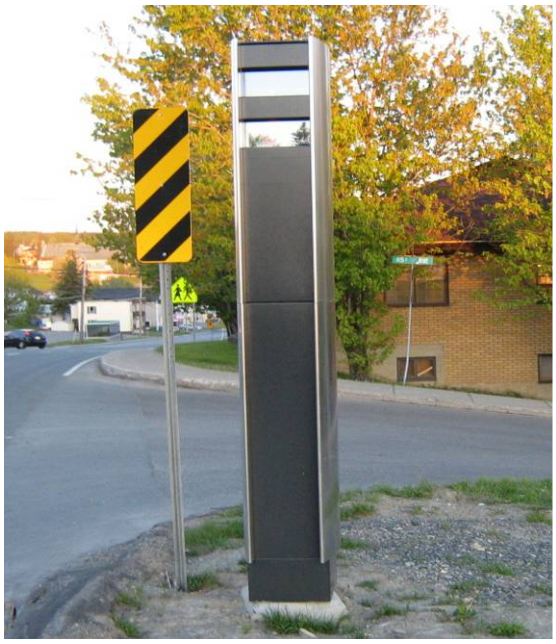


TRANSPORTATION ASSOCIATION OF CANADA

Photo-radar and red-light camera systems at traffic lights

CATEGORY:

ROAD SAFETY ENGINEERING

Ministère des Transports Québec

In the early 2000s, the Quebec Government considered using automated photo-radar systems for traffic enforcement as a means to improve road safety. In light of the lack of public acceptance for this type of approach at the time, the initiative was discontinued.

Between 2000 and 2006, with Quebec's road safety record worsening and public opinion surveys showing increasing concern to that effect, that road safety was clearly becoming more of a priority public health concern across the province.

In response to these new public attitudes and in an effort to stem the upward trend in road accident rates, the Quebec Government declared 2007 as the Year of Road Safety. At the same time, the Table québécoise de la sécurité routière (Quebec Road Safety Task Force - TQSR), created a few short months previously, was taking shape and its work quickly took on a clear focus. With a total of 45 members representing private sector organizations and government agencies involved in road safety, the TQSR's mandate is to provide recommendations to the Minister of Transport with specific measures to improve road safety.

In order to establish the conditions necessary to foster public support for the implementation of automated traffic enforcement measures, the MTQ considered the ideas and concerns of a broad range of stakeholders, paving the way for the TQSR to achieve consensus on a recommended pilot project. This recommendation, included in the TQSR's initial report, tabled in July 2007, was approved by the Minister, who followed by announcing the development of a pilot project involving the installation of photo-radar systems at 15 designated high occurrence accident locations throughout the province.

As no comparable initiatives had ever been tested or implemented on Quebec soil, this project provided excellent opportunities for innovation.

CHANGING THE TRADITIONAL GOVERNMENT MODEL

One of the key challenges facing the MTQ was to convince the many stakeholders representing government agencies and other organizations, each with their own perspective and area of expertise, to work together toward a common goal. In many aspects, this project needed to transform the traditional public sector interagency cooperation model.

To this end, several working committees were formed:

- **Steering Committee**: consisting of three deputy-ministers, the Steering Committee makes all important decisions, provides the link to elected officials and is responsible for approving all assessments;
- **Advisory Committee**: consisting of representatives from all organizations, associations and partners involved, the Advisory Committee provides advice to the Steering Committee;
- **Coordinating Committee**: consisting of senior managers delegated by the three main government departments and relevant police forces, the Coordinating Committee provides strategic advice to the Steering Committee in addition to validating the resources required for project implementation;
- **Road Safety Fund Advisory Committee**: consisting of seven members, the Road Safety Fund Advisory Committee provides advice to the Minister of Transport, on an annual basis, regarding the use of the resources allocated to the Road Safety Fund (Fonds de sécurité routière – FSR).

In addition, several sub-committees of subject matter experts were struck to provide advice to the Project Director on central issues, including: legal considerations; material and financial resources; engineering; law enforcement; communications and assessment; and change management.

During the design phase, the MTQ devised a set of regulations to be included in a bill providing the legal framework for this type of project. It also developed a business case and presented the project partners a proposed organizational structure required to define and flesh out the strategic, tactical and operational aspects of the project. There were also a number of scientific, social, technological, operational, organizational and financial components to be put in place to ensure system efficiency, and all relevant stakeholders were involved in defining these components. Another committee consisting of TQSR partner representatives was established to define and refine the project details.

The MTQ held detailed discussions with the vast number of project partners to define the project's human, financial and material resource requirements. This process presented the major challenge of creating a collaborative project partnership structure in a situation where the MTQ did not have actual authority over the other departmental stakeholders and police forces involved.

As part of the implementation phase of the project, the MTQ developed, supported and hosted the Photo-radar and Red-light Camera Project Office. Key partners seconded staff to the project, which was in itself an innovative way of doing.

The next step of the project involved the writing of an order-in-council and the preparation of turnkey type specifications for the supply and installation of equipment, the development and implementation of computer system, as well as equipment support, maintenance and warrantee. In addition, agreements needed to be signed with local municipalities where the subject sites were located.

At this stage of the project, the MTQ decided to focus on public involvement and process transparency. By way of an extensive public information campaign, citizens were informed of the project and were invited to visit the project Website. Media briefings were also held.

The MTQ used an innovative approach for the management of public monies by establishing the Road Safety Fund. Resources allocated to the Fund can only be used for road safety improvement initiatives or for traffic accident victims support programs. This tells the population that the use of automated traffic enforcement systems is not a hidden tax, but first and foremost a measure specifically intended to improve road safety.

The pilot project was officially launched on August 19, 2009, after a three-month trial period during which offenders were issued warnings rather than tickets.

CONCLUSIVE RESULTS

A committee of experts was assembled for the assessment phase of the project, as the MTQ needed to ensure that the assessment would be fact-based and thorough. Thanks to the sustained efforts put forth by all stakeholders, the assessment report was finalized and tabled at the National Assembly by the Minister of Transport on October 20, 2010. Among other aspects, the report focused on the public acceptance factor. More than 80% of persons surveyed were in favour of using photo-radar and red-light camera systems at intersections. It is safe to say that public was very receptive to the pilot project.

During the assessment phase of the pilot project, the locations where the fixed-

position photo-radar systems were installed saw a 12 km/hour reduction in average vehicle speed (11 km/hour for mobile photo-radar devices), a 99 % reduction of 'excessive speeding' occurrences, an 84 % reduction of red-light violations where red-light cameras were also installed and a 20 to 30 % reduction in accident rates. In addition to contributing to the improvement of road safety overall across the province, the pilot project demonstrates that these systems make drivers drive more responsibly.

The photo-radar and red-light camera systems pilot project, along with the efforts put forth by all stakeholders involved have produced tangible results. It is estimated that installing these systems at 15 locations prevents one fatality, three serious injuries and 61 minor injuries annually. It also generates net proceeds of $1M and intangible benefits of $9.8M annually.

The Parliamentary Commission tasked with reviewing the assessment report underlined the exemplary character of this project and its contribution to the acquisition and management of new knowledge. The Commission also provided a series of recommendations should the Government decide to go ahead with the broader use of these new technologies.

CONTINUED USE OF PHOTO-RADAR SYSTEMS IN QUEBEC

Given the positive results achieved with the pilot project, the Quebec Government has announced the continued use of the existing automated traffic enforcement systems as well as the deployment of additional systems over the next few years. In that regard, Bill 57 was enacted in June 2012.

The Minister of Transport also announced the launch of a new 18-month pilot project, conducted in cooperation with municipal authorities, starting in 2013. This new pilot project will focus on determining the participating municipalities' road safety needs, identifying the automated traffic enforcement systems to meet these needs and proposing project-specific cooperation and management frameworks best suited to these provincial-municipal collaborations.

PILOT PROJECT – KEY COMPONENTS

Three different types of photographic detection systems were retained for use:

- Fixed-point photo-radar systems, which measure vehicle speed at a specific location (Appendices 1 and 2);
- Mobile photo-radar systems, which measure vehicle speed in a specific

area (Appendix 3);
- Red-light camera systems, which detect vehicles running through a red light (Appendix 4).

Each of these systems is divided into two main components: the field units, including the photo-radar devices or the red-light camera devices; and the central information system that captures, stores and manages the evidence relating to the offences.

PROCESSING THE OFFENCES

The offence processing sequence is divided into two major components: the processing of the evidence by the law enforcement officers; and the management of the offences and related fines by the Ministry of Justice.

The Evidence Processing Centre (Centre de traitement de la preuve – CTP) processes all of the evidence coming from all photographic detection systems. The evidence processing sequence consists in assembling all of the elements of proof required by the law enforcement officer to present the evidence needed to convert the notice of offence into a General Offence Report, which can then be forwarded to the Office of Offences and Fines (Bureau des infractions et amendes).

The Quebec Ministry of Justice is responsible for the administration of judicial services in Quebec. It is also responsible for the management of all notices of offence by way of the Office of Offences and Fines.

The offence reports generated by the Evidence Processing Centre are processed electronically by the information management and fines collection system. Only under exceptional circumstances are these reports processed manually. The notices of offence are generated automatically and sent to Canada Post for delivery to the vehicle owner.

INFORMATION SYSTEMS

As part of the scope of this project, two separate information management systems were developed to ensure that the evidence was processed properly and that the notices of offence were managed correctly. First, there is the General Offence Report Issuance System, which is the software used by the law enforcement officers at the Evidence Processing Centre to analyse and process the offences.

This software was configured specifically to work within the Sûreté du Québec's existing proprietary information systems platforms.

The Office of Offences and Fines activities are also supported by the Fines Processing and Collection System, which receives the General Offence Reports electronically from the Evidence Processing Centre.

Another information system, the Photographic Evidence Network Management System, allows for the remote monitoring and management of the fixed-point photo-radar and red-light camera devices installed at various control points. This software also transmits the data from these devices and the mobile unit transfer stations to the Evidence Processing Centre.

FINANCIAL CONSIDERATIONS

It is important to note that all fines collected and other proceeds from the tickets relating to offences recorded on the photo-radar devices are deposited in their totality to the Road Safety Fund, and not the Province's Consolidated Fund. This detail has played a key role in achieving the aforementioned high level of public support for this project.

As of December 31, 2012, a total of 220,975 tickets had been issued as part of this project. A review of Road Safety Fund financial reports yielded the following data:

Total project revenues since inception:	$31.96 M
Total project costs since inception:	$22.01 M
Cumulative net earnings:	$9.95 M

The law stipulates that the monies deposited into the Road Safety Fund can only be used for road safety improvement initiatives or for traffic accident victims support programs. Project costs covered by the Fund have included the purchase, deployment, maintenance and management of the automated traffic management devices. To date, the Road Safety Fund has been self-funded and has generated yearly surpluses.

In February 2012, the Minister of Transport announced that a total of $2.4 M would be available for road safety projects or traffic accident victim support. A seven-member RSF management committee consisting of representatives from the Road Safety Task Force was established to advise the Minister on the optimal

use of these surplus funds.

CONTRIBUTION TO SUSTAINABILITY

The deployment of photo-radar and red-light camera systems is a key component in the Government's sustainable intervention strategy for road safety.

From a social and economic standpoint, this project has directly led to improved driver behaviour and has brought about significant reductions in potential road fatalities and injuries. In addition, the project reduces the risk of injury to law enforcement officers in exercising their regular duties.

CONCLUSION

In a very short timeframe, the Automated Traffic Enforcement Systems Pilot Project has achieved both its initial objectives: to contribute to improving Quebec's overall road safety record; and: to obtain a public consensus supporting the use of Automated Traffic Enforcement Systems.

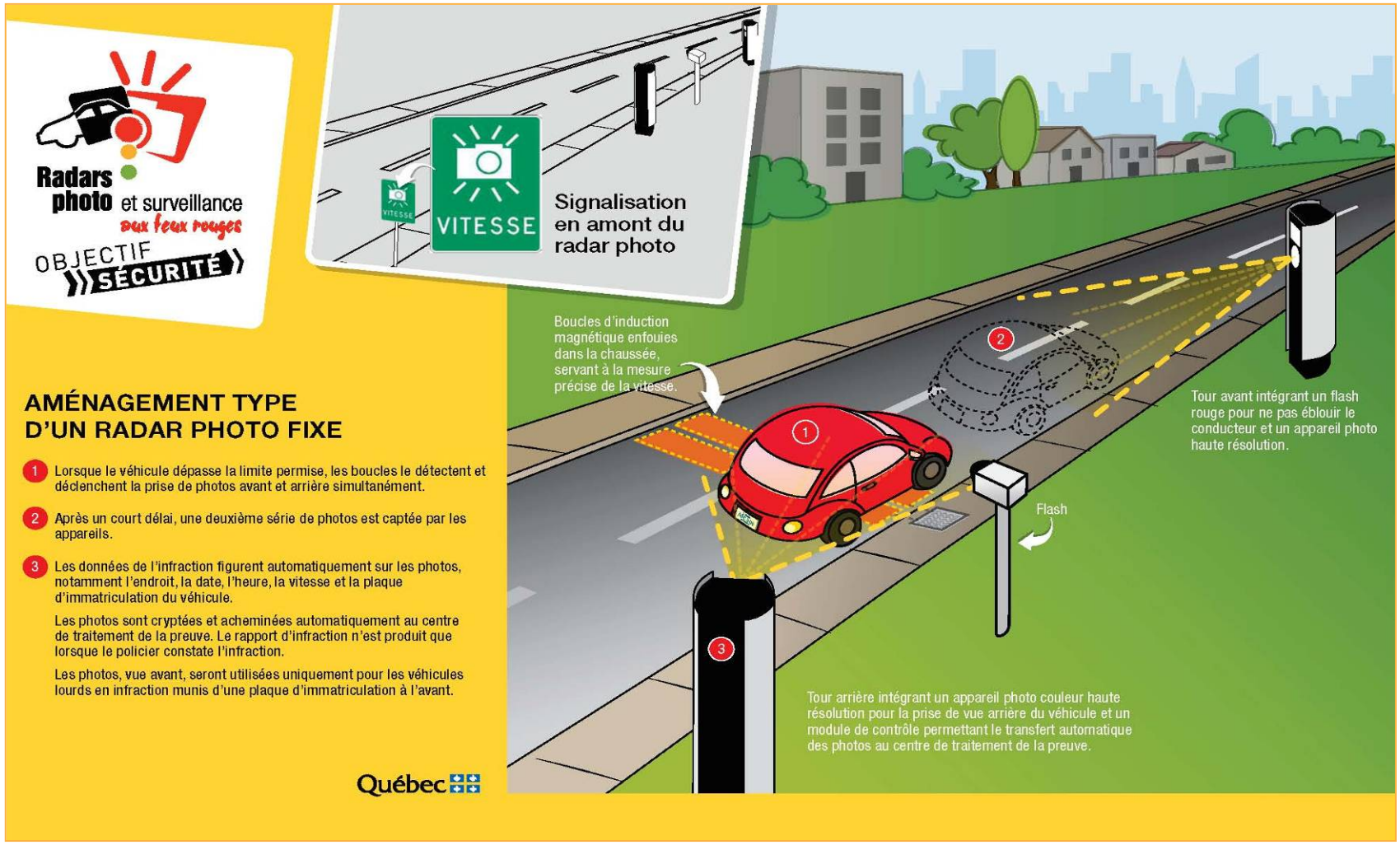
Since August 2009, in the locations where the photo-radar systems were installed, there have been significant reductions in traffic code violations and in traffic accidents with and without bodily injury. This downward trend in traffic accident rates is consistent with research results in other jurisdictions, where 20 % to 30 % reductions in overall accident rates have been observed, notwithstanding the type of automated traffic enforcement system is used. In Quebec, 8 out of 10 people now approve the use of these devices.

It is also worth mentioning that this pilot project has played a key role in transforming the traditional approach to interdepartmental cooperation in the Quebec Public Sector. The experience of developing and applying this innovative and efficient collaboration and partnership model is readily transferable to other transportation authorities as they undertake major endeavours requiring the cooperation of several government departments and other public agencies.

APPENDIX 1

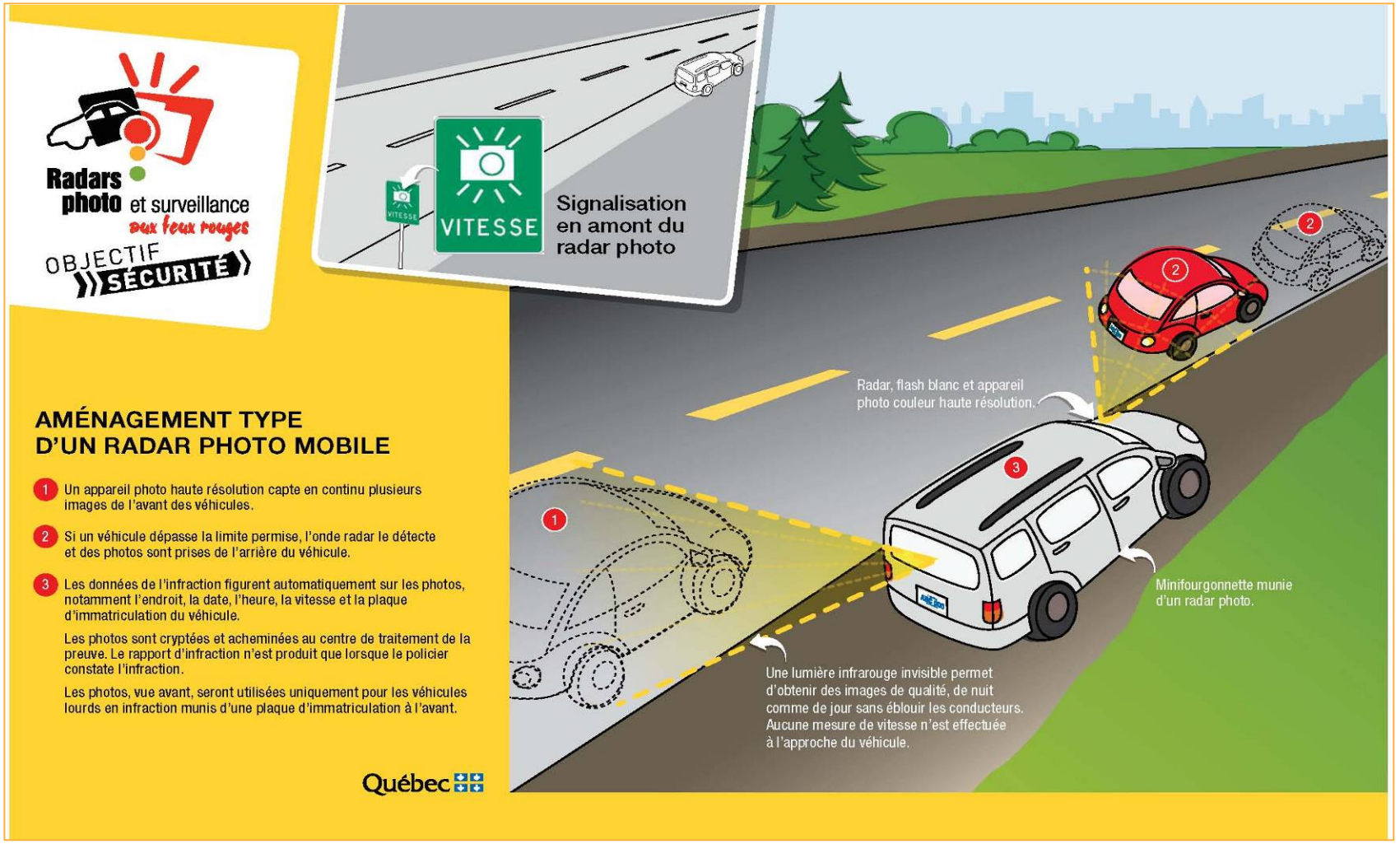
APPENDIX 2

FIXED-POINT photo-radar roadside installation



APPENDIX 3

MOBILE vehicle-mounted photo-radar system



APPENDIX 4

Red-light camera surveillance system