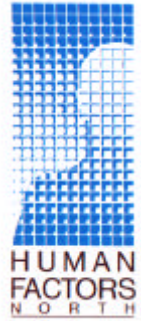


AN INTRODUCTION TO ROAD SAFETY SCIENCE



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March 2 - 4, 2004

**St. Andrew's Club & Conference Centre
150 King Street West, 27th Floor
Toronto, Ontario**

FEE:

\$1,025 + 7% GST (\$1,096.75) for registration and payment prior to Feb. 2, 2004.

\$1,125 + 7% GST (\$1,203.75) after Feb. 2, 2004.

Continental breakfast, coffee and a buffet lunch daily are included in the course fee.

To register, please fax the attached form to (416) 596-6946 and mail your payment to 118 Baldwin Street, Toronto, ON M5T 1L6.

(We regret that we cannot accept credit cards.)

WORKSHOP DESCRIPTION

The workshop is intended to provide valuable insights into safety engineering, driver abilities, and limitations which need consideration in highway design and traffic engineering.

Course Objectives

- awareness of basic principles of safety engineering
- awareness of driver limitations in vision, attention, information processing, and perception-reaction time
- cost-benefit assessment of traffic engineering countermeasures
- human factors analysis of typical traffic accidents
- safety in design and traffic engineering

Who Should Attend

- traffic engineers and technologists
- highway designers
- police accident reconstructionists
- government traffic safety managers
- fleet managers

Course manuals containing copies of overheads will be provided to all participants.

Certificates of Attendance will be provided to those who have attended 90% or more of the sessions.

Previous Courses

Presentations of similar material have been made as follows:

Fundamentals of Highway Safety (for U.S. Federal Highway Administration) - New York, March 2003.

An Introduction to Road Safety Science - Toronto, March 2003, April 2002, October 2001, & June 2001.

Ontario Ministry of Transportation, 6 regions.
Oct. 1998 - Feb. 2000.

Association of Consulting Engineers of Ontario, Oct. 1999.

Institute of Transportation Engineers, Annual Conference, Toronto, August, 1998.

State Highway Administration, Maryland, 1997, 1999.

ICBC (Insurance Corporation of British Columbia)
May 14 - 15, 1997.

Reference contacts and individual CV's are available on request.

SPEAKERS

Dr. Alison Smiley is President of Human Factors North Inc. and an adjunct professor in the Department of Mechanical and Industrial Engineering at the University of Toronto and in the Department of Civil Engineering at Ryerson University, Toronto. She has over 30 years experience in the measurement of driver performance. She has acted as an expert witness in over 150 car, truck, train and boat accident cases, starting with the Royal Commission of Inquiry into the Hinton Train Collision in 1986. Dr. Smiley is past Chair of the U.S. N.R.C. Transportation Research Board Group 3, Operations, Safety and Maintenance of Transportation Facilities (1998 - 2001) and a member of TRB's A3B02 Vehicle User Characteristics Committee. She is the 1997 recipient of the U.S. Human Factors and Ergonomics Society's A.R. Lauer Safety Award for outstanding contributions to the human factors aspects of highway safety.

Ms. Geni Bahar, P.Eng., is a Senior Transportation, Traffic and Road Safety Consultant with over 25 years of experience in managing projects in both the research and consulting engineering environments. She is Vice-President of iTRANS Consulting Inc. Ms. Bahar has led multidisciplinary teams in projects where her safety engineering research experience has allowed her to bring safety explicitly to the practitioners' world. She is a member of the ITE International Safety Council, the TRB Operational Effects of Geometrics, the TRB Sub-Committee for the Highway Safety Manual and the TAC Road Safety Committee.

The course material was developed jointly with Drs. Ezra Hauer and Bhagwant Persaud.

PROGRAM

Day 1

Definitions of Safety (GB)

- how to differentiate between safety and security
- collision counts and their randomness
- basic principles of safety engineering

How to Measure Safety (GB)

- reported and reportable collisions
- how to account for exposure
- how to use actual collision counts and determine expected frequency

Introduction to Human Factors (AS)

- how human factors engineering started
- human characteristics that impact driving
- human factors causes of traffic accidents: are bad drivers the problem?

Safety and Standards (GB)

- history of safety and standards
- how to apply standards and increase safety
- how standards affect design and safety

Driver Vision (AS)

- foveal and peripheral vision, night adaptation
- acuity, contrast sensitivity, colour vision
- night visibility

Driver Information Processing (AS)

- driver attention
- limitations in information processing
- visual search during driving

Summary and Individual Informal Question Period

Day 2

Safety Performance Functions – Definitions and Applications (GB)

- what are SPFs
- how to apply SPFs
- what is needed to develop SPFs

Speed and Safety (GB)

- relationship between speed and collision frequency
- relationship between speed and collision severity
- implications for Highway Design

Driver Adaptation to the Road (AS)

- how drivers adapt
- response to safety countermeasures
- using adaptation to control speed
- ITS and adaptation

Applying Accident Modification Factors in Design (GB)

- the definition of AMFs
- the application of AMFs
- the development of AMFs

Design Choices and Safety 1 (GB)

- horizontal curves and grades
- passing and climbing lanes
- illumination

Accident Case Studies (AS)

- daytime urban intersection: car/motorcycle
- nighttime work zone: motorcycle
- nighttime rural road: car/tractor

Summary and Individual Informal Question Period

Day 3

Design Choices and Safety 2 (GB)

- lane and shoulder
- roadside and median safety performance
- roadside and median design treatments

Basing Design Standards on Measured Driver Behaviour (AS)

- sign legibility standards in relation to driver needs
- lane marking standards in relation to driver needs
- stopping sight distance standards in relation to driver needs

Human Factors Issues at Intersections (AS)

- driver demands in intersections
- typical driver errors
- traffic signals and the dilemma zone
- pedestrian concerns

Intersection Design Choices and Safety (GB)

- intersection density
- intersection layout and geometrics
- intersection traffic control devices

Work Zones (AS)

- accident statistics
- driver merging behaviour
- signing and delineation
- speed control

Accident Case Studies (AS)

- urban arterial nighttime: car/motorcycle
- rural intersection daytime: car/pickup truck
- rural road dawn: flatbed/car

SPF and AMF Application for Case Study (GB)

- how to estimate the potential benefit for safety improvement
- how to calculate the expected safety after improvement
- how to assess the expected B-C ratio