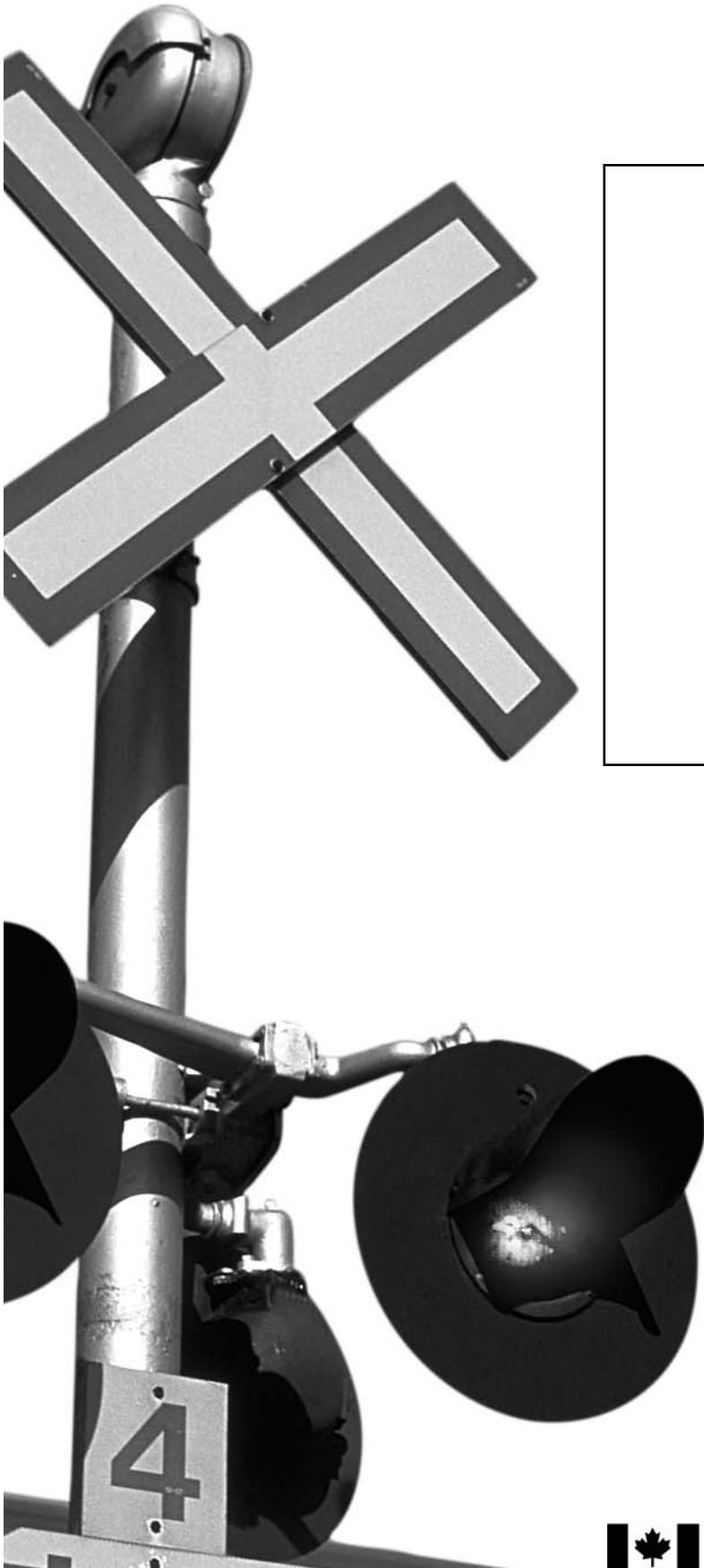


# Highway-Railway

GRADE CROSSING RESEARCH



TP 14232E

**Second Train Event Safety Sign -  
Concept Development**

*Prepared for*  
Transportation Development Centre  
Transport Canada

*by*  
Gauthier Dubois Girard architectes

October 2003



Transport  
Canada

Transports  
Canada

Canada



**Second Train Event Safety Sign –  
Concept Development**

by

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**October 2003**

This report reflects the views of the authors and not necessarily those of the Transportation Development Centre of Transport Canada or the sponsoring organizations.

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16. Abstract <p>When two or more trains are moving at the same time in urban areas or near stations, pedestrians often experience problems with perception. Very often they are unable to detect the potential presence of a second train on another track. This sometimes results in behaviour indicating that they are unaware of the danger.</p> <p>To help rectify this situation, Transport Canada contracted Gauthier Dubois Girard architectes to design a second train event safety poster concept that is effective and readily understood. This sign had to be an appropriate warning to users that a second train was moving at the same time as a passenger train was arriving or departing. To help make pedestrians more aware of the danger, the sign had to draw attention without being intrusive.</p> <p>After a literature review and visits to two sites to observe and understand the problem, Gauthier Dubois Girard Architectes designed a sign to warn pedestrians of the potential presence of a second train. Two prototype signs were then produced and installed at the sites chosen for the project: Montreal West and St. Basile le Grand. To measure the effectiveness of the signs, a survey was conducted in the field for the period of a week.</p> <p>This report presents the details of the design phase of the second train warning sign for pedestrians and the results of the survey conducted in the field.</p>					
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16. Résumé <p>Lorsque deux trains ou plus se déplacent simultanément en milieu urbain ou aux abords des gares, les piétons éprouvent souvent des problèmes de perception. Bien souvent, ils sont incapables de déceler la présence possible d'un deuxième train circulant sur une autre voie ferrée. Il en résulte alors parfois un comportement qui dénote une inconscience du danger.</p> <p>C'est pour corriger cette situation que la firme Gauthier Dubois Girard architectes a été mandatée par Transports Canada afin de concevoir un panneau de sécurité illustrant la possibilité de la présence d'un deuxième train, efficace et compréhensible. Ce panneau devait être adapté à la problématique du passage d'un deuxième train coïncidant avec l'arrivée ou le départ d'un train de passagers. Afin de sensibiliser les piétons, il fallait élaborer une signalisation qui interpelle sans toutefois être envahissante.</p> <p>Après une revue de la littérature et une visite de deux sites afin de bien visualiser et comprendre la problématique, les chercheurs ont procédé à la conception d'un panneau de signalisation avertissant de la présence possible d'un deuxième train. Deux panneaux prototypes ont été fabriqués et, par la suite, installés aux deux sites choisis pour le projet, soit à la gare Montréal-Ouest et à Saint-Basile-le-Grand. Afin de bien mesurer l'efficacité des panneaux, un sondage a été effectué sur le terrain auprès des usagers et ce, pendant une semaine.</p> <p>Ce sont essentiellement les étapes de la conception du panneau de signalisation et les résultats du sondage réalisé sur le terrain qui vous sont présentés dans cette étude.</p>					
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Many grade crossings in urban areas or at stations pose a perception problem when more than one train is moving at the same time or in the immediate area. With passenger and freight trains arriving, departing or simply passing through, warning devices must be installed. When one of these situations arises, pedestrians waiting on either side of the tracks must be extremely careful when crossing them. Moreover, the loud metallic noise made by a train passing usually prevents pedestrians from hearing whether a second train might be coming.

That is why the team was mandated by Transport Canada to design a visual communication component that is effective, readily understood and appropriate in order to warn users about a second train passing at grade crossings and in stations. We have accordingly developed a sign that will catch a pedestrian's attention without being intrusive. This sign should be immediately deciphered and understood by pedestrians in order to alert them to the risk.



To design a sign tailored to the problem identified, we adopted the following methodology:

1. Collect information and review studies done on grade crossings;
2. Visit two sites to closely observe and understand the problem;
3. Read and analyse the literature on grade crossings;
4. Hold a brainstorming session to design a sign appropriate to the problem;
5. Produce a preliminary design of the sign warning of the passage of a second train;
6. Present it to the Transport Canada representatives;
7. Modify, adjust and choose the design;
8. Supervise the production of a prototype sign;
9. Together with the partners, develop the conceptual basis for the survey;
10. Submit a methodology for measuring comprehension of the prototype sign in the field;
11. Conduct the survey in the field to measure the effectiveness of the sign;
12. Present the results of the field survey.



3.1 Message

The aim of the message is to warn pedestrians who are tempted to cross railway tracks that a stationary or moving train may be hiding another approaching train on the second track. Thus the message involves four components:

- the pedestrian;
- the pedestrian railway crossing;
- a stationary or moving train;
- a second moving train that is out of the pedestrian's field of view.

3.2 Appearance

The composition of the sign must be simple, it must stress the potential danger, and it must be easily understood by everyone.

To be clear and concise, the sign must use uncluttered lines and a language known to the users. It must avoid information overload and must show the composition of all the components in a homogeneous whole.

To stress the potential danger, the sign must draw attention to the movement of the second train. This aspect must be highlighted in contrasting manner in the composition of the sign.

To make the sign readily understood by everyone across Canada, the sign must be free of any regional or stylistic text or representation. The sign's message must reach as many people as possible.

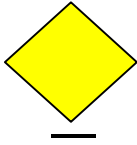
3.3 Signage rules

Warning signs must always be clear and concise. For that reason we wanted to respect the rules governing road signs all around us, so that the message would be quickly and easily understood by users. The standards for Canadian road signs prescribe the colour, shape, lettering and logotypes to be used. These rules must be followed for all signs.



4.1 Visual

Colour and shape



**Figure 1: Yellow square shape resting on a corner**

Lettering and logotype

Design elements to be avoided

Transportation Association of Canada (TAC) standards stipulate that warning signs must be **yellow in colour and in the shape of a square resting on a corner (diamond-shaped)**. The sign being designed is in this category, since it warns users of a particular situation, mainly people who are not familiar with rail traffic at grade crossings (see TAC A 3.1.4) (Across Canada-TAC). Thus it is important to use yellow as the background colour, and the diamond shape mentioned earlier, so that users will understand the importance of the message and the warning being given from the sign's colour and shape (Figure 1).

The lettering to be used on road signs is the *Standard Alphabet for Highways*. There are a number of lettering categories, in series from B to E. To design our sign, we must use series B lettering.

As for the logotypes, we must use those that are currently standardized. Thus the following components must be found on pedestrian warning signs posted at railway tracks: a railway track, a train and a pedestrian. These three graphic components are found on standard sign I-310, which indicates a railway station (Figure 2).

So that the sign will be clear and concise, it is important that it be homogeneous. Homogeneous signage enables users to orient themselves and quickly understand the message. Thus we must avoid placing **too much information on one sign** (too many graphic components) or **stylizing the signs** (too many graphic details). A road sign that is too detailed does not capture a user's attention in the time allowed to read it and to assimilate its message.



**Figure 2: Standard sign I-310 – railway station**

### 4.1 Visual (continued)



**ATTENTION !**

Figure 3: Panel 1



Figure 4: Panel 2

### 4.2 Manufacture

The first type of sign (Figure 3) uses two panels mounted on a pole. The warning sign (600 mm x 600 mm, with the points up and down) contains the main message, and the panel mounted below it (300 mm x 600 mm) reinforces the message. Both panels use standard shapes and colours.

The warning sign contains the main message. From a perspective at the vanishing point, it shows a pedestrian crossing a railway track in front of a stationary train, while a second train is approaching. Having the perspective at the vanishing point draws together the components used to compose the message, and gives the sign depth. To illustrate the event (the movement of the second train), an arrow in a contrasting colour is shown between the rails, crossing the path being taken by the pedestrian. The profile of the train in the foreground is intentionally not filled in, because it could be either the front or the rear of the train. This also gives more prominence to the approaching train.

The lower panel, also of standard shape and size, reinforces the message. It bears the word “**ATTENTION**”, which is understandable in both English and French. Here the intent is not to scare users but to get their attention.

The second proposal (Figure 4), which is larger than the first, uses a panel 1,500 mm x 900 mm (oversize). It includes all elements in the sign described above. Here, on a white background, the warning sign is placed on the right. This time, the red arrow indicating the movement of the train stretches beyond the border of the sign to make the danger very clear. The lettering, which here is more explicit, conveys the warning in both official languages. This sign is mounted on two poles.

The chosen warning sign should be manufactured using reflective sheeting and screen printing. A sign made with reflective sheeting will reflect the ambient light and be more visible at night.

It is recommended that the warning signs be made in the dimensions indicated in Table 1. These dimensions give adequate visibility at a reasonable distance for understanding the message.



4.2 Manufacture (continued)

**Table 1: Sign dimensions**

<b>Sign type</b>	<b>Dimensions</b>
Warning sign:	
Diamond-shaped sign	600 mm x 600 mm
Panel bearing the message “Attention!”	600 mm x 300 mm
Billboard-type sign	1,500 mm x 900 mm

4.3 Installation

The warning sign must be placed where it will be highly visible to pedestrians. If it is located too far from the railway crossing, users will forget its message.

There are also standards for installing signs beside a road or sidewalk that must be complied with. These standards state that there must be a vertical clearance of 2.2 m between the ground and the bottom of the sign, and a horizontal clearance of 0.3 m between the side of the sign and the road or sidewalk (see Appendix B).

Appendix A shows the recommended installation and location for the warning sign. Of course, the standards for clearance with the railway track must be respected. These standards are governed by the managers of the railways (such as Canadian National and Canadian Pacific) and vary from company to company.



5.1 Sign selected

The first of the two sign models presented was chosen for testing with the public. It is more compact in both size and message, and it would fit better into the desired context without creating a significant visual barrier.

5.2 Analysis site

Working with Transport Canada officials, we studied a number of sites for a survey to measure the perception of the sign by users and passers-by. The two sites chosen were the Montreal West Station for its multi-ethnic clientele and large number of users, and the site on Montée Robert in Saint-Basile-le-Grand for the large number of passers-by.

5.2.1 Montreal West Station

Montreal West Station is located near Concordia University, two public schools, a park and a bicycle path. The station is also in a residential area, so there is a great deal of pedestrian traffic along the track. Currently there are police on duty each school-day morning to provide safety at the Elmhurst Street railway crossing. Figure 5 is a map of the district.



Figure 5: Montreal West Station district

## 5.2 Analysis (continued)

### 5.2.2 Saint-Basile-le-Grand

The Saint-Basile-le-Grand site is located where the track crosses Montée Robert. Trains do not stop at this point, and they are moving at high speed. Many pedestrians cross the track here, and the bicycle path on the south side of the track is in frequent use. Figure 6 is a map of the district showing the location of the site selected.

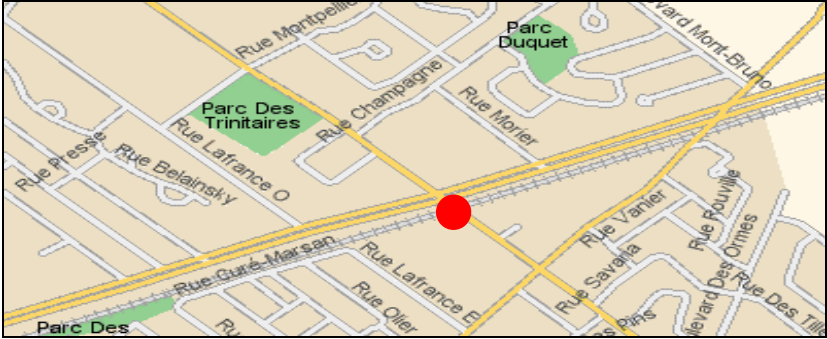


Figure 6: Saint-Basile-le-Grand district

## 5.3 Location

Once the sites had been chosen, the test signs were placed. Two test signs were installed at each site, facing the direction of pedestrian traffic.

### 5.3.1 Montreal West Station

The placement of the test signs was decided on with the help of Canadian Pacific, which manages the track at this location. At Montreal West Station there is a problem with space and visibility for the signs. There are very many visual elements at the site (trees, signs, street furniture, etc.). Also, fibre-optic cables are buried along the track, so signs cannot be installed at that location. It was agreed with the Canadian Pacific officials to install the signs on the poles for the flashing level crossing lights. Figure 7 shows the location of a test sign at the site.



Figure 7: Montreal West site

5.3 Location (continued)



Figure 8: Saint-Basile-le-Grand site

5.3.2 Saint-Basile-le-Grand

Compared to the Montreal West Station site, there were fewer restrictions on installing the test signs at the Saint-Basile-le-Grand site. The space near the track is quite open (no visual obstacles) compared to Montreal West Station. We had to meet the clearance requirements of Canadian National (which manages the track at this location) because of underground conduits at the site. We therefore installed one of the signs on an existing pole and the other on a new pole, as shown in Figure 8.



6.1 Objectives

The main objective of this study was to **measure comprehension** of the sign by pedestrians walking near commuter train tracks.

The secondary objectives were to:

- Measure the notice taken of the sign;
- Compare the comprehension rate for the sign assessed with the demographic profile.

6.2 Methodology

The population studied consisted of pedestrians at Montreal West Station and at the intersection of Montée Robert and Laurier Boulevard in Saint-Basile-le-Grand at times when commuter trains were running (Table 2).

**Table 2: Location, date and language**

<b>Interview location</b>	<i>n</i> = 506
Montreal West Station	80%
Saint-Basile-le-Grand	20%
<b>Interview date</b>	<i>n</i> = 506
June 3, 2003	19%
June 4, 2003	21%
June 5, 2003	20%
June 6, 2003	20%
June 9, 2003	20%
<b>Interview language</b>	<i>n</i> = 506
French	37%
English	63%

The questionnaire (given in Appendix C) was designed by Ad Hoc Research in co-operation with those in charge of the project in Transport Canada, at Gauthier Dubois Girard, architects and CIMA+.

The data were collected on June 3, 4, 5, 6 and 9, 2003, opposite the Montreal West Station (from 7:00 to 10:30 am and from 3:00 to 6:30 pm), and at the intersection of Montée Robert and Laurier Boulevard in Saint-Basile-le-Grand (from 7:00 to 8:00 am and from 5:00 to 7:00 pm).

A warning sign was installed at each of the two data collection sites one week before the interviews began.

The data were collected in 506 interviews – 407 at Montreal West Station and 99 at Saint-Basile-le-Grand.

The interviews lasted an average of about three minutes. Although we do not know the exact response rate, approximately half the people refused to respond to the survey when approached by the interviewers.

The precision of the study results is measured by the sampling error. It depends on two factors: the size of the sample collected and the proportion obtained on each question.

The maximum margin of error associated with a sample of this size (n=506) is  $\pm 4.36\%$  with a 95% confidence level.

**Preliminary comments on the results**

*Significant differences among the sub-groups are mentioned in the text.*

*The respondent base is indicated for each table or figure.*

*When a sub-group contains fewer than 30 respondents, the data must be interpreted with caution. In those cases the margin of error is very high, and interpretation must be limited to identifying the major trends (directional results).*

## 6.2 Methodology (continued)

Table 3 illustrates the margin of error for various proportions at a 95% confidence level.

**Table 3: Margin of error for various proportions**

	Proportion					
	5%, 95%	10%, 90%	20%, 80%	30%, 70%	40%, 60%	50%
Margin of error	± 1.9%	± 2.61%	± 3.49%	± 3.99%	± 4.27%	± 4.36%

The detailed study results are given in the form of statistical tables in Appendix D. The following variables were used for the crossings: interview location, gender, number of visits to the site, age, education and place of birth.

## 6.3 Results

### 6.3.1 Profile of respondents

**Table 4: Gender, age and education**

<b>Gender of respondent</b>	<i>n</i> = 498
Female	52%
Male	48%
<b>Age</b>	<i>n</i> = 501
Under age 18	29%
18 to 24	13%
25 to 34	16%
35 to 44	18%
45 to 54	14%
55 to 64	7%
65 and over	4%
<b>Level of education</b>	<i>n</i> = 496
Elementary or less	20%
High school	23%
College/trade school/CEGEP	19%
University	38%

The respondents were almost equally divided by gender (women: 52% and men: 48%). Also, the respondents we met were fairly young. Nearly a third (29%) were under age 18, and the same proportion (29%) were aged 18 to 34 (18 to 24: 13%, and 25 to 34: 16%).

The level of education was fairly high. Nearly four respondents out of ten (38%) had completed university studies, and just under one in five (19%) had taken college courses (Table 4).



6.3 Results (continued)

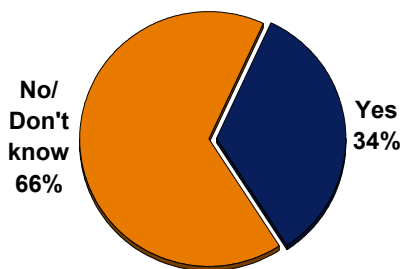
**Table 5: Place of birth and number of visits**

<b>Born in Canada</b>	<i>n</i> = 499
Yes	86%
No	14%
<b>Place of birth</b>	<i>n</i> = 71
Western Europe	35%
United States	13%
Asia	10%
Caribbean	9%
Eastern Europe	9%
Northern Africa	6%
India	6%
Vietnam	4%
Africa	4%
Other	6%
<b>Number of visits to the station or intersection in the past week</b>	<i>n</i> = 498
First time	6%
2 or 3 times	6%
4 or 5 times	15%
6 to 10 times	42%
More than 10 times	32%

Most (86%) were born in Canada. Of the respondents not born in Canada, over a third (35%) came from Western Europe, just under one in six (13%) came from the United States, and one in ten (10%) were from Asia.

Finally, most of the respondents (74%) go quite regularly to the station or intersection where they were interviewed (6 to 10 times a week: 42%; and more than 10 times a week: 32% (Table 5).

QA1 Have you seen this sign before?



**Figure 9: Have you seen this sign before?**

Base: All respondents

6.3.2 Notice taken of sign

Even though nearly three quarters of the respondents (74%) had gone more than five times to the station or intersection where the sign was installed, awareness of the sign was not very high.

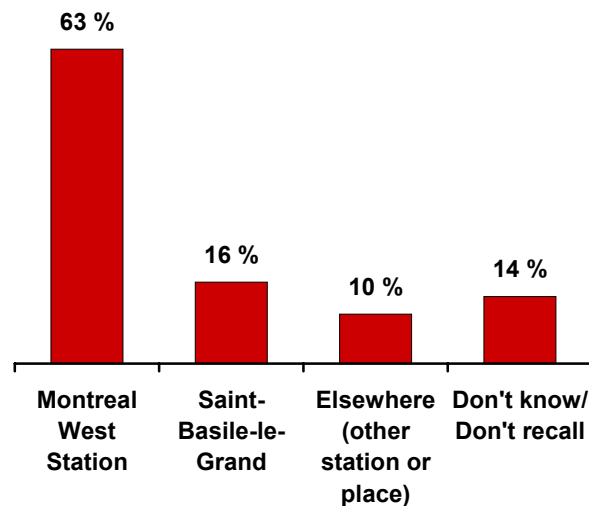
Most of the persons questioned (66%) had never noticed the sign, but just over a third (34%) said they had already seen it (Figure 9). The reason for this relatively low recall rate may be related to the sign itself or to its location.

As mentioned in section 6.2, the signs were installed at each site one week before data collection began.

Most of the respondents (86%) who had noticed the sign were able to name a site where they thought they had seen it.

## 6.3 Results (continued)

## QA2 Where did you see it?\*



\* More than one answer could be given to this question.  
Base: Respondents who had already seen the sign

**Figure 10: Place where the sign was seen**

Most of these people (63%) said they had seen the sign at Montreal West Station. More specifically, this last proportion is 77% for the respondents who were interviewed at the station.

Approximately one person in six (16%) saw the sign at Saint-Basile-le-Grand. This proportion is 87% for respondents who were interviewed at Saint-Basile-le-Grand.

Finally, nearly a quarter of the respondents who had already seen the sign (24%) said that they had seen it somewhere other than at these two sites (10%) or did not know where they had seen it (14%) (Figure 10).

## 6.3.3 Understanding of sign

The understanding of the sign was fairly good (Figure 11).

Over seven respondents out of ten (71) spontaneously understood its meaning.

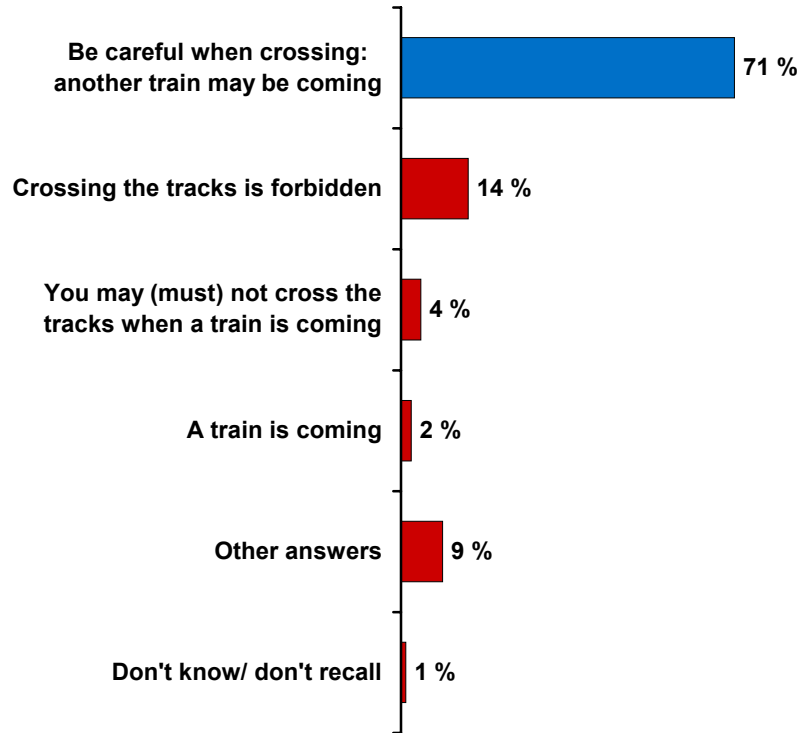
Most of those who did not understand the sign took it to be a prohibition against crossing the tracks:

- Crossing the tracks is prohibited (14%);
- One cannot/must not cross when the train is coming (4%).

6.3 Results (continued)

QA3 In your opinion, what is the meaning of this sign?

However, there was no statistically significant difference between the sub-groups considered.



Base: All respondents

Figure 11: Meaning of sign

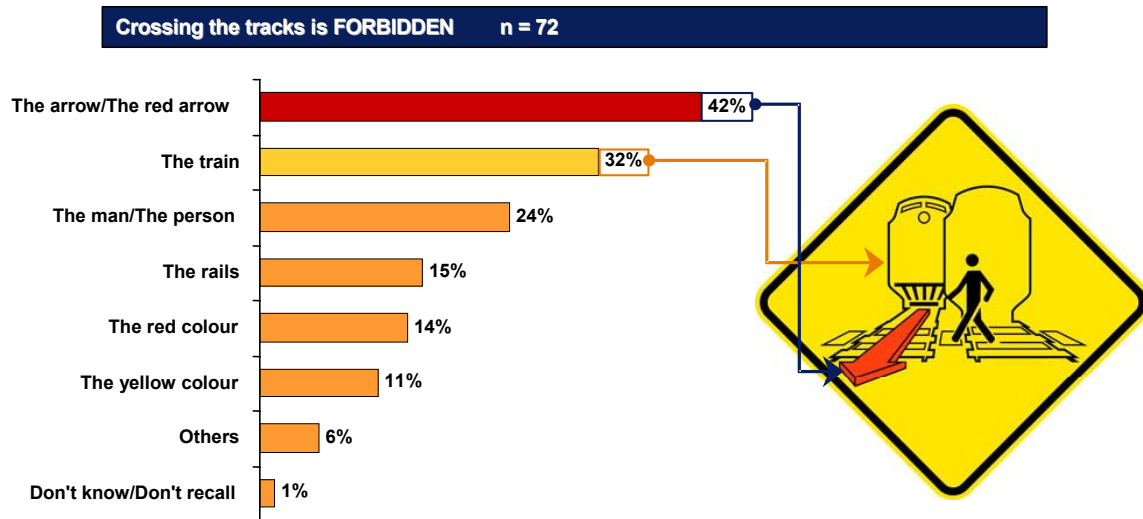
Among respondents who thought that the sign meant that crossing the tracks is forbidden, the visual aspects that led to this conclusion were varied (Figure 12).

The most frequently mentioned aspect was the arrow, or the red arrow (42%). The contrasting colour, red, which is generally associated with prohibition, highlights the arrow symbol, probably leading the respondents to associate it with a prohibition against crossing the tracks. Also, nearly one respondent in six (14%) directly associated the colour red with a prohibition message.

Another aspect mentioned by nearly a third (32%) of respondents: the train. The fact that the two trains take up most of the available space on the sign may have led the participants to associate the train with a prohibition against crossing the tracks.

## 6.3 Results (continued)

QA4 What aspect(s) of the sign make you think that? \*



**Figure 12: Aspects of the sign that led to interpretation (respondents for whom the sign meant “Crossing the tracks is forbidden”)**

Base: Respondents for whom the sign means “crossing the tracks is forbidden”  
\* More than one answer could be given for this question.

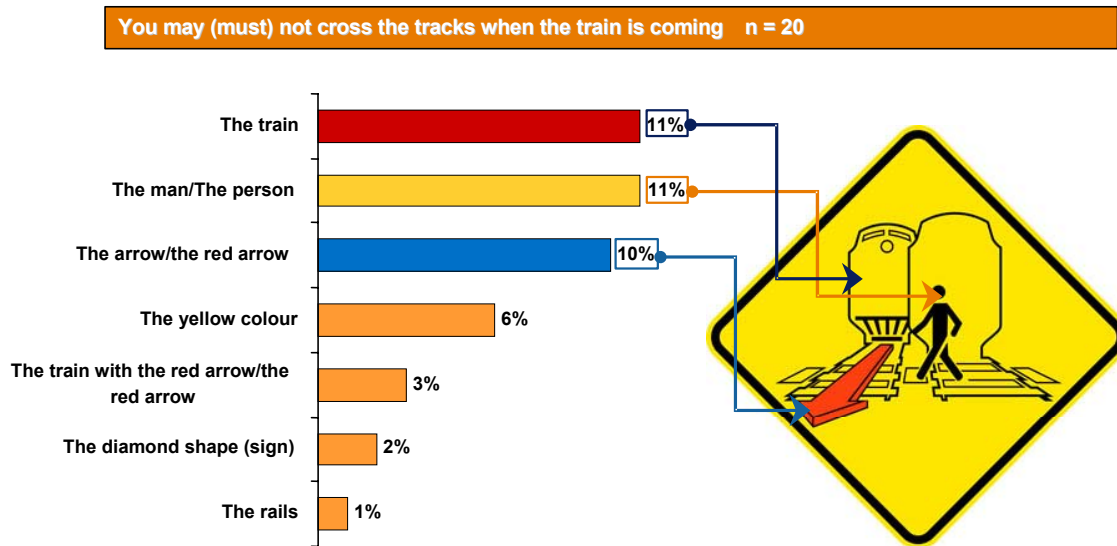
Also, for respondents who thought that the sign meant that they must not or should not cross the tracks when a train is coming, the same visual elements were mentioned to explain this answer (Figure 13).

In this case, the elements most often mentioned were the train (11 out of 20) and the person crossing (11). These visual elements were mentioned in the respondents’ answers. The red arrow was also mentioned by half the respondents (10 out of 20). Again, the colour red was associated with the idea of a prohibition.

Finally, there was no statistically significant difference between the sub-groups surveyed.

6.3 Results (continued)

QA4 What aspect(s) of the sign make you think that?\*



**Figure 13: Aspects of the sign that led to interpretation (respondents for whom the sign meant “You may (must) not cross the tracks when a train is coming”)**

Base: Respondents for whom the sign meant “You may (must) not cross the tracks when a train is coming”  
\* More than one answer could be given to this question.



In conclusion, here are the answers to the main questions raised erecting this sign.

**Was the sign seen and noticed by the respondents?**

Only a minority (34%) remembered having seen the sign before the interview. There are two possible reasons for this low recall rate: the signs may have been installed where they were not very visible; or they may not have drawn people's attention.

**Was the meaning of the sign clearly understood?**

Overall, the comprehension of the sign was good. Over seven people out of ten (71%) understood its exact meaning. Most of the other respondents guessed that it was dangerous to cross the tracks, and that is well in line with the initial objectives. It should be noted that there was no difference in comprehension among people of different ages, education levels or origins; this suggests that the sign has universal significance. We therefore believe that this sign is well enough understood to be used in its present form. Nevertheless, to reinforce the message, we recommend that the second train be shown in black to create a focal point for the danger being illustrated.

**Recommendation**

Since only a minority of respondents noticed the sign, but most understood the essence of its message, it would be beneficial for Transport Canada to install the signs at places where they will be more visible, and to support an ongoing campaign to install these signs.





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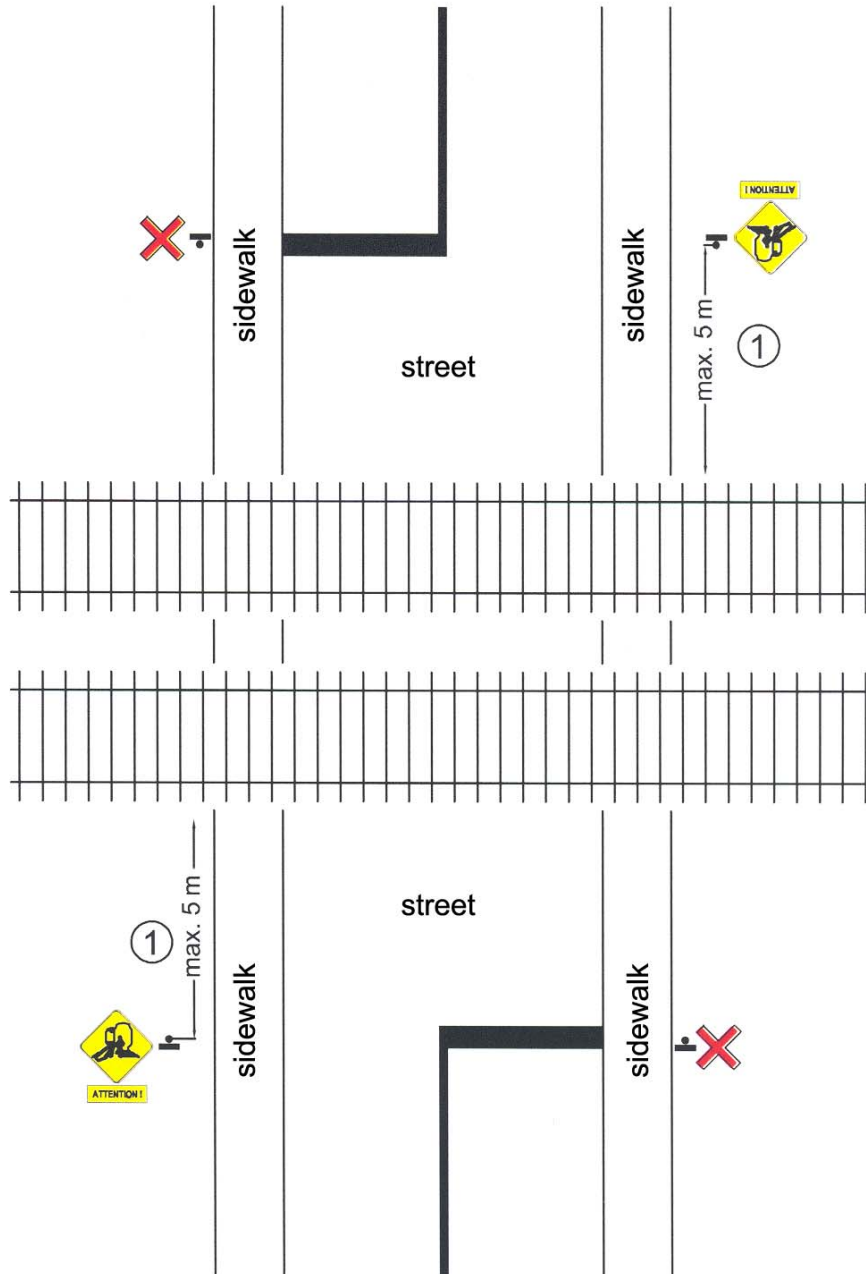
## **Appendix A**

Location

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# LOCATION



Note: ① Track clearance standards, which vary according to the company managing the railway, must be adhered to.



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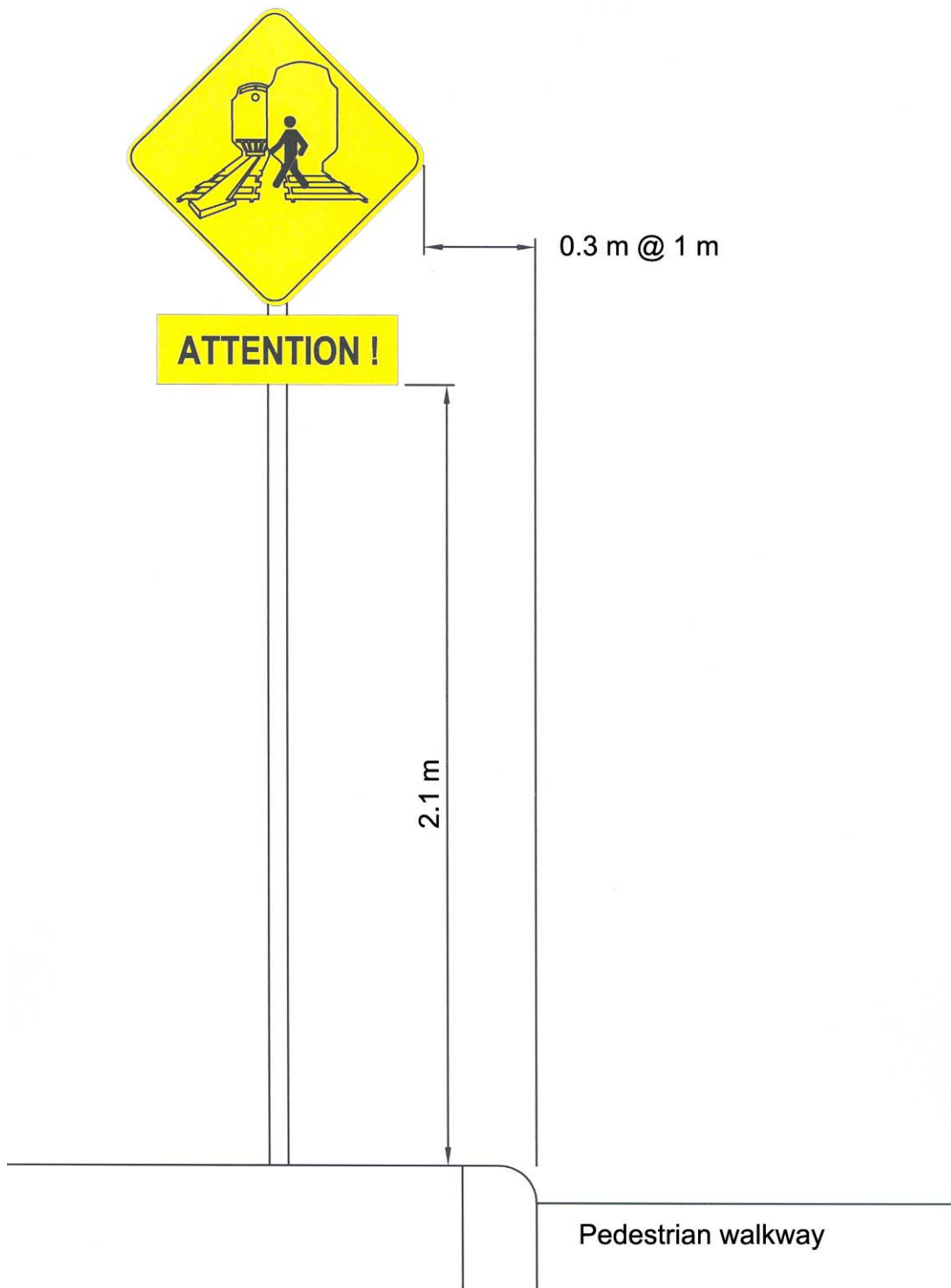


## **Appendix B**

### Installation Criteria

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## INSTALLATION CRITERIA





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## **Appendix C**

### Questionnaire

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**EVALUATION OF A TRANSPORT CANADA ROAD SIGN (TT01)  
 ONE-ON-ONE QUESTIONNAIRE**

*Hello/good evening, my name is \_\_\_\_\_ from Ad Hoc Research. We are currently evaluating a road sign for Transport Canada. Could I ask you a few short questions?*

**(SELECT A PERSON WHO CAN EXPRESS THEMSELVES WELL IN ENGLISH. USE THIS QUESTIONNAIRE IF THE PERSON SPEAKS ENGLISH AND THE FRENCH QUESTIONNAIRE IF THE PERSON SPEAKS FRENCH.)**

**A. Indicate where the interview took place:**

- 1 Montreal West train station
- 2 Saint-Basile-le-Grand

**B. Indicate the date of the interview:**

- June 3
- June 4
- June 5
- June 6
- June 7
- June 8
- June 9

**C. Indicate the time of the interview:**

\_\_\_\_\_ : \_\_\_\_\_

**SECTION A – AWARENESS AND UNDERSTANDING OF THE SIGN**

**(SHOW RESPONDENT SIGN BEING TESTED)**

QA1 Have you seen this sign before?

- 1 Yes → **Continue**
- 2 No → **Go to QA3**
- 9 DNK → **Go to QA3**

QA2 Where did you see it? **(DO NOT READ – SEVERAL ANSWERS POSSIBLE)**

- 1 Montreal West train station
- 2 Saint-Basile-le-Grand
- 3 Elsewhere (other station or place)
- 9 DNK

QA3 In your opinion, what is the meaning of this sign? **(DO NOT READ)**

- 001 Caution must be used when crossing the train tracks because another train may be approaching → **GO TO QB1**
- 002 Crossing the tracks is **forbidden**
- 003 Crossing the tracks is **permitted**
- 004 That is where passengers get off the train
- 996 Other (specify): \_\_\_\_\_

\_\_\_\_\_  
 \_\_\_\_\_

- 999 DNK → **GO TO QB1**

QA4 What aspect(s) of the sign make you think that? **(DO NOT READ)**

- 996 Other (specify): \_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_

**SECTION B – RESPONDENT PROFILE**

QB1 How many times have you come to this station/intersection within the past week? **(READ)**

- 1 This is the first time
- 2 2 or 3 times
- 3 4 or 5 times
- 4 6 to 10 times
- 5 More than 10 times
- 9 DNK

QB2 To which age category do you belong? **(READ)**

- 1 Under 18
- 2 18 to 24
- 3 25 to 34
- 4 35 to 44
- 5 45 to 54
- 6 55 to 64
- 7 65 and over
- 9 DNK

QB3 What is the highest level of schooling that you completed? **(READ)**

- 1 Elementary or less
- 2 High school
- 3 College/trade school/Cegep
- 4 University
- 9 DNK

QB4 Were you born in Canada?

- 1 Yes → **Go to conclusion**
- 2 No → **Continue**
- 9 DNA → **Go to conclusion**

QB5 Where were you born?

- 001 United States
- 004 France
- 034 Hong Kong
- 035 Tunisia
- 036 China
- 041 Turkey
- 042 Égypt
- 044 Japan
- 047 Morocco
- 049 India
- 053 Algeria
- 060 Haiti
- 065 Vietnam
- 092 Taiwan
- 095 Great Britain
- 996 Other (specify) \_\_\_\_\_
- 999 DNA

**(REGISTER GENDER)**

QB6

- 1 Female
- 2 Male

*It's now over !*  
**On behalf of Ad Hoc Research and Transport Canada,**  
*I thank you very much for your cooperation !*

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## **Appendix D**

Detailed statistical tables

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	Total	Interview location		Gender		Number of visits to the station			Age			Education			Born in Canada	
		Montreal West	St. Basile	Male	Female	5 or less	6 to 10	More than 10	Under 25	25 to 44	45 and over	Elementary + High School	College	University	Yes	No
QA2) Place where sign was seen (first mention)	108	108		56	52	25	39	43	51	37	19	49	13	45	88	19
	63.2%	77.1%		64.4%	61.9%	62.5%	56.5%	71.7%	68.0%	58.7%	59.4%	67.1%	54.2%	61.6%	60.7%	76.0%
Saint-Basile-le-Grand	28	1	27	15	13	5	17	6	13	11	4	13	6	9	28	
	16.4%	.7%	87.1%	17.2%	15.5%	12.5%	24.6%	10.0%	17.3%	17.5%	12.5%	17.8%	25.0%	12.3%	19.3%	
DNK/DNR	23	19	4	12	11	7	7	8	6	12	5	7	4	12	19	4
	13.5%	13.6%	12.9%	13.8%	13.1%	17.5%	10.1%	13.3%	8.0%	10.9%	15.6%	9.6%	16.7%	16.4%	13.1%	16.0%
Elsewhere (other station or place)	12	12		4	8	3	6	3	5	3	4	4	1	7	10	2
	7.0%	8.6%		4.6%	9.5%	7.5%	8.7%	5.0%	6.7%	4.8%	12.5%	5.5%	4.2%	9.6%	6.9%	8.0%
Total	171	140	31	87	84	40	69	60	75	63	32	73	24	73	145	25
	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

	Total	Interview location		Gender		Number of visits to the station			Age			Education			Born in Canada	
		Montreal West	St. Basile	Male	Female	5 or less	6 to 10	More than 10	Under 25	25 to 44	45 and over	Elementary + High School	College	University	Yes	No
QA2) Place where sign was seen (all mentions)	108	108		56	52	25	39	43	51	37	19	49	13	45	88	19
	63.2%	77.1%		64.4%	61.9%	62.5%	56.5%	71.7%	68.0%	58.7%	59.4%	67.1%	54.2%	61.6%	60.7%	76.0%
Saint-Basile-le-Grand	28	1	27	15	13	5	17	6	13	11	4	13	6	9	28	
	16.4%	.7%	87.1%	17.2%	15.5%	12.5%	24.6%	10.0%	17.3%	17.5%	12.5%	17.8%	25.0%	12.3%	19.3%	
DNK/DNR	23	19	4	12	11	7	7	8	6	12	5	7	4	12	19	4
	13.5%	13.6%	12.9%	13.8%	13.1%	17.5%	10.1%	13.3%	8.0%	19.0%	15.6%	9.6%	16.7%	16.4%	13.1%	16.0%
Elsewhere (other station or place)	17	17		6	11	3	8	6	8	5	4	6	2	9	15	2
	9.9%	12.1%		6.9%	13.1%	7.5%	11.6%	10.0%	10.7%	7.9%	12.5%	8.2%	8.3%	12.3%	10.3%	8.0%
Total	171	140	31	87	84	40	69	60	75	63	32	73	24	73	145	25
	102.9%	103.6%	100.0%	102.3%	103.6%	100.0%	102.9%	105.0%	104.0%	103.2%	100.0%	102.7%	104.2%	102.7%	103.4%	100.0%

		Total	Interview location		Gender		Number of visits to the station			Age			Education			Born in Canada	
			Montreal West	St. Basile	Male	Female	5 or less	6 to 10	More than 10	Under 25	25 to 44	45 and over	Elementary + High School	College	University	Yes	No
QA3) What sign means (first mention)	Be careful when crossing; another train may be crossing	357	288	69	185	167	92	145	116	150	115	90	143	67	142	298	54
		70.6%	70.8%	69.7%	71.7%	69.6%	70.2%	69.0%	73.9%	71.1%	68.9%	73.2%	67.5%	71.3%	74.7%	69.8%	75.0%
	Crossing the tracks is forbidden	72	68	4	40	31	16	28	27	34	19	16	34	10	24	64	7
		14.2%	16.7%	4.0%	15.5%	12.9%	12.2%	13.3%	17.2%	16.1%	11.4%	13.0%	16.0%	10.6%	12.6%	15.0%	9.7%
	You may (must) not cross the tracks when a train is coming	21	8	13	12	9	7	11	3	5	11	5	10	4	7	17	3
		4.2%	2.0%	13.1%	4.7%	3.8%	5.3%	5.2%	1.9%	2.4%	6.6%	4.1%	4.7%	4.3%	3.7%	4.0%	4.2%
	A train is coming	11	10	1	6	5	2	5	3	2	7	2	4	4	3	11	
		2.2%	2.5%	1.0%	2.3%	2.1%	1.5%	2.4%	1.9%	.9%	4.2%	1.6%	1.9%	4.3%	1.6%	2.6%	
	DNK/DNR	5	5		1	4	2	2	1	4		1	4	1		4	1
		1.0%	1.2%		.4%	1.7%	1.5%	1.0%	.6%	1.9%		.8%	1.9%	1.1%		.9%	1.4%
	It is dangerous to cross/pass	4	4		1	2		3	1		3	1			4	2	2
		.8%	1.0%		.4%	.8%		1.4%	.6%		1.8%	.8%			2.1%	.5%	2.8%
	Crossing the tracks is permitted	3	2	1	1	2	1	1		1	1	1	2	1		3	
		.6%	.5%	1.0%	.4%	.8%	.8%	.5%		.5%	.6%	.8%	.9%	1.1%		.7%	
	Two trains are coming	3	3		1	2	1	2		1	1	1	1		1	1	2
		.6%	.7%		.4%	.8%	.8%	1.0%		.5%	.6%	.8%	.5%		.5%	.2%	2.8%
	Two trains could come at the same time	3	1	2	2	1		2		1	2		1		2	3	
		.6%	.2%	2.0%	.8%	.4%		1.0%		.5%	1.2%		.5%		1.1%	.7%	
	People get off the train here	2	1	1	2			1	1	1	1		2			2	
		.4%	.2%	1.0%	.8%			.5%	.6%	.5%	.6%		.9%			.5%	
	Do not cross in front of the train	2	2		2			2		1		1	1	1		1	1
		.4%	.5%		.8%			1.0%		.5%		.8%	.5%	1.1%		.2%	1.4%
	You must not cross when the gates are down	1	1			1	1			1					1	1	
		.2%	.2%			.4%	.8%			.5%					.5%	.2%	
	Be careful	1	1		1		1				1				1	1	
		.2%	.2%		.4%		.8%				.6%				.5%	.2%	
	The train stop is dangerous	1	1		1		1				1				1		1
		.2%	.2%		.4%		.8%				.6%				.5%		1.4%
	You can cross, but only when there are cars	1	1		1			1			1		1			1	
		.2%	.2%		.4%			.5%			.6%		.5%			.2%	
	Cross when the train is coming	1	1		1				1	1			1			1	
		.2%	.2%		.4%				.6%	.5%			.5%			.2%	
	Do not go in front of the train	1	1		1				1	1			1			1	
		.2%	.2%		.4%				.6%	.5%			.5%			.2%	
	Another train is crossing	1	1		1				1	1			1			1	
		.2%	.2%		.4%				.6%	.5%			.5%			.2%	
	You can't cross when another train is coming	1		1	1		1				1				1	1	
		.2%		1.0%	.4%		.8%				.6%				.5%	.2%	
	Attention: do not cross the tracks when the train is coming	1		1	1			1				1		1		1	
		.2%		1.0%	.4%			.5%				.8%		1.1%		.2%	
	That there are train tracks	1		1	1		1			1				1		1	
		.2%		1.0%	.4%		.8%			.5%				1.1%		.2%	
	You will get hit if you cross when the train comes	1		1	1			1		1			1			1	
		.2%		1.0%	.4%			.5%		.5%			.5%			.2%	
	Wait for the train to pass before crossing	1	1		1		1			1			1			1	
		.2%	.2%		.4%		.8%			.5%			.5%			.2%	
	You cannot pass because a train is coming	1	1		1			1		1					1	1	
		.2%	.2%		.4%			.5%		.5%					.5%	.2%	
	Do not cross	1		1	1			1				1		1		1	
		.2%		1.0%	.4%			.5%				.8%		1.1%		.2%	
	Do not cross because a train is coming	1	1		1		1					1	1			1	
		.2%	.2%		.4%		.8%					.8%	.5%			.2%	



	Total	Interview location		Gender		Number of visits to the station			Age			Education			Born in Canada	
		Montreal West	St. Basile	Male	Female	5 or less	6 to 10	More than 10	Under 25	25 to 44	45 and over	Elementary + High School	College	University	Yes	No
QA3) What the sign means (all mentions)	357	288	69	185	167	92	145	116	150	115	90	143	67	142	298	54
Be careful when crossing; another train may be coming	70.6%	70.8%	69.7%	71.7%	69.6%	70.2%	69.0%	73.9%	71.1%	68.9%	73.2%	67.5%	71.3%	74.7%	69.8%	75.0%
Crossing the tracks is forbidden	72	68	4	40	31	16	28	27	34	19	16	34	10	24	64	7
You may (must) not cross the tracks when a train is coming	14.2%	16.7%	4.0%	15.5%	12.9%	12.2%	13.3%	17.2%	16.1%	11.4%	13.0%	16.0%	10.6%	12.6%	15.0%	9.7%
A train is coming	21	8	13	12	9	7	11	3	5	11	5	10	4	7	17	3
DNK/DNR	4.2%	2.0%	13.1%	4.7%	3.8%	5.3%	5.2%	1.9%	2.4%	6.6%	4.1%	4.7%	4.3%	3.7%	4.0%	4.2%
It is dangerous to cross/pass	11	10	1	6	5	2	5	3	2	7	2	4	4	3	11	
Crossing the tracks is permitted	2.2%	2.5%	1.0%	2.3%	2.1%	1.5%	2.4%	1.9%	.9%	4.2%	1.6%	1.9%	4.3%	1.6%	2.6%	
Two trains are coming	5	5		1	4	2	2	1	4		1	4	1		4	1
Two trains could come at the same time	1.0%	1.2%		.4%	1.7%	1.5%	1.0%	.6%	1.9%		.8%	1.9%	1.1%		.9%	1.4%
People get off the train here	4	4		1	2		3	1		3	1			4	2	2
Do not cross in front of the train	.8%	1.0%		.4%	.8%		1.4%	.6%		1.8%	.8%			2.1%	.5%	2.8%
Do not cross	3	2	1	1	2	1	1		1	1	1	2	1	3		
You must not cross when the gates are down	.6%	.5%	1.0%	.4%	.8%	.8%	.5%		.5%	.6%	.8%	.9%	1.1%		.7%	
Be careful	3	3		1	2	1	2		1	1	1	1		1	1	2
The train stop is dangerous	.6%	.7%		.4%	.8%	.8%	1.0%		.5%	.6%	.8%	.5%		.5%	.2%	2.8%
You can cross, but only when there are no cars	3	1	2	2	1		2		1	2		1		2	3	
Cross when the train is coming	.6%	.2%	2.0%	.8%	.4%		1.0%		.5%	1.2%		.5%		1.1%	.7%	
Another train is coming	2	1	1	2			1	1	1	1		2		2		
You can't cross when another train is coming	.4%	.2%	1.0%	.8%			.5%	.6%	.5%	.6%		.9%		.5%		
Attention: do not cross the tracks when the train is coming	2	2		2			2		1		1	1	1	1	1	1
That there are train tracks	.4%	.5%		.8%			1.0%		.5%		.8%	.5%	1.1%	.2%	1.4%	
The yellow means "forbidden"	2	1	1	1	1	1		1		1		1		1		1
It's dangerous	.4%	.2%		.4%	.8%	.8%	.5%	.6%	.6%	.6%		.9%		.5%		
You will get hit if you cross when the train comes	1	1		1			1		1		1	1		1		
Wait for the train to pass before crossing	.2%	.2%		.4%			.5%	.6%	.5%	.6%		.5%		.5%		

	Total	Interview location		Gender		Number of visits to the station			Age			Education			Born in Canada	
		Montreal West	St. Basile	Male	Female	5 or less	6 to 10	More than 10	Under 25	25 to 44	45 and over	Elementary + High School	College	University	Yes	No
QA3) What the sign means (all mentions)	1		1		1		1				1	1			1	
A man will cross the tracks	.2%		1.0%		.4%			.6%			.8%	.5%			.2%	
You cannot pass because a train is coming	1	1			1		1		1				1	1		
	.2%	.2%			.4%		.5%		.5%				.5%	.2%		
Do not cross because a train is coming	1	1		1		1					1	1		1		
	.2%	.2%		.4%		.8%					.8%	.5%		.2%		
Grade crossing	1	1		1	1	1				1		1	1	1		
	.2%	.2%		.4%	.8%	.8%				.6%			1.1%	.2%		
Do not cross after the train has left	1	1		1		1	1		1			1		1		
	.2%	.2%		.4%		.5%			.5%			.5%		.2%		
Yield right of way to the train	1	1		1	1						1			1	1	
	.2%	.2%		.4%	.8%						.8%			.5%	.2%	
Do not cross when two trains are moving	1	1		1				1	1			1			1	
	.2%	.2%		.4%				.6%	.5%			.5%		.2%		
Be careful not to get hit when crossing the tracks	1		1	1	1	1				1			1	1		
	.2%		1.0%	.4%	.8%	.8%				.6%			1.1%	.2%		
There is a hidden train coming	1		1	1		1	1			1				1	1	
	.2%		1.0%	.4%	.5%	.5%				.6%				.5%	.2%	
People have to be careful if a train comes	1		1	1				1			1	1			1	
	.2%		1.0%	.4%				.6%			.8%	.5%		.2%		
Go this way	1	1				1			1				1			1
	.2%	.2%				.5%			.5%				1.1%			1.4%
Total	506	407	99	258	240	131	210	157	211	167	123	212	94	190	427	72
	100.8%	100.2%	103.0%	101.2%	100.4%	100.8%	100.5%	101.3%	100.0%	100.6%	102.4%	101.4%	100.0%	100.5%	100.9%	100.0%



	Total	Interview location		Gender		Number of visits to the station			Age			Education			Born in Canada	
		Montreal West	St. Basile	Male	Female	5 or less	6 to 10	More than 10	Under 25	25 to 44	45 and over	Elementary + High School	College	University	Yes	No
QA4) The arrow/The red arrow	61	49	12	38	22	18	24	18	19	28	14	25	13	23	54	7
Aspects of the sign that led to interpretation (first mention)	41.8%	43.0%	37.5%	51.4%	31.9%	48.6%	36.9%	45.0%	33.3%	52.8%	42.4%	37.9%	48.1%	47.9%	42.5%	41.2%
The train	56	35	21	33	23	15	23	17	24	18	14	31	11	13	52	4
The man/The person	43	29	14	22	21	13	19	11	21	14	7	23	7	12	41	2
The yellow colour	21	12	9	11	9	5	9	6	7	10	2	8	4	8	20	1
The rails	15	14	1	8	7	5	8	2	4	6	4	6	4	4	11	3
The red colour	10	10		7	3	2	1	7	4	3	3	5	1	4	8	2
DNK/DNR	6	4	2	1	5	1	4	1	2	3	1	3	1	1	5	1
The train with the arrow/ The red arrow	5	3.5%	6.3%	1.4%	7.2%	2.7%	6.2%	2.5%	3.5%	5.7%	3.0%	4.5%	3.7%	2.1%	3.9%	5.9%
Two trains	3	2	1	1	1		2	1	1	1	1	1		2	2	1
The diamond shape (sign)	2	1	1		2		1	1		1	1	1	1		2	
The sign doesn't have a circle with a red line through it	2	2		1	1			1	2			2			2	
He got on the wrong train	1	1			1	1				1				1		1
If the person walks, they'll get hit	1	1		1			1			1				1	1	
The train is there to prevent you from crossing	1	1			1		1		1			1			1	
The yellow "Attention"	1	1			1			1			1			1	1	
The box on the right	1		1		1		1			1				1	1	
The whole sign	1	1			1		1			1						1
Total	146	114	32	74	69	37	65	40	57	53	33	66	27	48	127	17
	157.5%	143.0%	209.4%	167.6%	149.3%	164.9%	149.2%	167.5%	150.9%	173.6%	145.5%	162.1%	155.6%	156.3%	161.4%	135.3%













## **Transportation Development Centre**

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[www.tc.gc.ca/tdc/index.htm](http://www.tc.gc.ca/tdc/index.htm)