

# HUMAN FACTORS AND EXPLICIT ROAD SAFETY

October 16 and 17, 2003

Vancouver, B.C.

**Alison Smiley, PhD, CCPE**

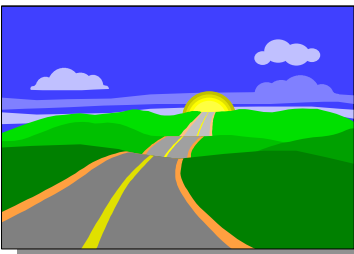
*Human Factors North Inc.*

**Geni Bahar, P. Eng.**

*iTRANS Consulting Inc.*

## Day 1

- 8:30 – 9:30 Introduction to Human Factors Alison Smiley**
- human characteristics that impact driving
  - human factors causes of traffic collisions: are bad drivers the problem?
  - impacts of education vs. enforcement vs. engineering
- 9:30 – 9:40 BREAK**
- 9:40 – 10:40 Driver Vision Alison Smiley**
- visual characteristics that impact driving:
    - ▶ acuity, contrast sensitivity, colour vision
  - visibility with low beam headlights
- 10:40 – 11:00 BREAK**
- 11:00 – 12:00 Driver Information Processing Alison Smiley**
- driver attention, limitations in information processing
  - visual search during driving
  - expectancy and driver response to warning signs
  - variables affecting perception-reaction time
- 12:00 – 1:15 LUNCH**
- 1:15 – 2:00 Introduction to the Principles of Safety Engineering Geni Bahar**
- safety and security
  - collision counts and safety
  - safety as a stable entity
- 2:00 – 3:00 Road Network Safety Performance Evaluation Process and Methodology Geni Bahar**
- safety and traffic databases
  - safety performance functions and applications
  - ranking of projects
- 3:00 – 3:15 BREAK**
- 3:15 – 4:00 Safety Improvement Programs Geni Bahar**
- diagnosis and selection of cost-effective countermeasures
  - Integration with other safety non-engineering programs



## Day 2

**8:30 – 9:30 Intersection-related Crashes: Human Factors Issues Alison Smiley**

- driver limitations in intersection negotiation:
  - ▶ detecting the intersection
  - ▶ identification of signalization and paths
  - ▶ gap judgment at intersections
  - ▶ decision-making in the dilemma zone
  - ▶ impact of layout
  - ▶ age factors
- countermeasures to assist drivers

**9:30 – 9:40 BREAK**

**9:40 – 10:40 Intersection-related Crashes: Engineering Issues Geni Bahar**

- intersection-related crash statistics
- management of potential conflicts at intersections
- intersection crash types and related traffic and design elements
- explicit safety at intersections

**10:40 – 11:00 BREAK**

**11:00 – 12:00 Intersection-related Crashes: Case Studies Alison Smiley  
Geni Bahar**

**12:00 – 1:15 LUNCH**

**1:15 – 2:15 Run-off-Road Crashes: Human Factors Issues Alison Smiley**

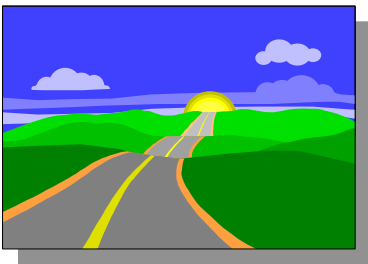
- driver behaviour in curves
- response to loss of directional control
- driver drowsiness
- countermeasures to assist drivers

**2:30 – 2:45 BREAK**

**2:45 – 3:45 Run-off-Road Crashes: Engineering Issues Geni Bahar**

- run-off-road crash statistics
- keeping vehicles in the travel lane
- providing opportunities to recover control of vehicle
- reducing crash severity
- targeting roadside improvements

**3:45 – 4:30 Run-off-Road Crashes: Case Studies Alison Smiley  
Geni Bahar**



**DR. ALISON SMILEY** is President of Human Factors North Inc. She has over 30 years experience in the measurement of driver performance. As an adjunct professor in the Department of Mechanical and Industrial Engineering at the University of Toronto, she taught courses in human factors from 1983 to 2001. 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. NRC Transportation Research Board Group 3, Operations, Safety and Maintenance of Transportation Facilities (1998 - 2001), a member of TRB's A3B02 Vehicle User Characteristics Committee and a member of the Editorial Board of Accident Analysis and Prevention. She was the founding chair of the Canadian College for the Certification of Professional Ergonomists, and 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.