

ROAD SAFETY TRAINING PROGRAM BASED ON THE PIARC ROAD SAFETY MANUAL

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INTRODUCTION

There are currently important needs in Quebec for continuing education training in the field of road safety, especially among professionals working in cities and in municipalities in Québec, in the private sector, in the police force, etc. In order to respond to these needs, the AQTR, working in cooperation with the Ministère des Transports du Québec and many other partners, has developed a continuing education training program for road safety, based on the new PIARC road safety manual.

The strategy set forth is to develop high level training programs that foster a common knowledge base of road safety. The goal is to create innovative didactical tools that are used to impart the technical knowledge indexed in the PIARC manual. The participation and consensus of the key stakeholders of the sector, assembled in committees, form the basis of the instructional method. This approach allows the cooperative development of training programs with meaningful content that are adapted to the specific context and true needs of the sector. The challenge for these committees is to define an efficient and motivating process to:

- Design a training development model that ensures consistency between stated needs and the competencies to be developed;
- Define, based on the PIARC manual, training content that is uniform and explicit;
- Identify professional issues related to the different functions and tasks to be performed;
- Establish common competencies and a common view for all stakeholders;

The first deliverables of this approach are two training program courses currently available in Québec. The objective of the first training program course, entitled Overview of Road Safety, is to teach the basic concepts of road safety. This training course is intended for elected officials, engineers, technicians, urban planners, road network managers, police officers, etc. The second training course focuses more specifically on the technical theory contained in the manual. The intended clientele is primarily engineers and technicians who are at a higher technical level. These training program courses are easily adaptable for different clienteles.

The objective of this conference is to present the instructional method used and the resulting training program courses.

1. Context

With nearly 1000 members from the public and private sectors, the Association québécoise du transport et des routes (AQTR), a non-profit organization founded in 1964, is the only association in Québec that brings together all the stakeholders in the field of transport.

Table 1. Members of the Associaton québécoise du transport et des routes

Private sector :	Public sector :
Environment specialists	Transport authorities
Private carriers	Public utilities
Suppliers and manufacturers	Cities and communities
Consulting engineers	Teaching institutions
Research laboratories	Provincial and federal ministries
Land and urban planners	
Contractors	

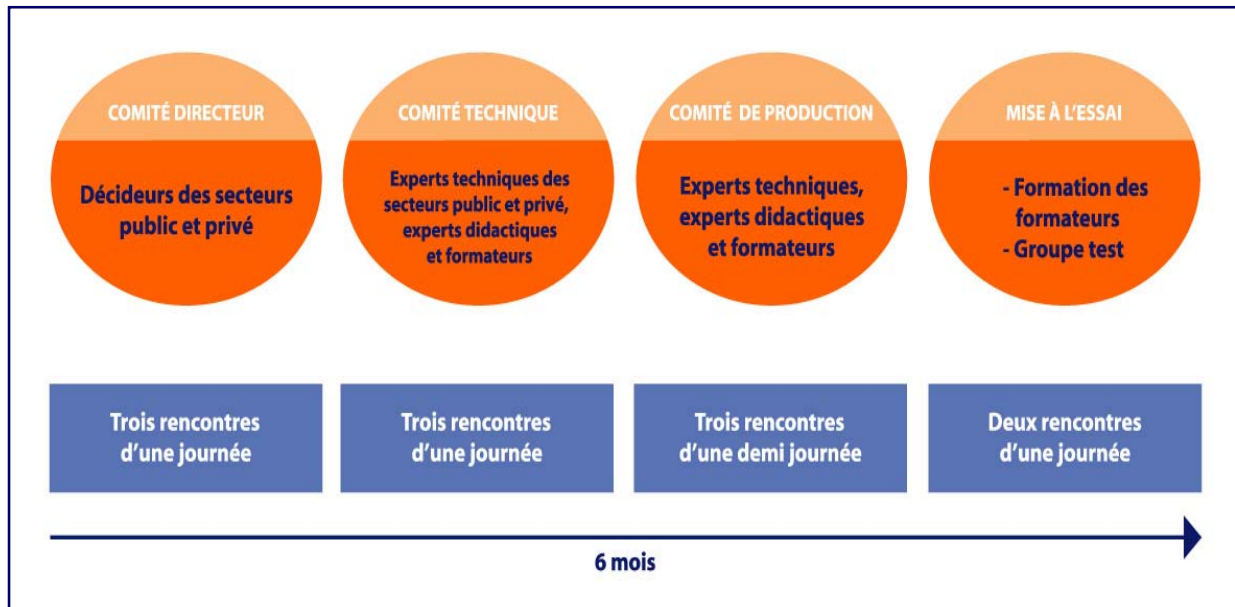
The AQTR is a neutral association, well established in the field, which has acquired an excellent reputation among the transport community of Québec. Its MISSION is to « to facilitate the exchange of knowledge and training by mobilizing the transport community ».

From its inception, educating and training the transport workforce has been the cornerstone of the AQTR. The AQTR training concept uses an interactive and dynamic approach which enables a transfer of knowledge adapted to workplace conditions in order to apply real solutions to real problems.

2. Instructional Method

- The strategy used to develop the AQTR training program is based on consultation with key stakeholders in the field of transport to accurately identify true workforce needs and provide appropriate solutions to these needs:
- Technical experts, representatives of the intended clientele, representatives of governmental authorities (federal, provincial, municipal), training instructors and specialists in didactical tools are brought together in committees. The combination of technical transportation experts and didactical experts spurs the development of high caliber technical training programs. The training instructors are provided with innovative education resource kits and are specially trained to teach the training programs.
- Participants in training programs work in groups of three to find solutions to case studies and simulation exercises that reflect the realities of their work.

The process used to develop the training programs is simple and effective. As shown on the following diagram, this involves three committees. The participation of stakeholders on these committees is entirely voluntary.



STEERING COMMITTEE	TECHNICAL COMMITTEE	PRODUCTION COMMITTEE	TESTING
Decision-makers from the public and private sectors	Technical experts from the public and private sectors, didactical experts and training instructors	Technical experts, didactical and training instructors	Training of training instructors Trial group
Three full-day meetings	Three full-day meetings	Three half-day meetings	Two full-day meetings
6 months			

3. Project Description

The method used to develop the AQTR training courses emphasizes consensus within the field of transport in order to develop training courses that respond to actual needs. As such, the principal stakeholders working in the field of road safety in Québec that have participated in the development are :

Organizations representing the intended clientele and authorities concerned

- Ministère des Transports du Québec
- Société de l'Assurance automobile du Québec

- Fédération québécoise des municipalités
- Union des municipalités du Québec
- Sûreté du Québec
- Service de police de la Ville de Montréal
- Ville de Montréal
- Small municipalities

Road safety specialists

- Engineering firms
- Urban planning firms
- Specialised consultants

The approach used by the AQTR has permitted the development of a uniform definition of road safety and enabled an effective learning process by the industry using concrete examples. As the stakeholders' goal was to contribute to improve road statistics in Québec and to train road safety specialists using this training program, they were able to obtain the support of the authorities concerned.

The strategy consists of bringing together these various stakeholders within work committees that have the mandate to :

- Develop a training program framework that ensures consistency between the true needs of the workforce and the competencies to be developed using the PIARC manual;
- Define road safety in a uniform and explicit way using recognized professional expertise to establish a functional vocabulary and work practices;
- Establish a common view of the road safety system;
- Develop a knowledge transfer strategy that ensures a stimulating learning process.

3.1 Composition of the committees

Three committees were established, each with its own well-defined role, and constituted of representatives of the organizations listed earlier:

The steering committee has the mandate of defining the training needs, the program structure, and the quality criteria for the training programs, as well as validating the technical content of the training programs. To that end, it first performed an analysis of the PIARC manual and an analysis of the road safety context of Québec. It also identified the intended clientele (future users of the PIARC manual).

The technical committee has the mandate of feeding the work of the steering committee on the various technical questions raised, of defining the objectives and the technical content of the training program and of developing the course syllabus. The committee is constituted of technical representatives of the organizations listed earlier, according to the needs identified by the steering committee.

The production committee establishes the training scenario and develops the didactical tools that will enable the best possible instruction of the training objectives.

3.2 Stages of the project

The project is structured into three stages:

- Stage 1 – Analysis of needs
- Stage 2 – Development of the training program
- Stage 3 – Implementation of the training program

Stage 1 – Analysis of needs

The goal of the first stage of the project is to evaluate the training program's priorities with respect to road safety, to identify the elements to be included in the training program and to establish the role of the PIARC manual within the project.

Several meetings of the steering committee and of the technical committees have enabled to determine the general context of road safety, and more specifically:

- Establish an overview of road safety
- Define the issues related to road safety
- Establish the portrait of the intended clientele
- Define the stated goals of the training program
- Identify the results that are expected
- Identify the available knowledge repositories

At the conclusion of its work, the steering committee defined the structure of the training program, which is composed of the following two training program courses:

- The objective of the first training course, entitled Overview of road safety is to teach the basic concepts of road safety. This training course is intended for elected officials, engineers, technicians, urban planners, road network managers, police officers, etc.
- The second training course, entitled Road Infrastructure Analysis Tools » focuses more specifically on the technical theory contained in the manual. The intended clientele is primarily engineers and technicians who are at a higher technical level.

These training courses are easily adaptable to different contexts outside of Québec.

Stage 2 – Development of the training program

Using the training program framework established by the steering committee, the technical committee established preliminary summary fact sheets for each training program course, containing the following information: the title of the training module, the intended clientele, the length, the objective of the training course, the syllabus and the

key concepts to be taught. These fact sheets were used as the basis for the development of the training programs courses. Within a few meetings, the technical committee defined the objectives of these training courses, the technical content to be transmitted and the syllabi. These are the results:

Road Safety I: Overview of Road Safety

This one-day training course allows the participants to:

- Understand the basic concepts and the issues surrounding road safety;
- Identify the elements that influence road safety and the factors that contribute to accidents;
- Identify problems and issues related to accidents;
- Follow an introduction to accident report analysis;
- Identify possible stakeholders for improving road safety;
- Follow a basic introduction to the use of the PIARC “Road Safety Manual”.

Road Safety II: Road Infrastructure Analysis Tools

This two-day training course allows the participants to:

- Understand the role of the road environment in road safety;
- Define a road safety analysis process;
- Define a data collection procedure;
- Establish a road safety diagnosis (history of a site, analysis of accidents, observation of the site, factors influencing accidents, traffic operations, road characteristics, etc.);
- Learn to use the data analysis tools of the PIARC manual;
- Identify possible solutions and make recommendations.

Using the results of the work of the technical committee, the production committee created training scenarios using simulation exercises adapted to the needs of the intended clientele. The following is a brief description of the scenarios for each training course:

« Overview of Road Safety »: The training course includes several activities. The objective of the first activity is to identify accident causes from a simulation exercise developed specifically for the training course, and written in the format of a newspaper article; the second activity makes use of an accident report created specifically for the training course, in order for participants to adjust their interpretations of accident causes. Another activity consists of identifying the information that can be gathered from the accident report and how it can be used for analysis purposes. From the same simulation, an exercise on the Haddon matrix is also included in the training course, as well as an exercise on the determination of contributing factors: the participants must prepare the accident diagram, compile the data (provided), find possible contributing factors and finally propose an accident scenario. The training course ends with a

comprehensive activity. A new simulation exercise is presented to the participants, who must perform the entire method: from context analysis to the proposal of possible attenuation measures.

« Road Infrastructure Analysis Tools »: this training course includes 3 important simulation exercises among its activities. The following are the different contexts for which the participants will have to perform an analysis and find possible solutions to improve road safety:

- A 4-way cross intersection
- A road curve in a rural area
- A section of a mountain road

To ensure a realistic view and facilitate understanding, the participants will be provided with the following data: a description of the site with a graphical representation on a map, accident diagrams, a land use plan, vehicle speeds, cyclist counts on cycling paths, accident summaries, traffic signalization, photographs, topographic maps, etc.

The activities are performed with the tools from the PIARC manual. For example, the safety diagnostic is created from the verification list in the manual, and the data provided is analyzed using the spreadsheets provided in the PIARC manual.

The instructional tools include the training instructor's kit and the participant's kit. Each kit includes the following:

Instructor's workbooks with suggested answers are provided to instructors;

Participant workbooks

Instructional organizers that schematically summarize the objective of the training

Tools to perform the activities: photographs, maps, newspaper articles etc.

Stage 3 – Implementation of the training program

The AQTR has organized a training session for training instructors. This training session enables the training instructors to teach the training program according to the instructional method and the standards of the AQTR. As the AQTR training program requires that the training instructors possess certain abilities, such as group facilitation, it is important to ensure that the designated training instructors are able to use the AQTR method.

The training session for training instructors enables the participant to:

- Acquire the principles of the AQTR interactive training program
- Learn to use the didactical tools
- Simulate an interactive training session using recommended techniques

CONCLUSION

The project presented has enabled the development of a training program based on the PIARC Road Safety Manual. The cooperative approach that constitutes the basis of the AQTR instructional method has brought together the many stakeholders in the field of road safety, resulting in a recognized and credible training program.

Two training program courses result from this program. The first, entitled Overview of road safety has the objective of teaching the basic concepts of road safety. The second, entitled « Road Infrastructure Analysis Tools », focuses more specifically on the technical theory contained in the manual.

In Québec, these training program courses are available on a regular basis and are geared toward the whole range of stakeholders in road safety. The innovative and interactive instructional strategy invites participants to transfer the knowledge learned to their work.