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# **A vital economic player in the greater Montreal region**

|  |           |
|--|-----------|
| Montrealers are heavy users of transit services  | <b>1</b>  |
| Montreal households spend 26% less on transportation                                   | <b>2</b>  |
| Congestion hurts business  | <b>3</b>  |
| The STM benefits... automobile users   | <b>4</b>  |
| The STM: an essential service  | <b>5</b>  |
| The Kyoto Protocol   | <b>6</b>  |
| A single bus carries as many people as 50 cars...<br>and pollutes up to 18 times less! | <b>7</b>  |
| The STM is responsible for less than 2% of the pollution                               | <b>8</b>  |
| The STM brings in close to<br>a quarter billion dollars for governments                | <b>9</b>  |
| Fare increases bring down ridership  | <b>10</b> |
| Major impact of a 15% shift of transit users to cars                                   | <b>11</b> |
| Public transit : a priority for citizens   | <b>12</b> |
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# Montrealers are heavy users of transit services

The proportion of trips made via public transit is much higher in Montreal and Toronto than in major U.S. cities.

|  | Montreal region | Toronto region | Major US cities* |
|--|-----------------|----------------|------------------|
| • Annual automobile use (kilometres per resident) <sup>1</sup>       | <b>4,746</b>    | 5,680          | 11,155           |
| • Annual trips by public transit (average per resident) <sup>1</sup> | <b>222</b>      | 210            | 63               |
| • Proportion of passenger-kms by public transit <sup>1</sup>         | <b>13%</b>      | 15%            | 3%               |
| • Urban density <sup>2</sup> (number of residents/hectare)           | <b>28</b>       | 25             | 15               |

\* Boston, Chicago, Denver, Detroit, Houston, Los Angeles, New York, Phoenix, Portland, Sacramento, San Diego, San Francisco and Washington – metropolitan areas.

1. Raad and Kenworthy, *Alternatives Journal*, Vol 24, No 1 (Winter 1998).  
 2. *Demographia*, Wendell-Cox Consultancy, 2000.

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## C2

# ***Montreal households spend 26% less on transportation***

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Each household (family) in Montreal spends an average of **\$1,371** less on transportation than households elsewhere in Quebec.

For Montreal residents, this represents a total saving of **\$1.1 billion**.

This beneficial situation is directly related to the much higher use of public transit (STM) by Montreal residents.

- *Annual expenses per household (2000)*<sup>1</sup>

|                           | Transportation | Current consumption |
|---------------------------|----------------|---------------------|
| Montreal                  | \$3,897        | \$31,455            |
| Quebec - outside Montreal | \$5,268        | \$35,171            |
| <b>Difference</b>         | <b>\$1,371</b> | <b>\$3,716</b>      |
|                           | <b>-26.0%</b>  | <b>-10.6%</b>       |

1. Direction de l'analyse économique and Direction du commerce, Ministry of Industry and Commerce, 2001.

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# ***Congestion hurts business***

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**C3**

Road congestion has a major economic impact on Montreal residents and businesses.

In the United States costs related to traffic congestion are evaluated **at US\$75 billion**<sup>1</sup> (more than 1% of the GDP).

- ✓ Los Angeles : **US\$9 billion**
- ✓ New York : **US\$8 billion**
- ✓ Federal Express and UPS report that every five additional minutes of congestion per day costs them **US\$40 million**<sup>2</sup> a year.

Recent studies<sup>3</sup> have estimated the annual cost to businesses alone in the region of Montreal at some **\$600 million.**

According to surveys carried out by the Ontario Ministry of Transportation, road congestion in the Toronto region costs businesses approximately **\$2 billion a year in lost time and productivity**, primarily due to delays caused by truck deliveries.

1. Aldaron Inc., *Dollars and sense*, 1997.

2. *FTA 1996 Report*.

3. Speaking notes for the Honourable David Collenette, Minister of Transport, March 2001.

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# C4

## ***The STM benefits... automobile users!***

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Public transit helps limit the use and subsequent congestion of roadways. It thus benefits everyone in Montreal, even those who never use any STM services.

In a recent survey<sup>1</sup>, **50%** of adults who normally use the services of the STM indicated that they could have made their last transit trip by car...

**50%** of respondents (STM users and automobile users) feel that public transit is **an effective means** of reducing traffic and road congestion. They also believe that an efficient public transit system is **essential** to ensure the region's economic growth.

1. Saine marketing, *Sondage Image Perception*, January to May 2002.

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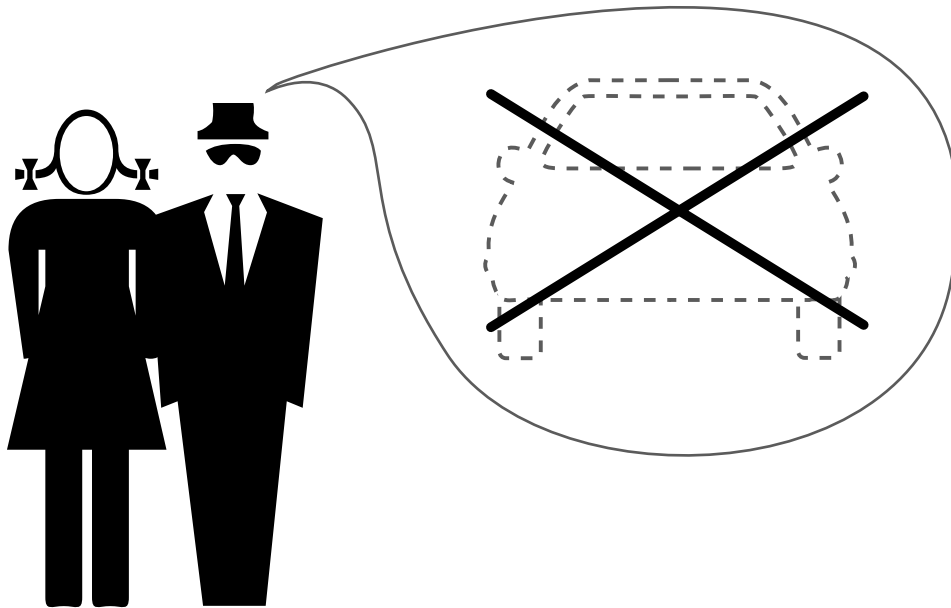
# ***The STM : an essential service***

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C5

**33%** of Montreal households  
do not own a car.<sup>1</sup>

For the majority of them,  
the STM is an essential service.



People on social assistance  
make **30 to 40% fewer** trips  
than the average citizen,  
but use public transit **twice** as frequently.

1. Origin-Destination Survey 1998.

*The Kyoto protocol*, drawn up in 1997, is an international agreement whose goal is to reduce greenhouse gas (GHG)<sup>1</sup> emissions to 5% below 1990 levels. At this point, 75 countries, responsible for 36% of global emissions, have ratified the agreement. Reduction objectives set for each country will have to be met and maintained from 2008 to 2012.

The greenhouse effect is a natural phenomenon by which the atmosphere acts as an insulator to maintain the earth's global temperature at 15°C.

GHGs are gases present in the atmosphere that capture the solar energy reflected by the earth. Concentrations of such gases are responsible for the increased warming of the atmosphere, thus enhancing the greenhouse effect. This, in turn, has dire consequences on the environment, with all that results: more intense, prolonged and frequent heat waves, proliferation of tropical diseases, rising sea levels and flooding.

It is estimated that the earth's temperature has risen by 0.3°C over the last 130 years. However, because human activities generate an increase in gas emissions, it is forecast that temperatures will rise by an equivalent amount, decade after decade, for the foreseeable future.

Canada<sup>2</sup> is facing a major challenge. GHG emissions increased by 13% between 1990 and 1999, and the country must now reduce emissions by 24% by 2008 to meet its obligations within the agreement.



It was estimated in 1996 that 37% of GHG emissions in Quebec came from automobiles, 34% from the industrial sector and 19% from other sources<sup>3</sup>.

**In urban areas, as little as 3 % of GHG emissions is caused by public transit. In this context, one realizes that public transit will have an important role to play in future years by offering a valid alternative to the GHG problem.**

1. The gases targeted by the Protocol are carbon dioxide, nitrous oxide, methane, CFCs (chlorofluorocarbons), and sulfur hexafluoride.
2. *Troisième rapport annuel du Canada sur les changements climatiques*, Government of Canada, January 2002.
3. Ministry of the Environment (Quebec).

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# ***A single bus carries as many people as 50 cars... and pollutes up to 18 times less!***

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**C7**

A car driven in a Canadian city carries an average of 1.3 people while a bus travelling during rush hour carries an average of 65 people - or 50 times more than a car.

A single bus pollutes more than a single car;  
However, if one considers that a bus carries an average of 65 passengers, then, per passenger...

***A bus pollutes 6 to 18 times less than a car.***

## **• Pollutant emissions**

|   | <i>Per vehicle</i> |            | <i>Per passenger / vehicle</i> |            | <i>Proportion</i> |
|---|--------------------|------------|--------------------------------|------------|-------------------|
|   | <i>Car</i>         | <i>Bus</i> | <i>Car</i>                     | <i>Bus</i> | <i>Bus/Car</i>    |
| Nitrous oxide (NO – gr/km)                | 1.12               | 8.97       | 0.86                           | 0.13       | 1/6               |
| Carbon dioxide (CO <sub>2</sub> – gr/km)* | 198                | 1,553      | 152                            | 23.9       | 1/6               |
| Hydrocarbon (parts/million)               | 18                 | 50         | 13.8                           | 0.76       | 1/18              |

\* Major cause of the greenhouse effect (ozone layer – global warming).

Source : Régie régionale de la Santé et des services sociaux de Montréal-Centre, *Pollution atmosphérique et impacts sur la santé et l'environnement dans la grande région de Montréal*, March 1998.

**— One metro train can carry as many passengers as 15 buses  
and emits NO pollutants —**

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# **C8      *The STM is responsible for less than 2% of the pollution***

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*Powered by electricity, the Montreal metro  
does not contribute to air pollution.*

*While providing **26%** of all trips on Montreal territory,  
STM buses are responsible for less than **2%** of the air pollution.  
Cars, on the other hand, are accountable for about  
**50%** of the emissions of airborne pollutants.*

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|                       | <b>% OF EMISSIONS</b> |                       |
|-----------------------|-----------------------|-----------------------|
|                       | <b>Car</b>            | <b>Public transit</b> |
| Nitrous oxide (NO)    | <b>41</b>             | <b>2</b>              |
| Carbon dioxide (CO2)* | <b>45</b>             | <b>2</b>              |
| Hydrocarbon (HATP)    | <b>59</b>             | <b>1</b>              |

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\* Major cause of the greenhouse effect (ozone layer – global warming).

Source : Régie régionale de la Santé et des services sociaux de Montréal-Centre, *Pollution atmosphérique et impacts sur la santé et l'environnement dans la grande région de Montréal*, March 1998.

*Concerned about preserving the environment,  
the STM is participating in a benchmark project in 2002-2003  
involving biodiesel-fuelled buses.  
**150 Biobuses will travel the streets of Montreal  
until March 2003.***

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# *The STM brings in close to a quarter billion dollars for governments*

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C9

According to a 1996 study conducted by the Bureau de la statistique du Québec, the STM's operating and capital expenditures for 2001 translate into some 8,900 direct jobs (STM and suppliers alike) plus an additional 11,600 man/year indirect jobs.

This economic activity brought in **\$239 million** in revenues for the various levels of government.

## • *Impact of operating and capital expenditures of the STM (2001)*

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|       |   |                     |
|-------|---|---------------------|
| ✓     | STM operations budget   | \$691.2 M           |
| ✓     | STM capital investments budget  | \$50.8 M            |
| ✓     | Payroll (STM employees) – before income taxes   | \$449.8 M           |
| <hr/> |   |                     |
| ✓     | Workforce of the STM and of its suppliers   | 8,900 person-years  |
| ✓     | Total workforce (direct and indirect)   | 20,500 person-years |
| <hr/> |   |                     |
| ✓     | Revenues for the Quebec government<br>– Income tax, other taxes and incidental taxation   | \$150.1 M           |
| ✓     | Revenues for the Canadian government<br>– Income tax, other taxes and incidental taxation | \$89.2 M            |
| ✓     | <b>Total revenues for governments</b>   | <b>\$239.3 M</b>    |

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## ***Fare increases bring down ridership***

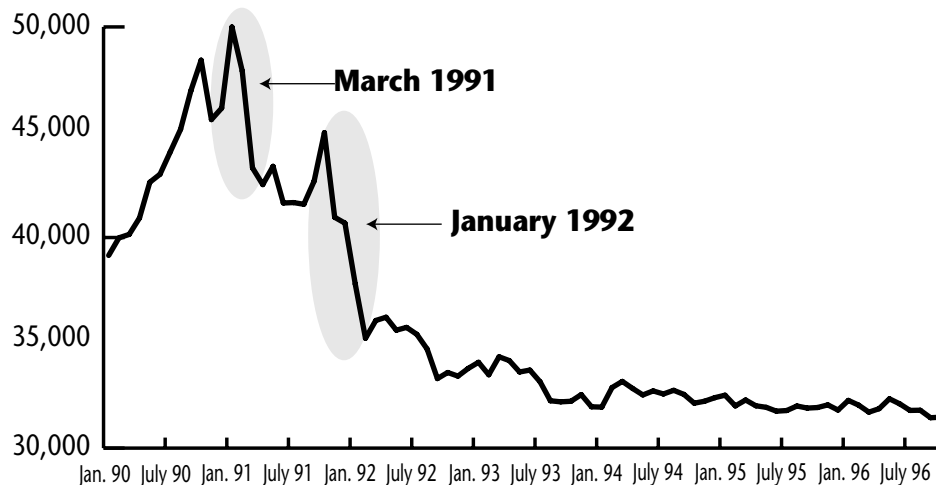
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As with any product or service, the use of public transit services is affected by price levels. This impact was clearly felt with the introduction in 1990 of the regional transit card, which gave customers access to services provided by the STM, STL and RTL.

Following a strong increase in sales of the regional card throughout 1990, the cost hike from \$42 to \$52 in March 1991 had a major negative impact on sales. The increase to \$69 in January 1992 once again caused a steep decline in sales.

This only corroborates what numerous studies show:  
a 10% fare increase will bring down ridership by between 2% and 5%.

- *Sales of regional cards from January 1990 to October 1996 (seasonally adjusted data)*



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# ***Major impact of a 15% shift of transit users to cars***

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C11

A 60% fare increase that would have raised the cost of an STM monthly pass from \$45 to \$72 would generate \$90 million in revenue but would also have reduced transit use by about **15 %** according to a 1996 study.

And this decline would have cost the Montreal community at least an additional **\$150 million**<sup>1</sup>.

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| <i>(in million \$)</i>                           | <i>Annual costs</i> |
|--|---------------------|
| Cost of traffic congestion                       | <b>56</b>           |
| Net variable expenses related to the use of cars | <b>22</b>           |
| Variable expenses assumed by truckers            | <b>15</b>           |
| Parking costs                                    | <b>12</b>           |
| Social costs of traffic accidents                | <b>12</b>           |
| Costs related to air pollution                   | <b>27</b>           |
| Costs related to noise pollution                 | <b>0.8</b>          |
| <b>Total annual costs</b>                        | <b>\$148.8 M</b>    |

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This is only a partial evaluation. For example, the impact on employment, population shifts and the local economy was not considered. Such a situation would no doubt prompt citizens and businesses to move away from Montreal to outlying residential, commercial or industrial areas.

This trend would have repercussions on land values and would affect the city's fiscal base and finances.

1. ADEC Inc., *Évaluation des effets socio-économiques d'une variation tarifaire*, April 1996.

## ***Public transit: a priority for citizens***

Whether or not they use public transit, Montreal residents recognize the necessity of ensuring its development. Surveys conducted clearly demonstrated that they would support investment in public transit<sup>1</sup>.

Respondents identified public transit as a priority target for increased funding by municipalities. This attitude was evidenced strongly by car users and STM customers alike.

| <i>Public services</i> | <i>Invest more to improve quality</i> | <i>Invest the same to maintain quality</i> | <i>Invest less even if it means reducing quality</i> |
|------------------------|---------------------------------------|--|--|
| Road repair            | 79%                                   | 19%  | 2%   |
| Drinking water         | 67%                                   | 32%  | 1%   |
| <b>Public transit</b>  | <b>59%</b>                            | <b>38%</b>                                 | <b>3%</b>  |
| Parks and green spaces | 56%                                   | 41%  | 3%   |
| Police service         | 50%                                   | 45%  | 5%   |
| Firefighting           | 45%                                   | 53%  | 2%   |
| Snow removal           | 44%                                   | 53%  | 3%   |
| Municipal libraries    | 41%                                   | 52%  | 7%   |
| Parks and recreation   | 41%                                   | 53%  | 6%   |
| Garbage collection     | 32%                                   | 64%  | 4%   |

***Investment in public transit remains a public priority.***

1. Saine Marketing, *Sondage Image Perception*, January to May 2002.

## ***STM activities: a net profit of \$2 billion for the community***

If all STM customers were to turn to cars for daily transit, the additional cost for the community would soar to around **\$3 billion** annually, while at this point public transit costs are just over **\$800 million** (excluding trains). Major cost outputs include traffic congestion with nearly 60% of all dollars, followed by automobile usage at 24%<sup>1</sup>.

| <i>Cost elements</i>                         | <i>Additional cost<br/>(with a 100% shift<br/>to cars)</i> | <i>Cost percentage</i> |
|--|--|------------------------|
| Road congestion – cars                       | \$1,350 M  | 47.2%                  |
| Road congestion – truck-delivered goods      | \$400 M  | 14.0%                  |
| Variable expenses related to the use of cars | \$700 M  | 24.5%                  |
| Accidents                                    | \$165 M  | 5.8%                   |
| Air pollution                                | \$39 M   | 1.4%                   |
| Police service – Montreal                    | \$34 M   | 1.2%                   |
| Fire department – Montreal                   | \$13 M   | 0.5%                   |
| Parking (share not assumed by drivers)       | \$160 M  | 5.6%                   |
| <b>Total socio-economic costs</b>            | <b>\$2,860 M</b>   | 100.0%                 |
| Less public transit expenses                 | \$810 M  |                        |
| <b>Net socio-economic costs</b>              | <b>\$2,050 M</b>   |                        |

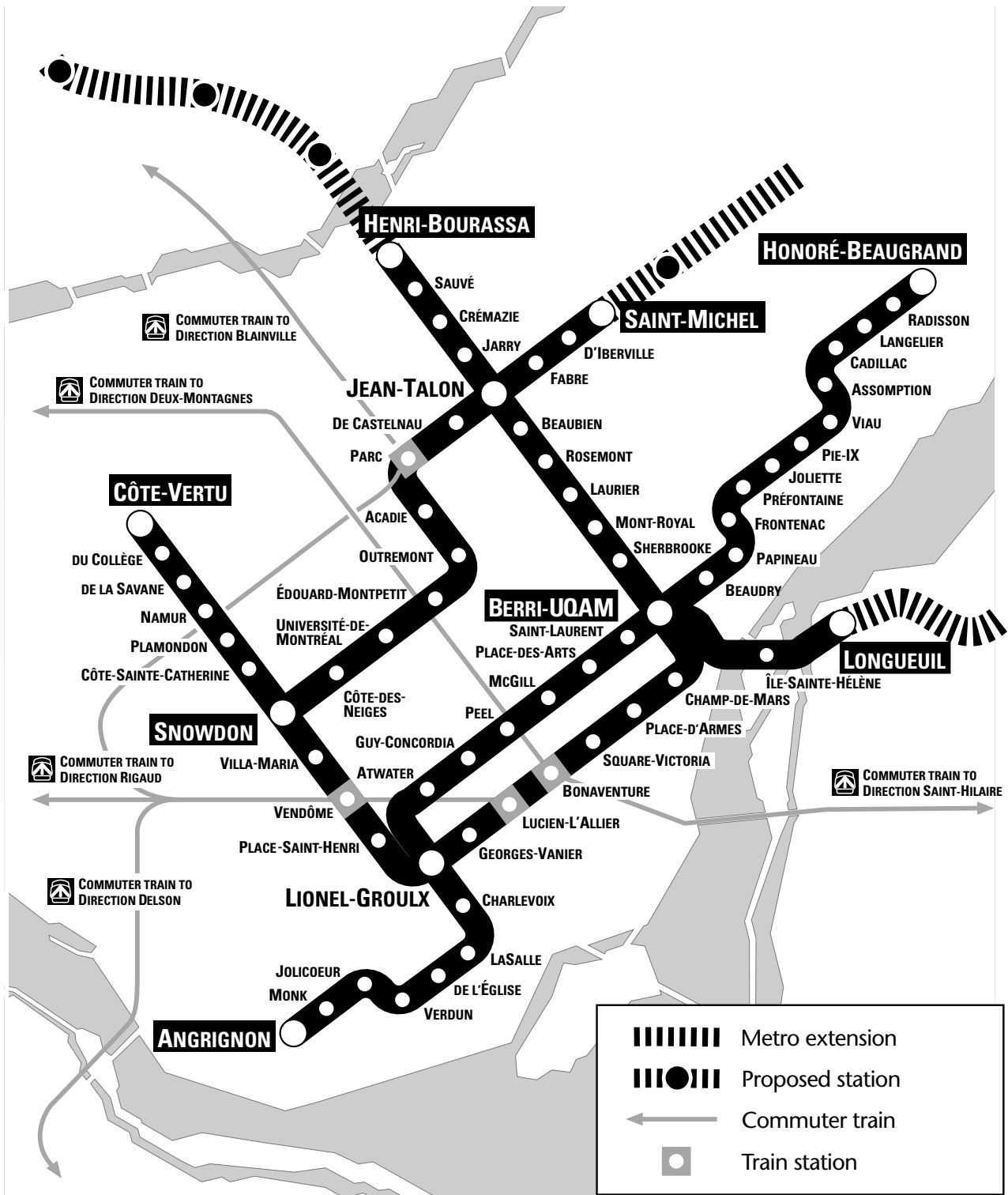
This evaluation is not complete as the impact on employment, population movement and the local economy has not been considered. These factors would cause a migration of the population and activities towards the outskirts of Montreal.

***If all STM customers were to shift to cars, the cars would be bumper-to-bumper the length of a highway from Montreal to Gaspé.***

1. Financial planning and budget Dept., STM, *Études d'impact socio-économique*, 1996.

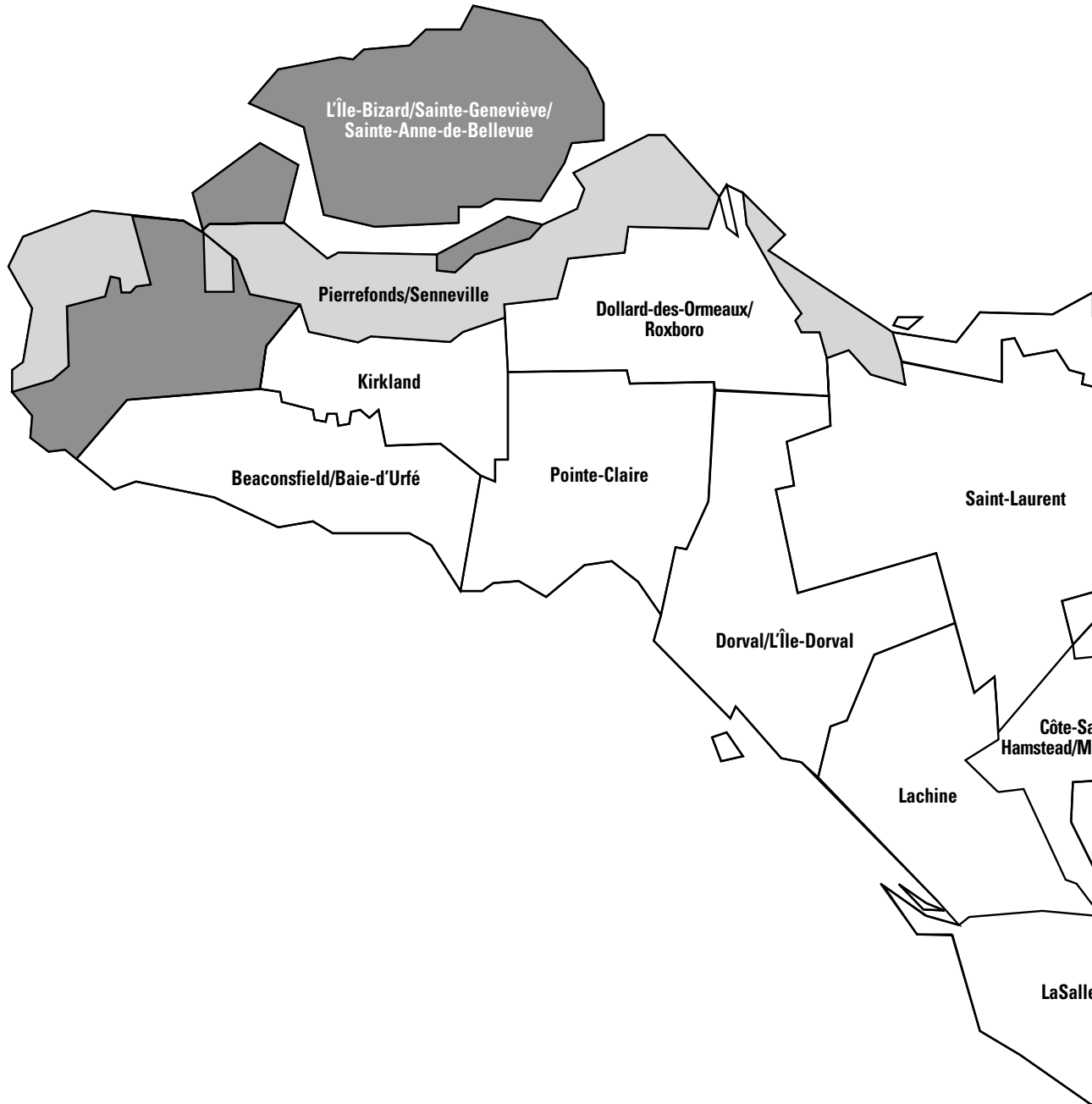


# APPENDIX 1 : Metro network



# APPENDIX 2 : **Boroughs of the city of M**

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# Montreal

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