1987 O-D survey. The 2008 mode share for a comparable territory (that of the 1987 O-D) is therefore different from the one presented for the complete 2008 O-D survey.

<sup>5</sup> Public transit.

<sup>6</sup> Central Montréal includes: Montréal Sud-Ouest, Notre-Dame-de-Grâce, Côte-des-Neiges, Plateau-Mont-Royal, Ahuntsic, Saint-Michel, Rosemont, Montréal Sud-Est, Mercier, Mont-Royal, Outremont, Westmount, Hampstead, Côte-Saint-Luc.

<sup>7</sup> East Montréal includes: Pointe-aux-Trembles, Rivière-des-Prairies, Montréal-Est, Anjou, Saint-Léonard, Montréal-Nord.

<sup>8</sup> West Montréal includes: Saint-Laurent, Montréal-Ouest, Saint-Pierre, Verdun, LaSalle, Lachine, Dorval and L'Île-Dorval, Pointe-Claire, Dollard-des-Ormeaux, Roxboro, L'Île-Bizard, Sainte-Geneviève, Pierrefonds, Kirkland, Beaconsfield, Baie-d'Urfé, Sainte-Anne-de-Bellevue, Senneville.

The public transit mode share has grown sharply in the city's central neighbourhoods; however, this share shrinks as the distance increases from downtown. The number of trips is highest in the centre of the city: 35% of Island of Montréal residents use public transportation at rush hour, of which 42% live in the city's central neighbourhoods. The corresponding figures for 2003 were 32% and 38% respectively.

The mode share is even greater – and growing strongly – for trips to the city centre. More than two thirds of trips downtown are made by public transportation (55% in 2003). A number of factors explain this situation: the mass transit system is concentrated in the centre of the city, and it is harder and more expensive to get there by car (beginning with the cost of parking).

**TABLE 5 / MORNING RUSH HOUR TRIPS BY ORIGIN / 2008**

NEIGHBOURHOOD	TRIPS FROM			TRIPS TO		
	Car	PTA <sup>5</sup>	Mode share PTA / Motorized	Car	PTA	Mode share PTA / Motorized
ISLAND OF MONTRÉAL						
DOWNTOWN	14,569	10,725	40%	118,172	172,038	67%
CENTRAL MONTRÉAL <sup>6</sup>	222,852	168,401	42%	264,591	146,072	35%
EAST MONTRÉAL <sup>7</sup>	88,002	42,730	32%	81,885	19,538	18%
WEST MONTRÉAL <sup>8</sup>	176,047	65,007	26%	195,182	40,456	16%
<b>TOTAL MONTRÉAL</b>	<b>501,470</b>	<b>286,863</b>	<b>35%</b>	<b>659,831</b>	<b>378,103</b>	<b>37%</b>
LONGUEUIL	128,837	46,339	24%	125,652	16,050	10%
LAVAL	135,726	34,595	19%	109,562	13,247	9%
SOUTH SHORE	237,458	25,409	8%	157,257	1,598	1%
NORTH SHORE	257,708	21,590	7%	188,276	4,828	2%
OUTSIDE THE TERRITORY	2,419	78	3%	22,743	951	3%
<b>TOTAL OUTSIDE MONTRÉAL</b>	<b>762,148</b>	<b>128,011</b>	<b>13%</b>	<b>603,490</b>	<b>36,674</b>	<b>5%</b>
<b>TOTAL</b>	<b>1, 263,619</b>	<b>414,874</b>	<b>23%</b>	<b>1, 263,321</b>	<b>414,777</b>	<b>23%</b>

Source: 2008 Origin-Destination Survey

Despite the 1.4 million public transit trips per day, residents of the metropolitan region overwhelmingly prefer travelling by car, with 5.4 million car trips each day, including 1.3 million during morning rush hour.

Although car trips have dipped slightly since 2003 (-1%), the motorization rate<sup>9</sup> is rising across the metropolitan region, especially in suburban areas. In fact, since 2004 the regions of Lanaudière, Laurentides and Montérégie have posted increases of 6% and 7% respectively, in comparison to 3% in Montréal and Laval.<sup>10</sup>



**TABLE 6 / MOTORIZATION OF THE POPULATION IN THE  
ADMINISTRATIVE REGIONS OF METROPOLITAN MONTRÉAL /  
TOTAL VEHICLES/1,000 RESIDENTS**

	2004	2005	2006	2007	2008	2009	Growth 2004-2009
<b>MONTRÉAL</b>	357	359	362	364	364	368	3.1%
<b>LAVAL</b>	520	521	525	529	532	536	3.1%
<b>LANAUDIÈRE</b>	576	581	588	598	608	616	6.9%
<b>LAURENTIDES</b>	579	584	589	598	607	613	6.0%
<b>MONTÉRÉGIE</b>	556	561	567	575	582	590	6.0%
<b>QUEBEC (PROVINCE)</b>	505	510	516	523	529	537	6.4%

Cars and light trucks registered in Quebec

Sources: Société de l'assurance automobile du Québec  
and Institut de la statistique du Québec.

<sup>9</sup> The number of motorized vehicles per 1,000 residents.

<sup>10</sup> The statistics on the Quebec motorization rate are available by administrative region. The data on Lanaudière, Laurentides and Montérégie are therefore outside the metropolitan Montréal territory. Still, we can nonetheless conclude that the motorization rate has increased across Quebec as well as in metropolitan Montréal.

# ECONOMIC ACTIVITIES GENERATED BY PUBLIC TRANSIT

The operating and capital expenditures of metropolitan Montréal's public transit authorities generate hundreds of millions of dollars in economic spinoffs per year.

- › In 2009, metropolitan Montréal's public transit authorities spent \$1.8 billion.
- › These expenditures generated \$1.1 billion in added value for the Quebec economy and supported 14,110 job-years.
- › The impact on provincial and federal government revenues was estimated at \$217.1 million and \$85.9 million respectively.
- › The impact of public transit on the Quebec economy is almost three times greater than equivalent expenditures for travel by car, which has a negative effect on Quebec's trade balance.

– 3.1

## MAGNITUDE OF THE ECONOMIC ACTIVITIES GENERATED BY PUBLIC TRANSIT

Public transportation services in metropolitan Montréal are provided by 16 public transit authorities (PTA<sup>1</sup>). The Agence métropolitaine de transport (AMT) is also a PTA since it operates the commuter train network.<sup>2</sup>

- <sup>1</sup> These organizations have different names. For ease of reference, we will refer to them as public transit authorities (PTA). Companies operate the transit systems in the big cities, while the inter-municipal transportation boards (CIT), regional transportation boards (CRT) and municipal or inter-municipal transportation agencies (OMIT) operate the systems in less populated and suburban areas.
- <sup>2</sup> The AMT is also the agency that plans, coordinates and funds public transit in the metropolitan region. As such, its annual expenditures are not simply for the services it delivers or that are delivered on its behalf by representatives. The AMT territory includes 83 municipalities and the Kahnawake Indian Reservation; it extends from Saint-Jérôme to Saint-Jean-Baptiste in the North/South corridor and from Hudson to Contrecoeur in the East/West corridor.

TABLE 7 / PROFILE OF TERRITORIES AND POPULATIONS SERVED BY METROPOLITAN MONTRÉAL'S PUBLIC TRANSIT AUTHORITIES

PUBLIC TRANSIT AUTHORITY	POPULATION SERVED (THOUSANDS) <sup>A</sup>	SIZE OF TERRITORY SERVED (KM <sup>2</sup> ) <sup>B</sup>	ANNUAL TRAFFIC (MILLIONS)	TOTAL ANNUAL EXPENDITURES (THOUSANDS OF \$)
	2008	2008	2009	2009
AMT (AGENCE MÉTROPOLITAINE DE TRANSPORT)	3,814.7	3,793	16,487	283,958
STM (SOCIÉTÉ DE TRANSPORT DE MONTRÉAL)	1,877.7	501	382,821	1,154,291
RTL (RÉSEAU DE TRANSPORT DE LONGUEUIL)	389.9	284	32,137	137,322
STL (SOCIÉTÉ DE TRANSPORT DE LAVAL)	385.2	247	19,521	86,994
CIT ASSOCIATION (12 BOARDS)	1,387.6	2,816	20,361	136,753
TOTAL	-	-	471,327	1,789,262

<sup>A</sup> Population of the jurisdiction served.

<sup>B</sup> Certain CIT/OMIT and AMT territories overlap.

Sources: ACTU, AMT, annual reports, SECOR analysis and estimate.

FIGURE 7 / TERRITORIES SERVED BY THE METROPOLITAN MONTRÉAL PTA

*This map was only available in French*



Source: AMT.

**Every year, the metropolitan Montréal PTA injects several hundred million dollars in the form of capital and operating expenditures into the Quebec economy.**

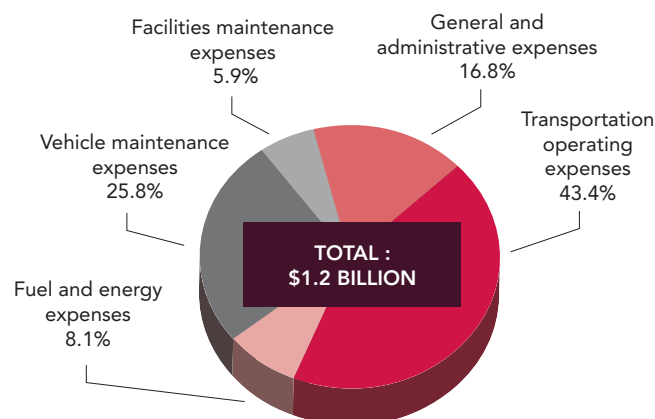
The size and scope of activity of the PTA vary significantly. For example, the STM, which operates the Island of Montréal transit system, is by far the largest in Quebec with annual ridership of 382.8 million passengers and an annual budget of \$1.1 billion. In fact, the STM is the fourteenth largest employer in Quebec and one of the largest public transit authorities in North America.

Every year, the metropolitan Montréal PTA injects several hundred million dollars in the form of capital and operating expenditures into the Quebec economy. In 2009, these amounted to \$1.8 billion, primarily to cover transit operations, maintain vehicles and facilities, and purchase products and services.

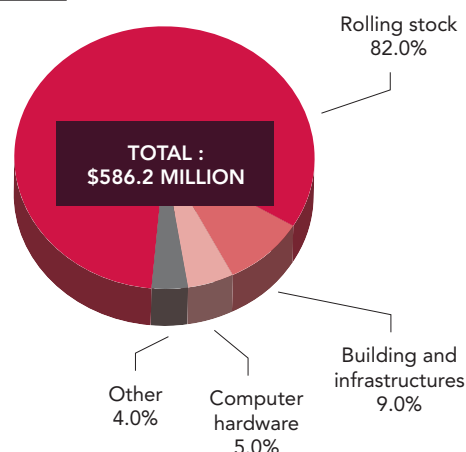
*The combined expenditures of the PTA in 2009 contributed an added value of \$1.1 billion to the Quebec economy [...]*

**FIGURE 8 / MAIN COMPONENTS OF METROPOLITAN MONTRÉAL'S PTA BUDGETS AND EXPENDITURES / 2009**

**OPERATING EXPENDITURES**



**CAPITAL EXPENDITURES<sup>3</sup>**



Sources: ACTU, AMT, annual reports, SECOR analysis.

<sup>3</sup> Breakdown based on 2004 study.

<sup>4</sup> The ISQ input-output model calculates the detailed economic impact of a project on the Quebec economy in terms of labour, wages and salaries before taxes, added value, imports, tax revenues and incidental tax revenues.

The expenditures generated by the PTA's activities create wealth both in metropolitan Montréal and in Quebec overall. The input-output model of the Institut de la statistique du Québec<sup>4</sup> was used to measure the impact on the Quebec economy in terms of employment, the creation of added value and tax revenues for the federal and provincial governments.

The combined expenditures of the PTA in 2009 contributed an added value of \$1.1 billion to the Quebec economy, including \$884.2 million directly and \$266.1 million in the form of purchases from suppliers. PTA expenditures also supported 14,110 job-years, including 10,595 direct jobs and 3,515 indirect jobs, i.e. suppliers. Given the nature of the expenditures and the location of the industry's suppliers, this economic impact is highly concentrated in the metropolitan region.

**TABLE 8 / IMPACT GENERATED BY METROPOLITAN MONTRÉAL'S PTA / FOR ALL OF QUEBEC, IN MILLIONS OF DOLLARS, 2009**

CATEGORY	OPERATING EXPENDITURES	CAPITAL EXPENDITURES	TOTAL
<b>ADDED VALUE (WAGES, BUSINESS PROFITS AND BENEFITS)</b>	<b>1,054.6</b>	<b>95.7</b>	<b>1,150.3</b>
DIRECT	884.2		884.2
INDIRECT	170.4	95.7	266.1
<b>LABOUR FORCE (PERSON-YEARS)</b>	<b>12,505</b>	<b>1,605</b>	<b>14,110</b>
DIRECT	10,595		10,595
INDIRECT	1,910	1,605	3,515

Sources: ISQ, SECOR analysis.

The impact on the Quebec government's revenues and incidental taxation (QPP, CSST, FSS) for 2009 was \$96.4 million and \$120.6 million respectively. The corresponding figures for the federal government were \$66.4 million in revenues and \$19.5 million in incidental taxation (employment insurance).

**TABLE 9 / IMPACT OF METROPOLITAN MONTRÉAL'S PTA ON GOVERNMENT REVENUES / IN MILLIONS OF DOLLARS, 2009**

CATEGORY	OPERATING EXPENDITURES	CAPITAL EXPENDITURES	TOTAL
<b>QUEBEC GOVERNMENT REVENUES</b>	<b>200.8</b>	<b>16.3</b>	<b>217.1</b>
TAXES ON SALARIES AND WAGES PAID BY EMPLOYEES, SALES AND SPECIFIC TAX	89.8	6.6	96.4
INCIDENTAL TAXATION (QPP, CSST, FSS)	111.0	9.6	120.6
<b>FEDERAL GOVERNMENT REVENUES</b>	<b>78.4</b>	<b>7.5</b>	<b>85.9</b>
TAXES ON SALARIES, WAGES, SALES AND EXCISE TAX	61.3	5.1	66.4
INCIDENTAL TAXATION (EMPLOYMENT INSURANCE)	17.1	2.4	19.5

Sources: ISQ, SECOR analysis.

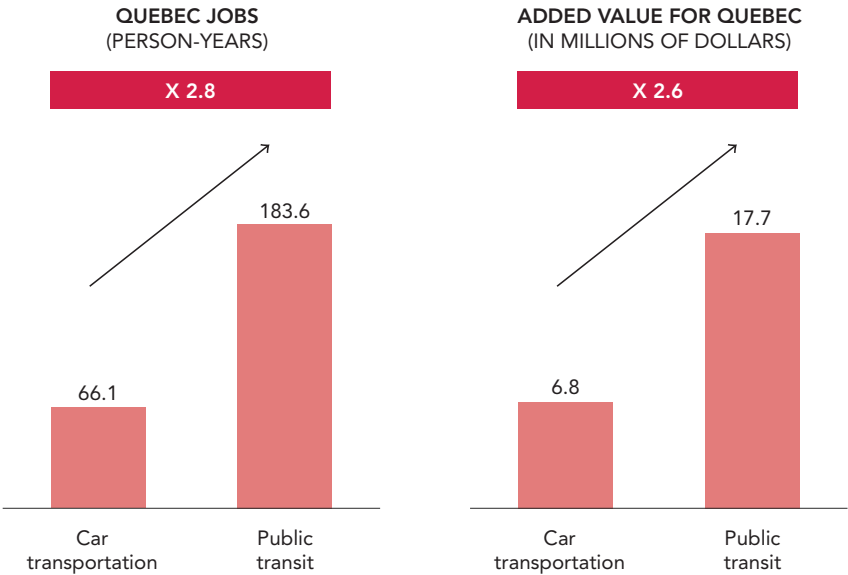
By way of comparison, the 2004 study showed that \$1.3 billion in PTA expenditures generated added value of \$936.9 million and 12,845 job-years. The impact on provincial and federal government revenues was \$209.7 million and \$98.6 million respectively. Therefore, between 2004 and 2009, the PTA's contribution to the Quebec economy increased by about \$213 million.

*[...] in terms of jobs and added value, public transportation contributes almost three times more to the economy than private travel by car.*

– 3.2  
**A COMPARISON OF THE IMPACT OF TRANSPORTATION EXPENDITURES**

While expenditures on car travel and public transit both generate spinoffs for the Quebec economy, the latter makes a far greater contribution. For example, \$10 million in public transit expenditures helps support 183.6 job-person-years and generates \$17.7 million in added value. By comparison, the same amount spent on travel by car generates 66.1 job-person-years and contributes \$6.8 million in added value. Therefore, in terms of jobs and added value, public transportation contributes almost three times more to the economy than private travel by car.

**FIGURE 9 / COMPARISON OF THE ECONOMIC SPINOFFS OF A \$10 MILLION TRANSPORTATION EXPENDITURE FOR QUEBEC / 2009**



Sources: ISQ, SECOR analysis.

These differences in the economic spinoffs can be explained by the type of expenditure specific to each transportation mode. A large part of the expenditures on travel by car does not benefit the Quebec economy very much and is actually money spent abroad since many cars are imports. In contrast, Quebec is a major producer and exporter of public transit equipment.

Cars are one of the main reasons for Quebec’s trade deficit. In 2009, Quebec imported \$9.1 billion in oil and \$6.1 billion in cars, or 13% and 9% of the province’s total imports.

TABLE 10 / QUEBEC'S TOP 10 IMPORTS / IN THOUSANDS OF DOLLARS, 2009

PRODUCT	IMPORTS	
	\$	% OF TOTAL
<b>Crude oil</b>	<b>9,109,155</b>	<b>13%</b>
<b>Automobiles and chassis</b>	<b>6,163,142</b>	<b>9%</b>
Medicinal and pharmaceutical products, in dosage	2,961,820	4%
Other oil and coal derivatives	2,343,747	3%
Airplane engines and parts	2,079,054	3%
Airplane parts, except engines	2,005,341	3%
Non-organic chemical products	1,818,311	3%
Trucks, truck tractors and chassis	1,641,472	2%
Electronic tubes and semi-conductors	1,464,039	2%
Organic chemical products	1,229,227	2%

Source: ISQ.

*[...] Quebec is a major producer and exporter of public transit equipment.*



# THE ECONOMIC BENEFITS OF PUBLIC TRANSIT

The development of public transit generates positive economic externalities that make a significant contribution to productivity and wealth creation. The benefits are numerous: greater purchasing power for households, convenient mobility, lower congestion costs, and higher property values in the area.

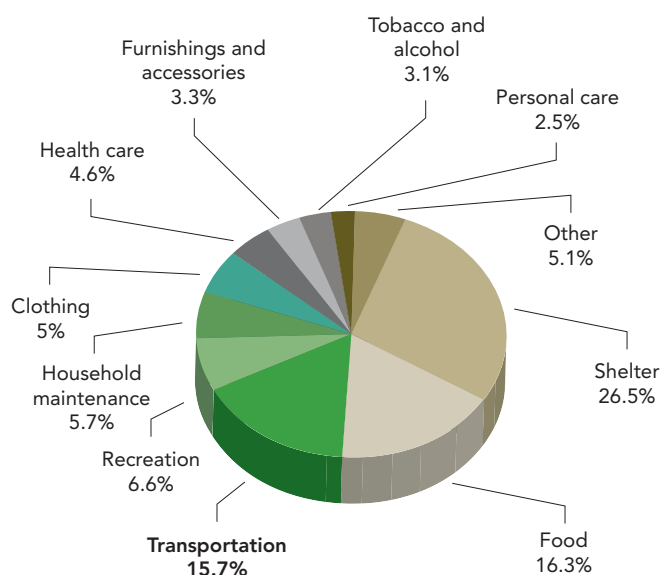
- › **Transportation is one of the biggest expenses for Montréal households (15.7% of total expenses).**
- › **It is three times cheaper than travelling by car.**
- › **It gives Montréal households an additional \$800 million for personal spending, which has a greater economic impact than equivalent expenditures for travel by car.**
- › **A 3% increase in the public transit mode share would save households \$75.7 million in transportation expenses.**
- › **A 3% increase in the public transit mode share would save households in Montréal's central neighbourhoods \$56.1 million in parking expenses.**
- › **Public transit helps drive economic activity by making it easier for people to get around.**
- › **Based on 2003 data, the overall cost of congestion in metropolitan Montréal is estimated at \$1.4 billion per year, or 1% of the city's GDP.**
- › **A 3% increase in the public transit mode share would cut these costs by \$63.8 million per year.**
- › **Public transit also has a positive effect on urban development and property values in the neighbourhoods served.**

– 4.1

#### REDUCING TRANSPORTATION COSTS AND THE IMPACT ON HOUSEHOLD INCOME

Households in the metropolitan area spend an average of \$7,332 per year on transportation, or 15.7% of their total expenditures (after tax), making this the third biggest expense after shelter (26.5%) and food (16.3%). Due to its lower unit cost, public transit reduces this financial burden and leaves more disposable income in their hands.

FIGURE 10 / BREAKDOWN OF HOUSEHOLD EXPENSES IN METROPOLITAN MONTRÉAL<sup>1</sup> / 2008



Source: ISQ.

A public transit trip costs \$0.16<sup>2</sup> per kilometre on average in the metropolitan region, versus \$0.47 per kilometre for travel by car, including variable and fixed costs. Of course, the full savings only apply to households without a car.<sup>3</sup>

That said, car owners who use public transportation, for example, to go to work, still realize substantial savings. The fact is that the variable costs of running a car are also much higher than using public transit. It is therefore wrong to say that for car owners, using public transportation is an additional expense rather than a saving. Just in terms of variable operating costs (including insurance and mileage depreciation), it costs \$0.23 per kilometre to travel by car, or 40% more than public transit (\$0.16 per kilometre).

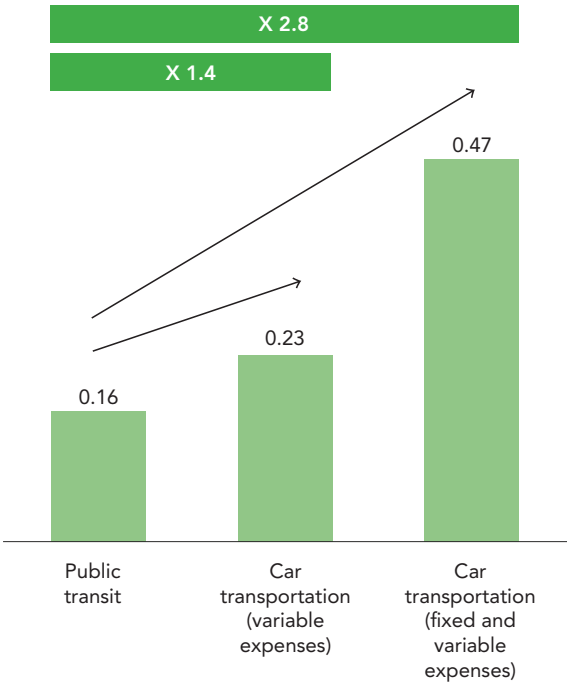
<sup>1</sup> Excluding income tax.

<sup>2</sup> Based on the regular service revenues of the metropolitan Montréal PTA and passenger-kilometres travelled in 2009.

<sup>3</sup> Based on annual driving costs compiled by the CAA in 2009, i.e. \$8,441 for a Cobalt LT 2009 travelling 18,000 kilometres a year.

A public transit trip costs \$0.16 per kilometre on average in the metropolitan region, versus \$0.47 per kilometre for travel by car [...].

FIGURE 11 / UNIT COST COMPARISON FOR A PASSENGER TRIP PER KILOMETRE / IN DOLLARS, 2009

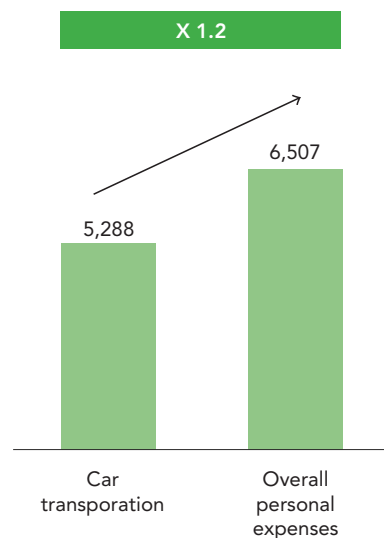


Sources: CAA, ACTU, annual reports, SECOR analysis.

<sup>4</sup> A passenger-kilometre is a unit of measure representing transport of one person over a distance of one kilometre.  
<sup>5</sup> Assumption based on the breakdown of public transit users based on the number of cars per household.

The Montréal area PTA transported 4.3 billion passenger-kilometres<sup>4</sup> in 2009. Taking into account that about half of transit users own a car,<sup>5</sup> the savings realized from using public transportation can be estimated at \$826 million for 2009 alone. By way of comparison, using the same methodology, these savings were estimated at \$570 million in 2004. These savings translate into greater household purchasing power. The extra \$800 million freed up for personal expenditures has an economic impact on jobs that is about 20% greater than expenditures for travel by car.

**FIGURE 12 / EMPLOYMENT IMPACT OF \$800 MILLION  
IN PERSONAL EXPENDITURES VERSUS VEHICLE TRAVEL  
EXPENDITURES / 2009, PERSON-YEARS**



Sources: Institut de la statistique du Québec, SECOR analysis.

<sup>6</sup> Increase recorded from 2003 to 2008 in the number of passengers and passenger-kilometres based on the actual average number of kilometres travelled per passenger. The impact could be even greater if the 3% were applied to passengers who travelled more kilometres.

<sup>7</sup> Based on 23% of trips to central neighbourhoods at an average daily cost of \$13 in 2009, 32% of trips to go to work and requiring one parking space for the entire day and six turnovers per day per parking space for the remaining 68% of trips. This does not include the net cost of losses incurred by private parking lot owners and municipal parking facilities.

Boosting the public transit mode share would generate even more savings. Indeed, a 3% increase<sup>6</sup> would cut \$75.7 million from household transportation expenditures.

This same increase would also save households in Montréal's central neighbourhoods \$56.1 million in parking expenditures.<sup>7</sup>

**TABLE 11 / ECONOMIC BENEFITS OF A 3% INCREASE IN  
THE PUBLIC TRANSIT MODE SHARE ON METROPOLITAN  
HOUSEHOLDS / 2009**

Impact of a 3% increase in the public transit mode share on household transportation expenditures	\$75.7 MILLION
Impact of a 3% increase in the public transit mode share on parking expenditures	\$56.1 MILLION

Sources: SECOR estimate, Transport Canada, Collier International.

## – 4.2

### CONVENIENT MOBILITY, PRODUCTIVITY AND ECONOMIC ACTIVITY

Public transit also contributes to business activity and productivity by making it easier for users to get to work, school and stores.

An analysis of trips in the metropolitan area per purpose<sup>8</sup> shows that public transit plays a key role in worker commutes, particularly to and from downtown and central Montréal.

Many commutes from a secondary zone (i.e. when the origin zone is different from the destination zone) are also made by public transit. Thanks to this mode of transportation, businesses located downtown – Montréal's economic centre – have a much larger pool of candidates to choose from. It also works the other way in that transit users have access to more jobs. To some extent, this is also true for other destination zones where jobs are plentiful such as Central Montréal, West Montréal and East Montréal. In these areas, public transit from a secondary zone accounts for between 11% and 25% of all trips.

The larger recruitment pool made available to employers and employees thanks to public transit also creates a better balance between supply and demand, resulting in better pay for workers and greater productivity for businesses.

<sup>8</sup> According to the transportation mode and origin or destination zone.

<sup>9</sup> Over a 24-hour period.

<sup>10</sup> The central zone includes: Montréal Sud-Ouest, Notre-Dame-de-Grâce, Côte-des-Neiges, Plateau-Mont-Royal, Ahuntsic, Saint-Michel, Rosemont, Montréal Sud-Est, Mercier, Mont-Royal, Outremont, Westmount, Hampstead, Côte-Saint-Luc.

<sup>11</sup> The west zone includes: Saint-Laurent, Montréal-Ouest, Saint-Pierre, Verdun, LaSalle, Lachine, Dorval and L'Île-Dorval, Pointe-Claire, Dollard-des-Ormeaux, Roxboro, L'Île-Bizard, Sainte-Geneviève, Pierrefonds, Kirkland, Beaconsfield, Baie-d'Urfé, Sainte-Anne-de-Bellevue, Senneville.

<sup>12</sup> The east zone includes: Pointe-aux-Trembles, Rivière-des-Prairies, Montréal-Est, Anjou, Saint-Léonard, Montréal-Nord.

**TABLE 12 / NUMBER OF COMMUTES BY ORIGIN AND DESTINATION ZONE<sup>9</sup> / 2008**

DESTINATION	PRIMARY ORIGIN ZONE (SAME AS DESTINATION)			SECONDARY ORIGIN ZONE (DIFFERENT FROM DESTINATION)		
	Number of PTA commutes	Total number of commutes	PTA share / Total	Number of PTA commutes	Total number of commutes	PTA share / Total
DOWNTOWN MONTRÉAL	6,492	24,824	26%	174,971	288,034	61%
CENTRAL MONTRÉAL <sup>10</sup>	54,442	177,798	31%	38,848	152,458	25%
WEST MONTRÉAL <sup>11</sup>	9,597	95,747	10%	20,122	145,924	14%
EAST MONTRÉAL <sup>12</sup>	5,649	34,306	16%	6,653	63,254	11%
LAVAL	4,524	54,031	8%	3,426	53,081	6%
LONGUEUIL	5,726	70,533	8%	3,123	47,591	7%
NORTH SHORE	1,807	140,582	1%	515	22,423	2%
SOUTH SHORE	636	116,373	1%	653	19,628	3%

Source: 2008 Origin-Destination Survey.

<sup>13</sup> Additional data for school- and shopping-related trips is presented in the Appendix (Tables 12B and 12C, p. 51).

<sup>14</sup> Results of a study on the pain of the daily commute in several large cities are included in the Appendix (Figure 13, p. 52).

<sup>15</sup> Latest estimate of the ministère des Transports du Québec available for 2003. Since then, the slight decline in car trips during morning rush hour (-1%) is mainly in trips to and from the Island of Montréal.

<sup>16</sup> Correspond to the value of wasted time (87.5% of the total) and to the other negative effects of congestion, such as pollution and increased energy consumption (12.5% of the total).

<sup>17</sup> Compound annual growth rate.

Public transit is also a key mode of transportation for students and shoppers, expanding the choice of schools for the former and shopping venues for the latter, thereby increasing the reach of local retailers.<sup>13</sup>

– 4.3  
**LESS TRAFFIC CONGESTION**

Traffic congestion has never been so bad; not only in Montréal but in most big cities around the world. This shows that road infrastructures cannot keep pace with economic activity and demographic growth.<sup>14</sup> According to data published in 2003, traffic congestion costs metropolitan Montréal roughly \$1.4 billion every year, or 1% of the city’s GDP.<sup>15</sup> These costs climbed a hefty 10.5% per year between 1998 and 2003.<sup>16</sup> In light of the growing suburban population and number of cars, it is safe to assume that congestion costs have continued to mount since 2003.

**TABLE 13 / CONGESTION COSTS IN METROPOLITAN MONTRÉAL / 2003, MILLIONS OF DOLLARS**

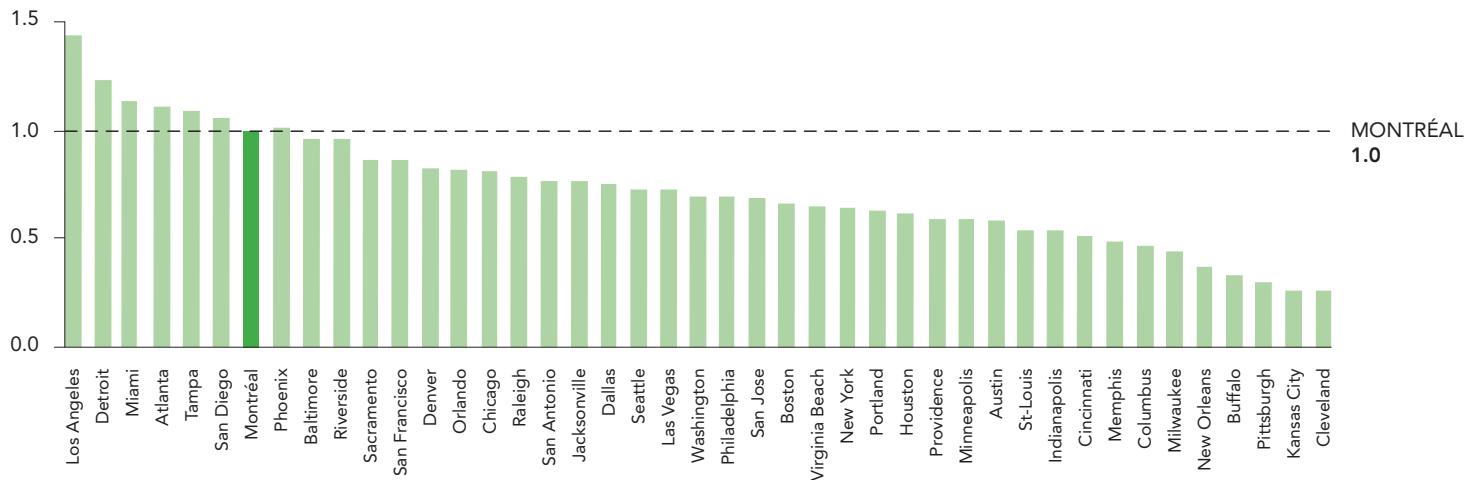
COMPONENT	MILLIONS \$	% OF TOTAL	CAGR <sup>17</sup> 1998-2003
DELAYS	1, 246	87.5%	9.1%
VEHICLE USE COSTS (EXCLUDING FUEL)	114	8.0%	13.8%
FUEL COSTS	40	2.8%	27.4%
POLLUTION EMISSIONS	15	1.1%	18.5%
GREENHOUSE GAS EMISSIONS	8	0.6%	18.5%
<b>TOTAL</b>	<b>1, 423</b>	<b>100%</b>	<b>10.5%</b>

Source: Study titled “Évaluation des coûts de la congestion routière dans la région de Montréal pour les conditions de référence de 2003” by the ministère des Transports du Québec, 2009.

Montréal’s situation is worse than in many American cities. As a percentage of the wealth created on its territory, the cost of traffic congestion in the metropolitan area is in the upper middle range of North America’s other big cities.

<sup>18</sup> According to the method used by the Texas Transportation Institute.

**FIGURE 14 / COMPARISON OF CONGESTION COSTS AS A PERCENTAGE OF THE GDP OF AMERICA'S LARGEST CITIES<sup>18</sup> / 2008**



Sources: SECOR estimate based on the study titled "Évaluation des coûts de la congestion routière dans la région de Montréal pour les conditions de référence de 2003" for the ministère des Transports du Québec, 2009; study titled Urban Mobility Report 2009 by Texas Transportation Institute, September 2009; ISQ and U.S. Bureau of Economic Analysis data.

<sup>19</sup> Ministère des Transports du Québec, 2009.

*The heavy cost of congestion underscores the need to improve traffic flow [...]*

While traffic has a negative effect on the entire economy, some activity sectors are especially affected. For instance, trucking companies lose money every year due to rush hour traffic – an estimated \$80 million in 2009. According to the Association du camionnage du Québec, each hour wasted in traffic creates a \$65 to \$85 shortfall per truck, or 12.5% to 13.5% of revenues.

The heavy cost of congestion underscores the need to improve traffic flow by changing the methods of transportation. While improving transportation infrastructures may well improve this flow, past experience has often shown that road improvements and lane additions attract more vehicles than before and therefore don't solve the problem at all. For its part, public transportation can reduce travel time for everyone, including non-users. Public transit use reduces traffic congestion and hence facilitates the flow of people and goods.

The economic benefits of shifting from driving to public transit are especially striking. A 3% increase in the public transit mode share can translate into a 13% increase in public transit trips, 43.2 million fewer car trips per year and a \$63.8 million reduction in annual congestion costs.

**TABLE 14 / EFFECT ON TRIPS OF A 3% INCREASE IN THE PUBLIC TRANSIT MODE SHARE / 2008**

Decrease in number of car trips per year	\$43.2 MILLION
Decrease in annual congestion costs	\$63.8 MILLION

Sources: SECOR estimate based on the study titled "Évaluation des coûts de la congestion routière dans la région de Montréal pour les conditions de référence de 2003" for the ministère des Transports du Québec, 2009.

<sup>20</sup> The cases of Québec City, Toronto and Chicago are presented in the Appendix (Table 15, p. 52).

*A number of studies have shown that public transit infrastructures boost property values in the areas served.*

– 4.4

#### **IMPACT OF PUBLIC TRANSIT ON REAL ESTATE DEVELOPMENT AND PROPERTY VALUES**

A number of studies have shown that public transit infrastructures boost property values in the areas served. In fact, this has been documented in many North American cities.<sup>20</sup> The higher property value demonstrates two things: first, the economic value citizens place on increased mobility and shorter travel time; second, the value placed by businesses on public transit infrastructures and the increased traffic it generates.

Two examples for metropolitan Montréal are presented below: an existing metro station (Longueuil) and a planned commuter train station (Mascouche).

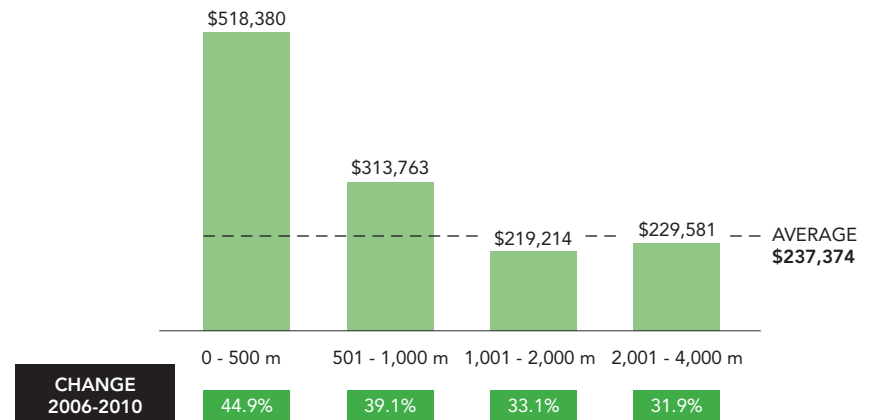
#### **THE CASE OF A METRO STATION: LONGUEUIL**

Built over 40 years ago, the Longueuil metro station led to impressive residential and institutional development projects in the area. Hefty investments in high-density projects followed after the station was opened, swelling the value of the city's tax roll. More recently, a new development phase was launched around the station, which looks like it will boost the property values of surrounding homes and office buildings.

An analysis of buildings located within a four-kilometre radius of the station reveals that the property value of residential buildings located within 500 metres of the station are more than double the average value of others in the surrounding area. The same effect was noted, albeit to a lesser extent, for residential buildings located between 500 and 1,000 metres from the station; their value was one and a half times higher. Moreover, between 2006 and 2010, residential buildings located less than 1,000 metres from the metro also saw their value rise faster than those farther away.



**FIGURE 15 / COMPARISON OF AVERAGE RESIDENTIAL BUILDING VALUE BASED ON DISTANCE FROM THE LONGUEUIL METRO STATION / 2006-2010 TAX ROLL, IN DOLLARS**

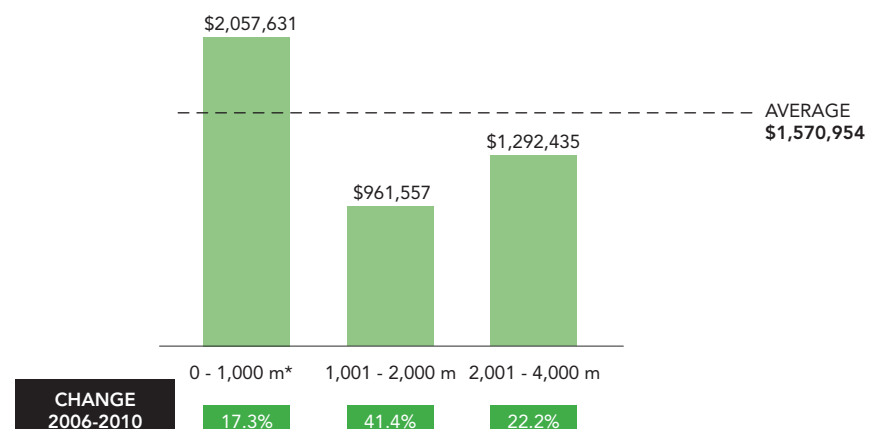


Sources: 2006-2009 and 2010-2012 City of Longueuil tax roll; SECOR analysis.

*[...] residential buildings located less than 1,000 metres from the metro also saw their value rise faster than those farther away.*

Similar conclusions may be drawn from a property value analysis of office buildings. Those within one kilometre of the metro station had a higher average value than buildings located within a four-kilometre radius. Office buildings within 500 to 1,000 metres of the station were also worth more than buildings farther away.

**FIGURE 16 / COMPARISON OF AVERAGE OFFICE BUILDING VALUE BASED ON DISTANCE FROM THE LONGUEUIL METRO STATION / 2006-2010 TAX ROLL, IN DOLLARS**



\* The 0 - 500 m and 501 - 1,000 m zones were combined given the low number of office buildings in the latter category.

Sources: 2006-2009 and 2010-2012 City of Longueuil tax roll; SECOR analysis.

The case of the Longueuil metro station is a good indicator of the current – and future – dynamics for the three new Laval stations, which are surrounded by a similar urban development with new residential, commercial and institutional buildings. A positive, strong impact on property values can be expected there as well.

### THE CASE OF THE FUTURE COMMUTER TRAIN STATION: MASCOUCHE

In 2006, the government announced the Train de l'Est, a commuter train for the Mascouche area. Following this announcement, the value (in dollars per square metres) of existing residential buildings<sup>21</sup> within zero to two kilometres of the future station rose an average of 32.8% from 2007 to 2010 or 2 points more than the average increase recorded in the city for this type of building. Almost all buildings farther away from the future station recorded below average increases in value.<sup>22</sup>

There is therefore a positive correlation between proximity to the future station and increased value for properties within a two-kilometre radius. There seems to be an anticipatory effect on property values associated with new public transit infrastructures.

### COMPARISON OF CHANGE IN PROPERTY VALUE OF RESIDENTIAL BUILDINGS IN MASCOUCHE BASED ON DISTANCE FROM THE FUTURE STATION (OVER EXISTING VALUES)

FIG. 17 / CHANGE FROM 2004 TO 2007 + FIG. 18 / CHANGE FROM 2007 TO 2010

FIG. 17 / BEFORE THE STATION WAS ANNOUNCED

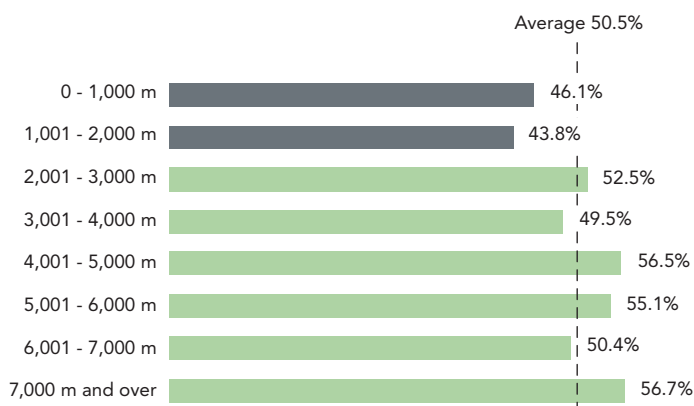
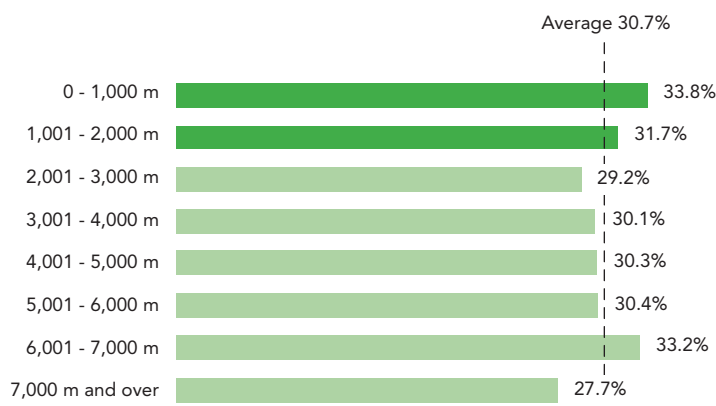


FIG. 18 / AFTER THE STATION WAS ANNOUNCED



Source: City of Mascouche 2007-2010 tax roll  
– Leroux-expert; SECOR analysis.

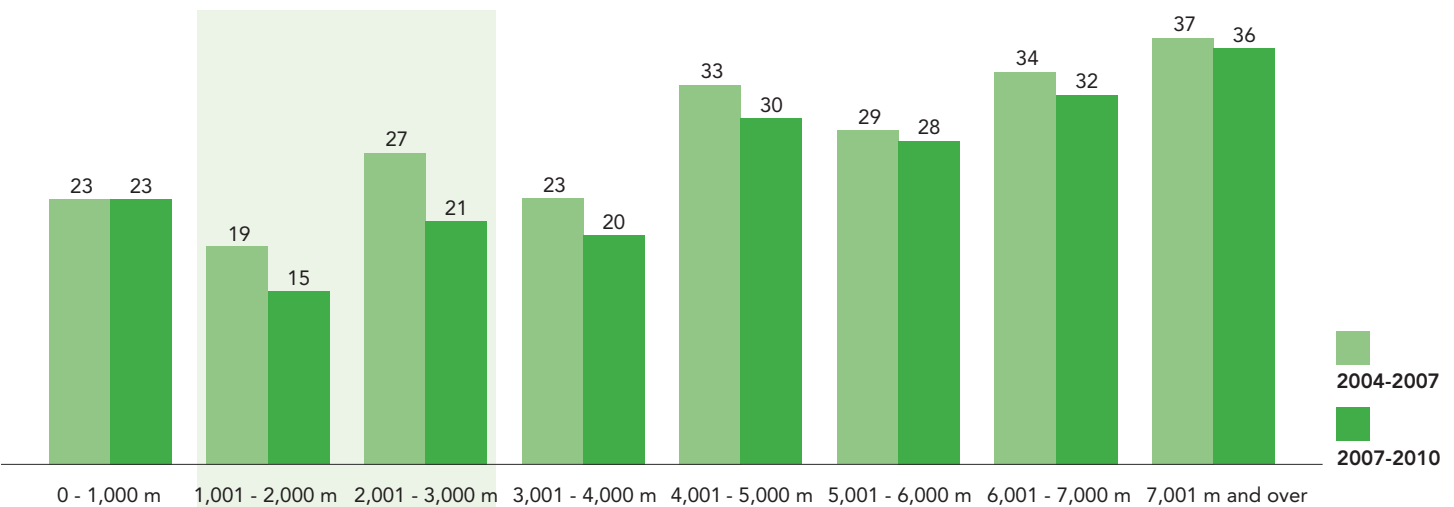
The future Mascouche station also had a positive impact on residential development in the surrounding areas. In fact, between 2004-2007 and 2007-2010, the average age of residential buildings (including additions to the roll) located within one to two kilometres from the

*Public transit is therefore a catalyst for new real estate developments and increases the values of properties located in the surrounding area.*

future station fell by four years. The average age of residential buildings within two to three kilometres of the future station decreased by six years. By comparison, the farther the distance from the station, the less pronounced the reduction in building age (zero to three years).

The future station will be located near areas with less residential development. It would therefore be inaccurate to cite the station as the reason for all the development observed. However, it is quite likely that the announcement had much to do with the new residential developments in the area.

FIGURE 19 / COMPARISON OF THE AVERAGE AGE OF RESIDENTIAL BUILDINGS IN MASCOUCHE BASED ON DISTANCE FROM THE FUTURE STATION / 2004-2007 AND 2007-2010 TAX ROLL, IN YEARS



Sources: 2007-2010 City of Mascouche tax roll  
– Leroux-expert; SECOR analysis.

A similar effect on urban development was noted around commuter train stations built in the last decade in metropolitan Montréal. In Mont-Saint-Hilaire, for example, the age of homes located less than a kilometre away fell by five years between 2005 and 2010, against a year on average for homes more than a kilometre away.

Public transit is therefore a catalyst for new real estate developments and increases the values of properties located in the surrounding area. More detailed studies in the future could confirm, and more importantly, explain this positive aspect of public transit’s impact on the metropolitan area.



# PUBLIC TRANSIT, THE ENVIRONMENT AND QUALITY OF LIFE

A society's growth hinges on the ability to provide its citizens with a pleasant and safe living environment. Public transit is a safe, green alternative that enhances quality of life. These benefits are valued at several million dollars per year for a city like Montréal.

- › **Transportation is the main source of air pollution.**
- › **Public transit is a sustainable solution that reconciles travel needs with limiting air pollution.**
- › **Public transit causes 3.6 times less pollution than travel by car.**
- › **A 3% increase in the public transit mode share would reduce CO<sub>2</sub> and CO emissions by 54,000 tonnes and 1,760 tonnes per year.**
- › **Public transit takes up at least six times less space than travel by car and requires less parking space.**
- › **If the public transit mode share were to increase by 3%, 17,900 fewer parking spaces would be needed in Montréal's central neighbourhoods.**
- › **Reducing traffic through greater use of public transit is an excellent way to improve road safety. Compared to travel by car, public transit generates ten times less accident costs per passenger-kilometre travelled.**
- › **A 3% increase in the public transit mode share would cut accident-related costs by \$18.1 million each year.**

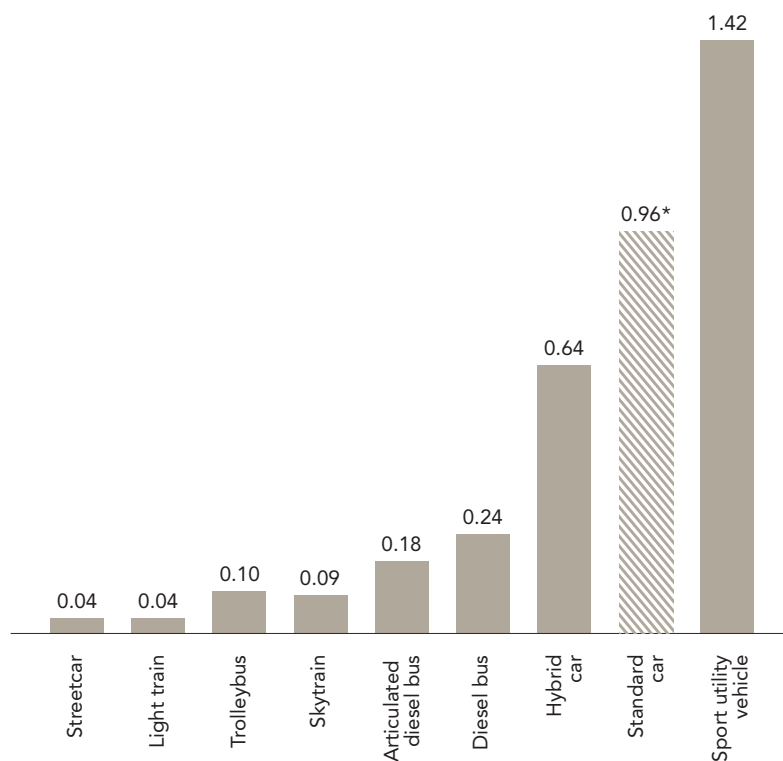
– 5.1

## **PUBLIC TRANSIT AND THE ENVIRONMENT**

The greatest source of air pollution in the Western world,<sup>1</sup> transportation accounts for 44% of the greenhouse gas emissions (GHG) in metropolitan Montréal. However, energy efficiency of urban transportation, i.e. the amount of energy needed to move one person over a given distance, varies considerably depending on the mode of transportation used.

A 2008 study on the costs of different transportation modes in the Vancouver area shows the tremendous energy efficiency of public transit. For instance, an SUV consumes 35 times more kilowatt hours per passenger-mile than a modern streetcar or light train; the corresponding figures for standard and hybrid vehicles are respectively, approximately 24 and 16 times more. The proportions should be similar or even greater in Montréal since a recent study<sup>2</sup> showed that our metro, which is powered by renewable hydroelectricity, is one of the cleanest and most efficient in the world.

**FIGURE 20 / ENERGY CONSUMPTION PER PASSENGER MILE BASED ON TYPICAL USAGE / KILOWATT HOURS, VANCOUVER AREA, 2008**



Sources: Strickland James, Energy Efficiency of Different Modes of Transportation, 2008; \*SECOR estimate.

<sup>1</sup> In Montréal, it is estimated that transportation accounts for about 75% of the air pollution, including 85% of nitrogen oxide emissions and 43% of volatile organic compounds (VOC).

<sup>2</sup> Anderson, R.J., Maxwell, R. and Harris, N., "Maximizing the Potential for Metros to Reduce Energy Consumption and Deliver Low-Carbon Transportation in Cities" (draft working paper), CoMET and Nova Metro Benchmarking Groups, September 2009.

<sup>3</sup> Passenger vehicles emit 171 grams of CO<sub>2</sub> and 4.6 grams of CO per passenger-kilometre, while buses emit about 71 grams of CO<sub>2</sub> and 0.5 grams of CO per passenger-kilometre. These figures are for a bus with 25 passengers and a car with 1.23 passengers travelling at 40 km/hour on the highway during morning rush hour.

Public transit use also reduces air pollution. Buses emit about half as much CO<sub>2</sub> per passenger-kilometre and nine times less CO than cars.<sup>3</sup> Based on the current number of passenger-kilometres transported, public transportation would cut pollution-related costs, currently estimated at \$69.9 million (if a carbon market or tax existed). A 3% increase in the public transit mode share would therefore reduce CO<sub>2</sub> and CO emission by 54,000 tonnes and 1,760 tonnes each year, for a potential savings of \$6.4 million (if a carbon market or tax existed).

Developing public transit is also a very structured way of achieving the Quebec government's GHG reduction target, which calls for a 20% reduction below 1990 levels by 2020.

TABLE 16 / IMPACT OF PUBLIC TRANSIT ON POLLUTION COSTS / 2009

Car transportation to public transit ratio for the same number of passenger-kilometres traveled in terms of air pollution	2 times less CO <sub>2</sub> 9 times less CO with public transit
Impact on pollution cost of a 3% increase in the public transit mode share in the Montréal area <sup>4</sup>	\$6.4 million (if a carbon market or tax existed)

Source: SECOR estimate.

<sup>4</sup> Assuming a 50% shift of the mode share to the metro, 47% to buses and 3% to commuter trains based on the current breakdown of trips. The economic conversion of the pollution rates is predicated on the existence of a carbon market or carbon tax.

Moreover, cars take up much more space than public transit vehicles. For example, to move the same number of people, cars take up roughly six times more space than a bus. In a confined urban setting, as is the case in Montréal, the solutions to keep car traffic flowing smoothly, such as tunnels and overpasses, are very costly.

Transportation by car also requires parking spaces, which represent a substantial opportunity cost. This land could be sold or used for more value-added activities, particularly in densely populated neighbourhoods where land is expensive. If the public transit mode share were to increase by 3%, 17,949 fewer parking spaces would be needed in Montréal's central neighbourhoods.

[...] cars take up much more space than public transit vehicles.

Source: Banister and Button, 1993, extract from Litman, Todd, "Evaluating Public Transit Benefits and Costs," Victoria Transport Policy Institute, August 2010.

<sup>5</sup> Based on 23% of the trips taking place to central neighbourhoods, of which 32 % are to go to work and require a parking space for the entire day and six turnovers per day per parking space for the remaining 68% of the trips.

FIGURE 21 / USE OF ROAD SURFACE BY TRANSPORTATION MODE

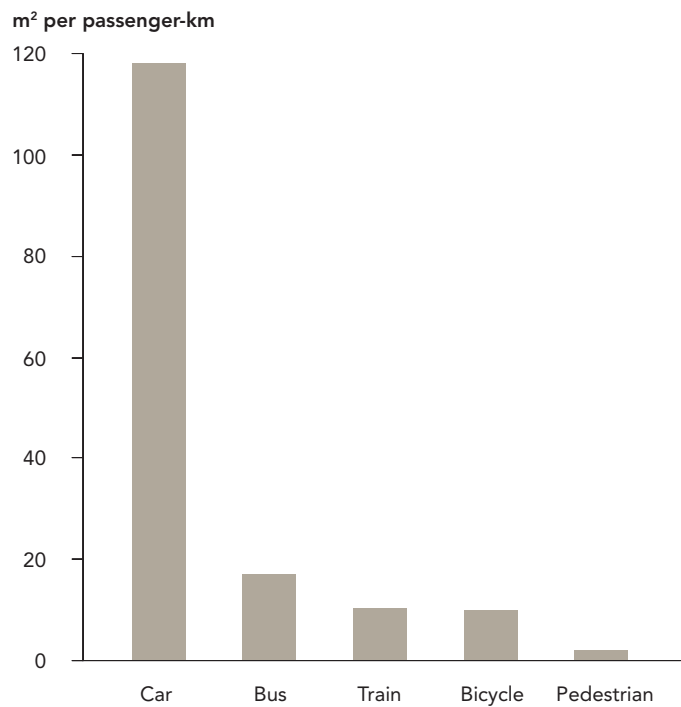


TABLE 17 / IMPACT OF PUBLIC TRANSIT ON SPACE USAGE COSTS / 2009

Car transportation to public transit ratio for the same number of passenger-kilometres in terms of road usage	6 times less with public transit
Impact of a 3% increase in the public transit mode share in the Montréal area on the number of parking spaces <sup>5</sup>	17,949 fewer parking spaces required

Sources: SECOR estimate, Transport Canada, Collier International.

<sup>6</sup> Table 18 (in the Appendix, p. 53) presents the impact of the two main components of smog on human health.

<sup>7</sup> "Urban Transportation, a Question of Health," 2006 Annual Report on the health of the population, Agence de la santé et des services sociaux de Montréal.

– 5.2  
**PUBLIC TRANSIT AND HEALTH**

Also a leading cause of smog,<sup>6</sup> transportation emits ozone precursors, the main component of smog, which has cumulative effects on the health of city dwellers, especially young children, people suffering from chronic heart and respiratory diseases and seniors. An estimated 1,500 people die prematurely each year in Montréal as a result of air pollution, including 400 due to pollution peaks and 1,140 due to chronic exposure.<sup>7</sup>

<sup>8</sup> Montréal area, including the administrative regions of Montréal, Laval, Montérégie, Lanaudière and Laurentides. Source: SAAQ, "Bilan routier 2009".

<sup>9</sup> Estimates based on figures for 2000 published in "Urban Transportation, a Question of Human Health" (2006 annual report on the health of the Montréal population) and adjusted according to the increase in the number of accidents between 2000 and 2009 (0.99%) and the proportion of accidents in the Montréal area out of all accidents in Quebec (51.7%) according to the SAAQ (Bilan routier 2009).

<sup>10</sup> Evaluated according to the willingness to pay methodology recommended by the ministère des Transports du Québec.

– 5.3

**PUBLIC TRANSIT AND SAFETY**

Over the course of the 20th century, traffic accidents became one of the leading cause of death in the world. In the Montréal area, 25,000 people are injured in traffic accidents every year (almost 240 die).<sup>8</sup> Aside from the tragic human consequences, road accidents take a high economic toll. In Montréal alone, the cost was estimated at \$1.38 billion in 2009, including \$406 million in lost production, \$209 million in compensation and health costs (reimbursed by the SAAQ) and \$764 million in property damage.<sup>9</sup>

The growing number of cars, trips and kilometres travelled increases the risk of an accident. Conversely, reducing traffic, namely, by increased use of public transit, is an excellent way to improve road safety. In this regard, public transportation, compared to travel by car, generates ten times less accident-related costs. A 3% increase in the transit mode share would save \$18.1 million.<sup>10</sup>

TABLE 18 / IMPACT OF PUBLIC TRANSIT ON ACCIDENT-RELATED COSTS / 2009

Car transportation to public transit ratio for the same number of passenger-kilometres in terms of accident-related costs	About 10 times less with public transit
Impact of a 3% increase in the public transit mode share in the Montréal area on accident-related costs	\$18.1 million

Source: SECOR estimate.



# AREAS OF REFLECTION



Maximizing public transit's contribution to economic development hinges on three key factors: the collective will to provide sufficient funding, the ability to set up an effective governance structure and the deployment of modern, efficient and appealing transit facilities.

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*While the government will always be responsible for supporting public transit, it's clear today that we need to find other ways to foot the bill.*

– 6.1

#### **FUNDING**

Funding for public transit rarely comes from just one source; the government, private industry, individuals and communities all contribute to the system. Be it for operations or the initial investments in infrastructure, funding poses a daunting challenge. While the government will always be responsible for supporting public transit, it's clear today that we need to find other ways to foot the bill.

Faced with this issue, many cities around the world have looked for ways to expand their revenue base, namely from direct and indirect public transit beneficiaries. By resorting to effective new pricing and taxation methods, many cities have not only succeeded in boosting revenues, they have increased ridership as well.

Because of the costs involved to develop Montréal's public transit system, it is not enough to rely on the various levels of government for funding. In principle, users should also bear some the costs of running the system. This share has varied over time and today seems to have stabilized at an equilibrium point, which seems to be encouraging greater ridership.

As for the cost of deploying and maintaining public transit infrastructures, different avenues clearly have to be explored. First, the current funding sources could be leveraged (vehicle registration fees, gasoline tax). It may also be relevant to consider new dedicated funding methods (e.g. tolls, parking tax, employer contribution). Finally, the government could maximize revenues from PTA-related activities such as advertising space on equipment and infrastructures or rental revenue derived from renting out PTA-owned space.

Each funding source has its pros and cons in terms of management costs, equity between beneficiaries and the effect on individual travel behaviour. In fact, the pros and cons of each funding source have been extensively documented. In Montréal and elsewhere, the most appropriate funding sources should be put to public debate.

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## Public transit development requires effective governance

<sup>1</sup> The Task Force Report on Montréal's Issues of Governance and Taxation, co-chaired by Marcel Côté and Claude Séguin and made public in March 2010.

– 6.2

### GOVERNANCE

Public transit development requires effective governance and coordination between land use and planning policies. It must be carried out by entities with clearly defined, distinct responsibilities and employ mechanisms conducive to building strong political consensus around coherent regional development orientations while ensuring that technical imperatives remain at the forefront.

In this regard, the public transit governance structure needs to be improved. However, the type of changes required is beyond the scope of this study but is discussed in a report recently commissioned by the Board of Trade of Metropolitan Montréal.<sup>1</sup>

That said, the guiding principles for implementing a sound governance structure are common knowledge:

- › BETTER COORDINATION WHEN DEVELOPING LAND-USE AND PLANNING POLICIES;
- › A MINIMUM NUMBER OF ENTITIES WITH COMPLEMENTARY ROLES FOR QUICK, EFFECTIVE DECISION-MAKING;
- › ALLOW MUNICIPALITIES TO CONTRIBUTE TO STRATEGIC ORIENTATIONS;
- › STAKEHOLDER ACCOUNTABILITY ACCORDING TO AREA OF RESPONSIBILITY;
- › DECISION-MAKING MOTIVATED BY THE BENEFITS FOR THE METROPOLITAN REGION RATHER THAN LOCAL INTERESTS;
- › SEPARATE EVALUATION OF TECHNICAL AND POLITICAL CONSIDERATIONS.

The issue of governance is all the more important given the colossal investments it will take to shift from a car culture to a public transit culture, a shift that will not happen overnight. The location of residential communities and workplaces reflects decades of transportation by car. It will take a long time to adjust this distribution in keeping with the deployment of public transit facilities. The transition will also inevitably require tough decisions with regards to allocating resources to build and maintain transportation infrastructures.

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*When implemented in this manner, PTRL yield highly positive results justifying the investments required.*

*BRTs are proliferating across North America and are found in many U.S. and Canadian cities.*

– 6.3

#### **MAKING THE RIGHT CHOICE**

Choosing the right public transit system is extremely important. Two options, often closely linked, have been popular for a long time in many cities around the world: Public Transportation in Reserved Lanes (PTRL) and Bus Rapid Transit (BRT). These systems are the preferred choice because they are more efficient and deliver a quality rider experience.

#### **PUBLIC TRANSPORTATION IN RESERVED LANES (PTRL)**

PTRL are lanes apart from regular car lanes reserved for large-capacity vehicles, usually buses and street cars (rubber-tired or steel-wheeled), to better serve high-traffic areas. Among the system's many advantages are faster commercial speed, fewer delays and greater rider comfort. Additional benefits include greater frequency, thereby reducing wait time, greater capacity for a more pleasant ride, information in real time, which eliminates uncertainty about wait times, station furniture to make the wait more comfortable and right of way (positive psychological impact on passengers). When implemented in this manner, PTRL yield highly positive results justifying the investments required.

#### **BUS RAPID TRANSIT SYSTEMS (BRT)**

A BRT system is currently being developed for Montréal on Pie-IX Boulevard following a pilot project a few years ago. A BRT is a type of PTRL that combines the advantages of the metro or streetcar (reserved lanes improving punctuality and frequency) with those of a bus system (development is far less costly, the reserved lane is not required for the entire line, feeder lines can join up with the rapid transit line). Highly recommended and touted by experts,<sup>2</sup> BRTs are proliferating across North America and are found in many U.S.<sup>3</sup> and Canadian<sup>4</sup> cities.

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<sup>2</sup> The case of Transmilenio of Bogota, described in the Appendix (p. 54), is one of the most successful examples of BRTs.

<sup>3</sup> Eugene (Oregon), Cleveland (Ohio), San Francisco, Stockton (California) and Boston (Massachusetts).

<sup>4</sup> Calgary, Halifax, Saint John, Toronto, Ottawa and Vancouver. Québec City also has a Metrobus.

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*[...] public transit will have to become a central part of the city's development priorities, but for this to happen everyone – government, citizens and industry – must be on board.*

– 6.4

#### **CONCLUSION**

Find a prosperous city and you'll find an efficient public transit system. The enormous economic spinoffs generated by a broader deployment of such a system and greater ridership largely justify the massive investments required.

Public transit development requires deploying a system suited to its users' needs. To be appealing, it must be an efficient, quality system. Frequency, regularity and speed are obvious fundamental aspects. But there are others: station layout, vehicle comfort and rider information are also part and parcel of a successful public transportation system. All these aspects must be present in order to generate all the expected spinoffs.

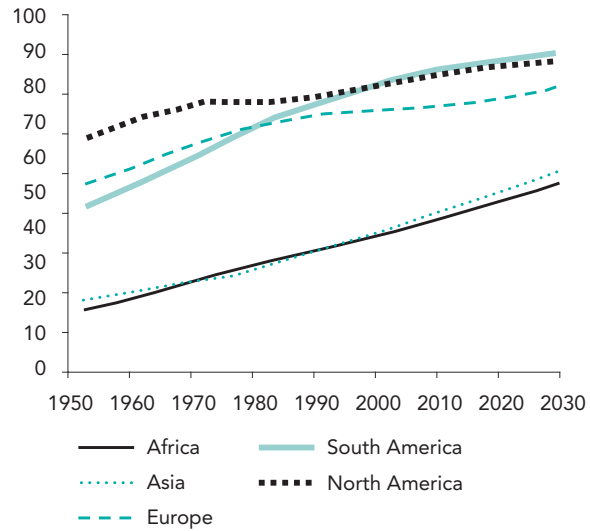
The reflection on public transit – its funding, governance and the modes to select – will shape its future development. The resulting decisions could enhance the associated economic, environmental and social benefits. However, before any of the recommendations can be implemented, public transit will have to become a central part of the city's development priorities, but for this to happen everyone – government, citizens and industry – must be on board. This study showed that public transit is an indispensable tool for sustainable economic development in metropolitan Montréal. All we need now is a strong collective will to put it into action.

# APPENDIX

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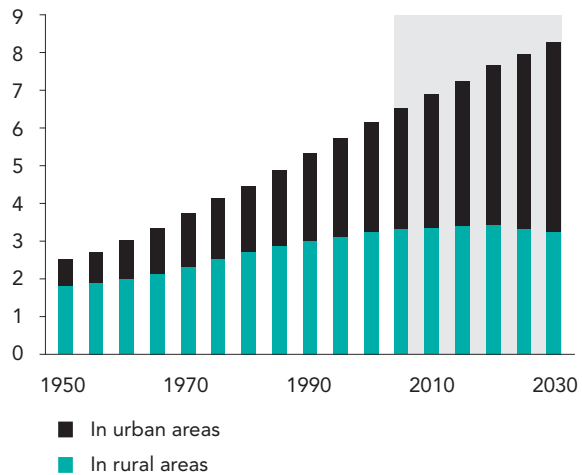
Additional figures and tables

FIGURE 1 / URBANIZATION RATE BY CONTINENT / 1950-2030



Source: "Megacities: Boundless growth?," Deutsche Bank Research, May 2008.

FIGURE 2 / CHANGE IN WORLD POPULATION / 1950-2030



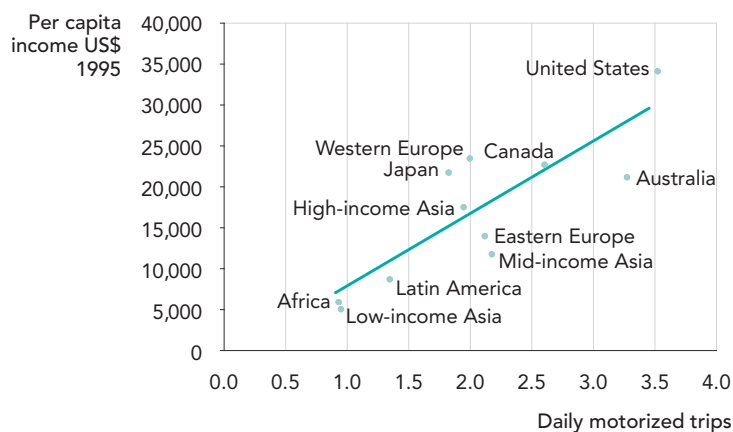
Source: "Megacities: Boundless growth?," Deutsche Bank Research, May 2008.

**TABLE 1 / GDP COMPARISON OF VARIOUS CITIES AND COUNTRIES / 2008, BILLIONS OF \$, PURCHASING POWER PARITY**

Tokyo	1,479	Spain	1,456
New York	1,406	Canada	1,214
Los Angeles	792	Australia	763
Chicago	574	Poland	672
London	565	Thailand	546
Paris	564	South Africa	492
Osaka/Kobe	417	Columbia	397
Toronto	253	Algeria	233
Montréal	148	Ireland	186

Sources: International Monetary Fund;  
PricewaterhouseCoopers UK Economic Outlook,  
November 2009.

**FIGURE 3 / RELATIONSHIP BETWEEN PER CAPITA INCOME AND LEVEL OF MOBILITY**



Source: Cox, Wendell, "Urban Transport & Economic Growth," Seminario de Transporte Urbano: BID/CODATU, Santiago de Chile, October 8, 2007.



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## The Brewery Blocks of Portland, Oregon, USA

For this city of 538,500 residents, an urban development project in the 1980s and 1990s on the site of a former brewery breathed new life into its downtown.

This \$300 million real estate project consisted of 1.7 million square feet of office space, high-end retail shops, luxury apartments and condominiums.

However, the development truly took off when a new streetcar line was added in 2001, bisecting the Brewery Blocks. Portland authorities estimate the total cost of the streetcar's 4.7-mile loop at \$1.4 billion. Today, retail space in this area is more coveted than anywhere else in Portland. Brewery Blocks has created a bridge between two key parts of Portland – the business district and the Pearl District.

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Source: International Economic Development Council,  
Economic Development Smart Growth, 2006.

**TABLE 2B / JOB DISTRIBUTION IN THE MONTRÉAL AREA  
/ 2006**

	NUMBER	% OF TOTAL
<b>Island of Montréal</b>	<b>1,145,595</b>	<b>65.7%</b>
City of Montréal	985,455	56.5%
Dorval	42,740	2.5%
Pointe-Claire	29,590	1.7%
Mont-Royal	20,005	1.1%
Westmount	14,550	0.8%
Dollard-des-Ormeaux	11,470	0.7%
Kirkland	10,310	0.6%
Other	31,475	1.8%
<b>Laval</b>	<b>137,190</b>	<b>7.9%</b>
<b>Longueuil — Agglomeration</b>	<b>158,675</b>	<b>9.1%</b>
Longueuil — City	86,825	5.0%
Boucherville	29,400	1.7%
Brossard	22,550	1.3%
Saint-Bruno-de-Montarville	13,190	0.8%
Saint-Lambert	6,710	0.4%
<b>North Shore</b>	<b>185,950</b>	<b>10.7%</b>
Saint-Jérôme	31,040	1.8%
Terrebonne	27,900	1.6%
Repentigny	19,660	1.1%
Saint-Eustache	18,400	1.1%
Mirabel	15,460	0.9%
Blainville	12,040	0.7%
Sainte-Thérèse	10,805	0.6%
Boisbriand	10,150	0.6%
Other	40,495	2.3%
<b>South Shore</b>	<b>116,230</b>	<b>6.7%</b>
Châteauguay	12,560	0.7%
Vaudreuil-Dorion	11,565	0.7%
Sainte-Julie	7,865	0.5%
Varenes	7,495	0.4%
Beloeil	6,920	0.4%
Chambly	6,885	0.4%
La Prairie	6,440	0.4%
Candiac	5,605	0.3%
Other	50,875	2.9%
<b>TOTAL metropolitan region</b>	<b>1,743,640</b>	<b>46.3% (of QC total)</b>
<b>TOTAL Quebec</b>	<b>3,765,400</b>	

Source: 2006 Census, Statistics Canada.

**TABLE 12B / NUMBER OF TRIPS FOR SCHOOL-RELATED PURPOSES BY ORIGIN AND DESTINATION ZONE – 24-HOUR PERIOD / 2008**

DESTINATION	PRIMARY ORIGIN ZONE			SECONDARY ORIGIN ZONE		
	Number of PTA trips	Total number of trips	PTA share/ Total	Number of PTA trips	Total number of trips	PTA share/ Total
DOWNTOWN MONTRÉAL	2,694	9,777	28%	52,245	67,262	78%
CENTRAL MONTRÉAL	53,591	150,020	36%	38,855	64,696	60%
WEST MONTRÉAL	14,115	75,572	19%	10,084	20,100	50%
EAST MONTRÉAL	9,695	39,631	24%	2,549	8,269	31%
LAVAL	8,738	55,139	16%	1,360	5,971	23%
LONGUEUIL	9,602	62,939	15%	1,818	10,855	17%
NORTH SHORE	4,364	130,650	3%	287	3,586	8%
SOUTH SHORE	751	98,420	1%	113	2,899	4%

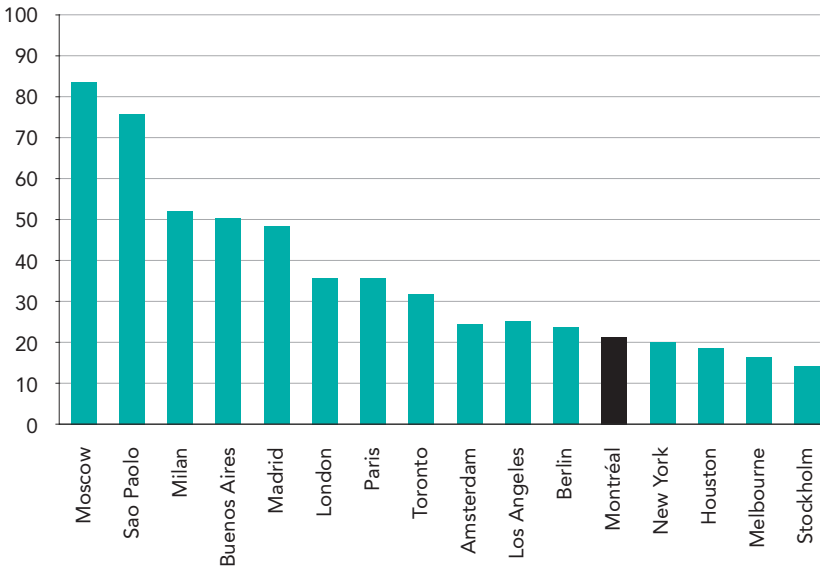
Source: 2008 Origin-Destination survey.

**TABLE 12C / NUMBER OF TRIPS FOR SHOPPING-RELATED PURPOSES BY ORIGIN AND DESTINATION ZONE – 24-HOUR PERIOD / 2008**

DESTINATION	PRIMARY ORIGIN ZONE			SECONDARY ORIGIN ZONE		
	Number of PTA trips	Total number of trips	PTA share/ Total	Number of PTA trips	Total number of trips	PTA share/ Total
DOWNTOWN MONTRÉAL	3,081	13,712	22%	11,751	20,350	58%
CENTRAL MONTRÉAL	15,220	113,722	13%	4,991	25,500	20%
WEST MONTRÉAL	4,451	62,820	7%	2,225	16,369	14%
EAST MONTRÉAL	4,435	38,442	12%	2,855	19,400	15%
LAVAL	1,202	45,583	3%	377	11,644	3%
LONGUEUIL	2,022	58,315	3%	186	13,033	1%
NORTH SHORE	376	89,517	0%	135	6,919	2%
SOUTH SHORE	173	66,158	0%	248	4,226	6%

Source: 2008 Origin-Destination survey.

FIGURE 13 / COMMUTER PAIN INDEX IN VARIOUS LARGE CITIES / 2010



Source: 2010 IBM Global Commuter Pain Study on the pain of the daily commute.

TABLE 15 / IMPACT OF PUBLIC TRANSIT ON PROPERTY VALUES

Québec	The value of single-family homes in the Metrobus corridor rose 7.4% more than other properties between 1986 and 2004.
Toronto	Homes located near a subway station were worth \$4,000 more because of easier accessibility.
Chicago	In 1990, a 17% increase in the value of homes located within a 500-metre radius of stations was directly attributed to a new 11-mile train line between downtown Chicago and Midway airport. The line opened in 1993 but the effect on property value began well before it was put into service.

**TABLE 18 / MAIN HEALTH IMPACT OF THE TWO MAIN COMPONENTS OF SMOG**

Pollutant	Vulnerable groups	Short-term effect	Long-term effect
<b>Ozone</b>	<ul style="list-style-type: none"> <li>• Young children</li> <li>• People suffering from chronic respiratory diseases and the elderly</li> </ul>	<ul style="list-style-type: none"> <li>• Temporary reduction in pulmonary function</li> <li>• Increase in severity and frequency of asthma attacks</li> <li>• Increase in hospitalizations and emergency room visits for respiratory diseases</li> <li>• Increase in respiratory mortality</li> </ul>	<ul style="list-style-type: none"> <li>• Potential increase in the development of asthma</li> <li>• Reduction in pulmonary growth in children</li> </ul>
<b>Fine particles (PM<sub>2.5</sub>)</b>	<ul style="list-style-type: none"> <li>• Young children</li> <li>• People suffering from chronic heart and respiratory diseases or type II diabetes</li> <li>• The elderly</li> </ul>	<ul style="list-style-type: none"> <li>• Increase in respiratory tract infections</li> <li>• Increase in severity and frequency of asthma attacks</li> <li>• Increase in hospitalizations and emergency room visits for heart and respiratory diseases</li> <li>• Increase in cardiovascular and respiratory mortality</li> </ul>	<ul style="list-style-type: none"> <li>• Reduction in pulmonary growth in children</li> <li>• Increase in mortality due to cardio-respiratory diseases</li> <li>• Increase in mortality due to cancer</li> </ul>

Source: Table taken from "Urban Transportation, a Question of Health," 2006 Annual Report on the Health of the Montréal Population, Agence de la santé et des services sociaux de Montréal, 2006.

# Example of Bogota's Transmilenio

Unable to fund a subway system, the city of Bogota, Colombia, (population: 7 million) turned to a bus-based transit system and revolutionized the use of roads and public spaces in the process.

TABLE 20

- › The Transmilenio principle is based on major routes across the city. The largest, the north-south route has two dedicated lanes in each direction for articulated buses over most of the route, as well three lanes in each direction for cars, plus bicycle lanes and wide sidewalks.
- › The busway itself includes a direct lane in each direction and a lane for omnibuses.
- › The stops are like real stations with access by footbridges so that there is no pedestrian traffic at ground level.
- › The system has over 40 km of busways and 60 stations. Transfer stations allow for some 40 district lines to be connected to the main route.
- › The system is optimized by offering automatic real-time information (vehicles are located by satellite), level boarding, new air-conditioned rolling stock.
- › Part of the public space was redeveloped along with this project: 250 km of bicycle paths were built, 13 hectares of sidewalks were added and public spaces were rehabilitated and landscaped with plants; access to certain areas was controlled during rush hour by a filtering system based on vehicle license plate numbers.
- › The system transports 900,000 riders/day. Commercial speed has more than tripled compared to the old bus system, from 5.8 km/h to 28 km/h, cutting commute times in half.
- › Commercial speed is accompanied by very high frequency, particularly during rush hour, when two to three buses pass every minute in each direction.
- › Close to 500 articulated buses were purchased for \$100 million: the busway cost just under \$220 million for 42 km, for an average of \$8 million per kilometre, or 20% of the cost in Europe to commission one kilometre of busway for a streetcar.
- › Although privately operated, the Transmilenio keeps fares low: \$17 month for return trips, six days a week, or 6% of an average user's monthly budget.

Source: International Economic Development Council, Economic Development Smart Growth, 2006.

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## Notes

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## Notes



PAPER

Cover: Enviro100 80 lbs.  
Inside: Enviro100 160 M





Chambre de commerce  
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