

A new measure making winter tires mandatory in Québec

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SUMMARY

Winter is the longest season in Québec. With heavy snowfalls and occasionally significant temperature fluctuations, winter plays an integral role in the life and culture of Québec. It is crucial for road users to adapt their driving habits to winter conditions. Statistics show that approximately 90% of road vehicles were equipped with winter tires during the winter of 2005. Based on a quick tally that was carried out at that time, 38% of the accidents that occurred during the winter involved at least one vehicle that was equipped with all-season tires, which means that these tires were strongly over-represented in these accidents.

In an effort to improve the safety of road users, the *Act to amend the Highway Safety Code and the Regulation respecting demerit points* was adopted in December 2007.

The rules and measures that were adopted primarily address drinking and driving, excessive speeding, photoradar devices and red-light camera systems, driving courses, the use of cell phones while driving, and overspeed governors for certain heavy vehicles. The Act also sets out the obligation to equip certain vehicles with winter tires. The *Highway Safety Code* stipulates that, henceforth, from December 15 to March 15, the owner of a taxi or passenger vehicle registered in Québec must equip the vehicle with tires specifically designed for winter driving in order to put the vehicle into operation. This obligation also applies to any passenger vehicles that are available for rental in Québec.

In order to verify the impact of this measure on the road safety record, accident data for the first mandatory period, namely from December 15, 2008 to March 15, 2009, were compared to those for the same winter periods during the five years preceding the legal obligation, namely from 2003 to 2008. A similar verification was carried out for the remainder of the year in order to factor in the changes that occurred in this record over time. The results of this analysis indicate that the drop in the number of accident victims was greater during the winter period when winter tires were mandatory, with a net decrease in the number of victims of 5%.

KEY WORDS

TIRES/WINTER/OBLIGATION/ACCIDENTS/ROAD SAFETY

1. INTRODUCTION

The topic of winter tires has been the focus of studies at the Ministère des Transports du Québec (MTQ) for several years. In 2001, the MTQ carried out a comparative evaluation of the performance of winter tires and all-season tires. The objective was to quantify the differences in the performance of these two types of tires under various road and weather conditions. The results revealed that winter tires performed much better than all-season tires, particularly in terms of the all-important manoeuvre of braking. In fact, winter tires shortened braking distances by an average of 25%.

Statistically speaking, it was difficult to determine the extent to which the type of tires and their condition might play a role in accidents, because this information was not included in accident reports until very recently. In order to assess the impact that the type of tires used (winter or all-season) can have on road safety, Québec police organizations agreed to collect this information for all vehicles that were involved in fatal or serious accidents during the winter of 2005, from December 1, 2004 to March 31, 2005. Based on this information, it was determined that 62% of fatal or serious accidents involved vehicles that were equipped with winter tires, and consequently, 38% of such accidents involved at least one vehicle that was equipped with all-season tires. In other words, all-season tires were strongly over-represented in fatal and serious accidents, given that they represented only 10% of the cars on the road during that time. The proportion of incidents involving loss of control was also higher for vehicles equipped with all-season tires.

2. HIGHWAY SAFETY CODE

The Québec National Assembly passed two bills amending the *Highway Safety Code*, in December 2007 and June 2008 respectively, with a view to improving the safety of all road users.

One of these measures stipulated the obligation to equip certain vehicles with winter tires. This initiative was the outcome of an awareness campaign that was run over several years. During that time, the MTQ and its partners highlighted the importance of equipping vehicles with winter tires, because these tires have been scientifically proven to be much more effective and better adapted to winter driving than all-season tires.

The new Section 440.1 of the *Highway Safety Code* stipulates as follows:

“Between 15 December and 15 March, the owner of a taxi or a passenger vehicle registered in Québec may not put the vehicle into operation unless it is equipped with tires specifically designed for winter driving, in compliance with the standards prescribed by government regulation. The prohibition also applies to any person renting out passenger vehicles not equipped with that type of tires (...).”

The new obligation raised a number of questions and elicited numerous reactions from the public, most notably with respect to:

- the application of this measure to owners of vehicles registered in Québec who mainly drive their vehicles to the southern United States for winter;
- the enforcement of this measure by police officers, in view of the fact that the mountain symbol with a superimposed snowflake that is used to identify winter tires does not appear on all winter tires;
- the definition of a winter tire, in order to allow them to fully comply with the new obligation.

It was deemed necessary to draft a regulation defining the specific terms of enforcement for Section 440.1 of the *Highway Safety Code*, and particularly to define a winter tire and provide for some exceptions.

3. REGULATION GOVERNING THE USE OF TIRES SPECIFICALLY DESIGNED FOR WINTER DRIVING

The groundwork for the Regulation was laid in collaboration with the main associations and organizations affected by the new measure. Discussions were held pertaining to the concerns that these organizations had raised about the new obligation. The issues raised and proposed solutions led to the drafting of the Regulation.

One of the challenges was that of formulating an unambiguous definition of a winter tire, while ensuring that the complexity of the definition would not hinder the enforcement of police surveillance. Another challenge was that of describing situations where exemptions were warranted.

The *Regulation governing the use of tires specifically designed for winter driving* was adopted on September 17, 2008, and was published in the *Gazette officielle du Québec* on October 1, 2008.

The Regulation specifies:

- the permanent exemptions to which the mandatory use of tires specifically designed for winter driving is not applicable;
- the cases in which it is possible to obtain a certificate authorizing the owner or lessor of a passenger vehicle to return it to operation without it being equipped with tires specifically designed for winter driving, for a period of seven days (temporary exemption);
- the definition of a tire specifically designed for winter driving.

Permanent exemptions

The prohibition referred to in the first paragraph of Section 440.1 of the *Highway Safety Code* does not apply:

- (1) to the spare tire of a taxi or passenger vehicle;
- (2) to a motorcycle used as an emergency vehicle within the meaning of Section 4 of the *Highway Safety Code*;
- (3) when purchasing a passenger vehicle or a taxi from a vehicle dealer, for a period of 7 days following the date of purchase;
- (4) to a passenger vehicle to which is affixed a detachable licence plate issued in accordance with the *Regulation respecting road vehicle registration* enacted by Order-in-Council 1420-91, dated October 16, 1991, as amended;
- (5) to a passenger vehicle to which is affixed a temporary registration certificate issued in accordance with the *Regulation respecting road vehicle registration*, for the period of validity indicated on the certificate, but without exceeding by 7 days the date of issue of the certificate;
- (6) to a motor home, namely a motor vehicle permanently designed to provide living quarters; and
- (7) to a passenger vehicle or taxi, as the case may be, in respect of which a certificate is issued by the Société de l'assurance automobile du Québec.

Temporary exemptions

The Regulation adopted on September 17, 2008 also stipulates that the Société de l'assurance automobile du Québec may issue a certificate to the owner or lessor of a passenger vehicle authorizing that person to put the passenger vehicle into operation without it being equipped with tires specifically designed for winter driving for a period of seven days in the following cases:

- (1) when purchasing the vehicle, except in the case referred to in paragraph 3 described above, in order to allow the owner or lessor to equip the vehicle with tires specifically designed for winter driving;
- (2) when the owner or lessor uses the vehicle to leave or return to Québec;
- (3) for the return trip of a vehicle leased and registered outside of Québec to its starting point outside of Québec that is left by the lessee at a place in Québec upon the expiry of the leasing period.

From December 15 to March 15, the Société may not issue more than four certificates in respect of a vehicle covered by this Section. There are no fees associated with the issuance of a certificate.

Definition of a winter tire

With respect to the definition of a tire specifically designed for winter driving, the Regulation adopted on September 17, 2008 stipulates that such a tire must meet one of the following criteria before December 15, 2014:

- The tire bears one of the following inscriptions: Alaska, Arctic, A/T or AT, Blizzard, Ice, LT, Nordic, Snow (except *mud and snow*), Stud, Ultra traction or Winter.
- The symbol representing a mountain with a superimposed snowflake is engraved on the tire.



The Regulation also stipulates that, as of December 15, 2014, tires specifically designed for winter driving will be exclusively those on which the symbol representing a mountain with a superimposed snowflake appears.

Revision of the Regulation

At the end of the first year of enforcement, it was agreed that the *Regulation respecting the use of tires specifically designed for winter driving* would be revised in order to adapt its provisions in light of concerns expressed by citizens and the partners concerned:

- Winter tires that bear an inscription that is not specified in the Regulation;
- Stud-equipped tires that are not specified in the Regulation, even though they are winter tires;
- The returning to operation of a vehicle that is stored during the period covered by the Regulation;
- The sale of a vehicle at auction or at a judicial sale;
- When the lessee of a vehicle on a long-term lease wishes to keep the winter tires of the vehicle returned to the lessor at the end of the lease contract.

In order to take these requests into account, the *Regulation to amend the Regulation respecting the use of tires specifically designed for winter driving* was adopted on November 25, 2009 and was published in the *Gazette officielle du Québec* on November 28, 2009.

The Regulation covers the following points:

- With respect to winter tires, the Regulation provides for the addition of the following inscriptions: “AT/S”, “AT-S”, “Cresta”, “INSA T1”, “INSA T2”, “INSA TT770”, “Studdable”, “Studded”, “Studless”, “TS”, or “Ultra grip”, in order to ensure that tires bearing these inscriptions are considered to be “tires specifically designed for winter driving” within the meaning of the Regulation.
- With respect to tires equipped with studs, the Regulation stipulates that tires that are equipped with studs and used in accordance with the *Regulation respecting the use of*

non-skid devices on the tires of certain road vehicles are “tires specifically designed for winter driving” within the meaning of the Regulation.

- With respect to situations that may warrant an exemption, the Regulation stipulated other cases in which a certificate of exemption for a period of seven days may be issued by the Société de l’assurance automobile du Québec:
 - ✓ When moving passenger vehicles for the purposes of their sale at auctions;
 - ✓ When moving passenger vehicles for the purposes of their judicial sales;
 - ✓ When returning a passenger vehicle that has been stored to operation;
 - ✓ Upon cancellation of a long-term lease contract of 12 months or more for a passenger vehicle.

4. INFORMATION AND AWARENESS CAMPAIGN

4.1 Description of the campaign

For more than ten years, the Ministère des Transports du Québec ran an information and advertising campaign pertaining to road safety under winter conditions. In its appeals for caution, it urged motorists to equip their vehicles with winter tires. Over the years, the campaigns have attained their objectives, judging from the fact that the percentage of drivers who equipped their vehicles with winter tires increased from 66% in 1995 to 90% in 2005.

With the new measure now in force, the message has been modified to remind drivers of their obligation to have winter tires rather than simply recommending that they have such tires.

The 2008-2009 winter campaign featured the theme “Get a Grip!” Radio advertisements reinforced the information and awareness-raising efforts that were carried out by the MTQ on its billboard network and that of its partners, with a view to reminding road users that, in order to drive in Québec, vehicles covered by the obligation must be equipped with winter tires as of December 15.

With a touch of humour, the messages drew a parallel between driving on an icy or snowy surface and figure skating (Figure 1). A commentator described the sliding of a vehicle that causes an accident because it is not equipped with winter tires. The messages also specified that, in order to avoid breaking the law, it was mandatory to equip vehicles with winter tires prior to December 15.



Figure 1 – Theme of the campaign

In addition, the MTQ sought to remind drivers that putting winter tires that are in good condition on their vehicles was not in itself a guarantee against accidents. The radio campaign continued in this manner beyond December 15, disseminating messages that addressed the need for people to adapt their driving habits to winter conditions and emphasizing the importance of adopting safe and responsible driving behaviours.

4.2 Post-campaign evaluation

A perception survey was conducted between March 13 and 29, 2009 with a view to measuring the impact of the 2008–2009 advertising campaign, along with a number of points related to winter driving and road maintenance. The survey involved telephone interviews conducted with 1,000 road users ages 16 and over (holders of valid Québec driver’s licences who had driven a vehicle since November 2008).

Tables 1 and 2 show the results^[1] for the following survey question:

Was the vehicle that you used most often for your personal travel over the past few weeks equipped with winter tires?

Table 1 – Use of Winter Tires by Region

| | Greater Montréal Metropolitan Area | | | Greater Québec City Metropolitan Area | | | Elsewhere in Québec | | |
|-----|------------------------------------|---------------|---------------|---------------------------------------|---------------|---------------|---------------------|---------------|---------------|
| | 2009 n=400 | 2007 n=198 | 2006 n=199 | 2009 n=300 | 2007 n=100 | 2006 n=100 | 2009 n=300 | 2007 n=200 | 2006 n=200 |
| Yes | 98% | 84% | 86% | 99% | 93% | 93% | 99% | 94% | 91% |
| No | 1% | 16% | 14% | 1% | 7% | 7% | 1% | 6% | 9% |

n: number of respondents

Table 2 – Use of Winter Tires throughout Québec

| | Total in Québec | | |
|-----|-----------------|---------------|---------------|
| | 2009 n=1000 | 2007 n=498 | 2006 n=500 |
| Yes | 99% | 89% | 89% |
| No | 1% | 11% | 11% |

n: number of respondents

Nearly all road users (99%) equipped their main vehicle with winter tires during the winter of 2008–2009. Overall, this represented an increase of ten percentage points in the number of users who equipped their vehicles with such tires (up from 89% to 99%). Taking into account the Montréal area alone, the gain is even larger, with an increase of 14 percentage points over 2007 (up from 84% to 98%), and it is interesting to note that the proportion of vehicles equipped with winter tires is very high throughout Québec.

The results of this survey also indicate that:

- nearly all drivers (98%) know that, pursuant to the *Highway Safety Code*, passenger vehicles and taxis must be equipped with tires specifically designed for winter driving;
- among drivers who are aware of the obligation to have winter tires, 41% were able to specify exactly when this obligation applies, namely from December 15 to March 15.

5. MONITORING ACCIDENT DATA

In light of the fact that, prior to 2008, approximately 10% of passenger vehicles were equipped with all-season tires in winter, but these vehicles were involved in more than one-third of all accidents, the goal of the measure was to improve road safety, and consequently, the road safety record.

In order to verify the impact of this new measure on the road safety record, accident data for the first mandatory period, from December 15, 2008 to March 15, 2009, were compared to those for the same winter periods during the five years preceding the legal obligation (2003–2004 to 2007–2008). The results, which are presented in Table 3, show a 33% reduction in fatal and serious accidents and a 15% reduction in all accidents involving light, serious and fatal injury.

Table 3 – Variation in the Number of Accidents between the Winters Preceding the Coming into Force of the Measure and the Winter of 2008–2009 – Throughout Québec

| Severity of Accident | Throughout Québec | | |
|---------------------------------|---|-------------------------------------|-----------|
| | Number of accidents (Average) in Winters 03-04 to 07-08 | Number of accidents in Winter 08-09 | Variation |
| Light, serious and fatal injury | 8,240 | 6,979 | -15% |
| Fatal and serious injury | 633 | 422 | -33% |

The same exercise was carried out in order to determine the impact of the measure on the number of accident victims. The results are shown in table 4.

Table 4 – Variation in the Number of Accident Victims between the Winters Preceding the Coming into Force of the Measure and the Winter of 2008–2009 – Throughout Québec

| Victims | Throughout Québec | | |
|---------------------------------|---|-----------------------------------|-----------|
| | Number of victims (Average) in Winters 03-04 to 07-08 | Number of victims in Winter 08-09 | Variation |
| Light, serious and fatal injury | 11,949 | 10,011 | -16% |
| Fatal and serious injury | 939 | 624 | -33% |

However, these results do not reflect the recent changes in Québec’s road accident record, which are positive. To this end, and in order to obtain a more accurate picture of the impact of the obligation of having winter tires, the variation in the number of accident victims outside of the mandatory period (March 15 to December 15) was determined for the same two groups of years (2008–2009, and from 2003–2004 to 2008–2009). The results are shown in Table 5.

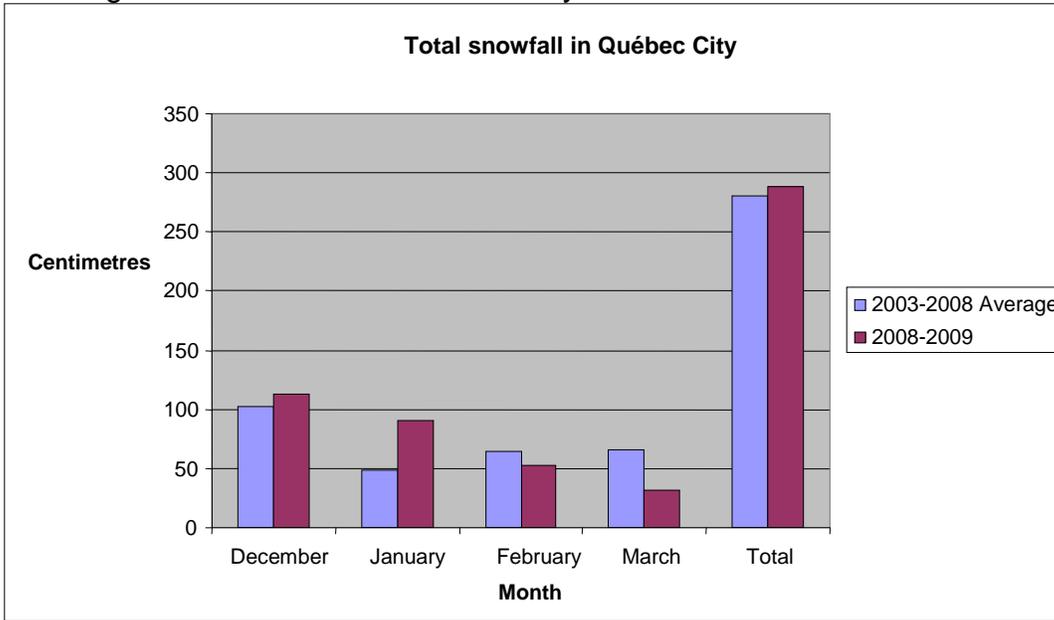
Table 5 – Variation in the Number of Accident Victims in 2008–2009 and the Average from 2003 to 2008

| | Mandatory Period (December 15 to March 15) | Period outside of the Mandatory Period (rest of the year) |
|-------------------|--|---|
| Throughout Québec | -16% | -11% |

Therefore, the decrease in the number of accident victims throughout Québec was more significant during the period when the use of winter tires was mandatory (16% as compared to 11%). This represents a net improvement of 5%, which means that the measure spared 597 people from being accident victims in 2008–2009.

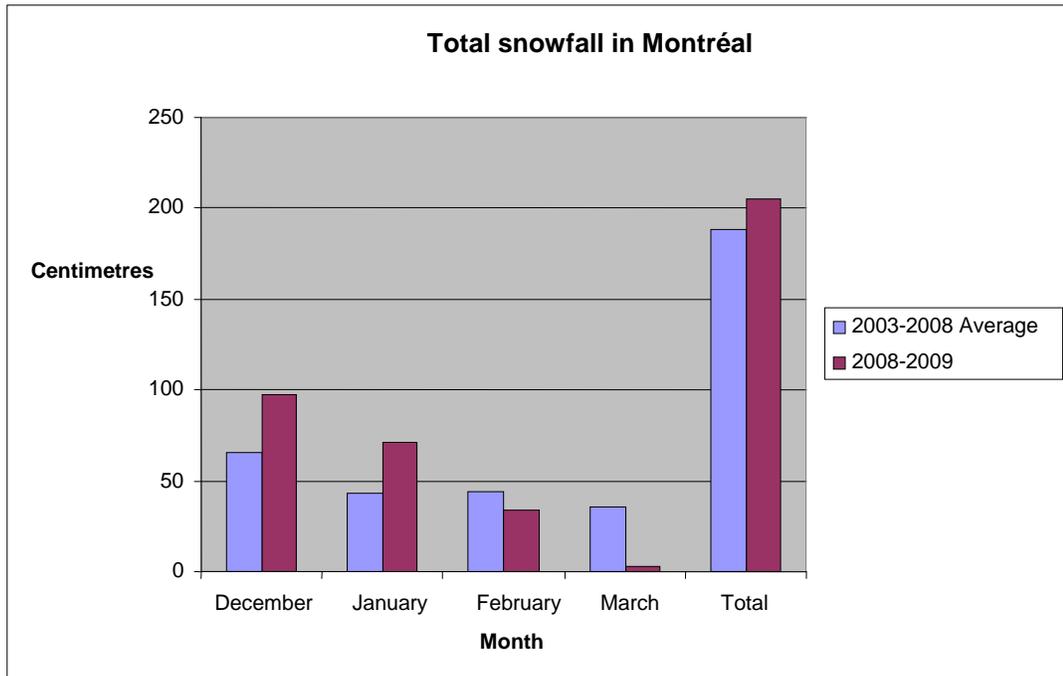
Annual variations in snowfall can also have an impact on the number of accidents reported in different winter seasons. Therefore, the total snowfalls from 2003 to 2008 were compared to that for 2008-2009. Figures 2 and 3 show the results for the Québec City and Montréal areas. In both cases, the snowfalls were heavier during the first winter season of mandatory snow tires than the average for the preceding five winters. Consequently, we cannot attribute the reduction in accidents to smaller snowfalls.

Figure 2 – Snowfalls – Québec City



Source: Environment Canada, National Climate Archive

Figure 3 – Snowfalls – Montréal



Source: Environment Canada, National Climate Archive

6. DISCUSSION

Québec was the first road administration in North America to make the use of winter tires mandatory during the winter. It implemented this measure in order to improve the safety of all road users, and consequently, its road safety record.

After one season of enforcement, the accident data indicate that the measure had a positive impact on road safety. In fact, a comparison of 2008–2009 data with data for the five preceding years reveals that the decrease in the number of accident victims was greater during the period when winter tire use was mandatory than during the rest of the year. The number of victims was reduced by 5% throughout Québec, after factoring in the impact of the overall improvement in Québec's safety record over the past few years. This means that 597 people avoided becoming victims of road accidents as a result of this measure.

The comments that were received at the end of the first mandatory year resulted in the adoption of a new regulation amending the *Regulation respecting the use of tires specifically designed for winter driving* in November 2009. No new amendments are deemed necessary at the end of the second season of enforcement.

The campaigns aimed at promoting the measure will continue over the next few years, in order to ensure that some of the key terms and conditions are thoroughly understood by the entire population, namely the mandatory period (December 15 to March 15) and the fact that effective, December 15, 2014, only those tires that bear the mountain symbol with a superimposed snowflake will be recognized as winter tires.

Finally, studies aimed at establishing the impact of the mandatory use of winter tires on accidents after two seasons of enforcement are currently underway, and should be completed within the next few weeks.

REFERENCES

- [1] Léger Marketing, *Étude d'impact publicitaire (Advertising Impact Analysis)* April 2009.