

Canadian Naturalistic Driving Study

Business Case and Study Design

Canadian NDS Project Group

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Current Status

- CCMTA's Road Safety Research and Policy (RSRP) Standing Committee recommended in October 2007 that a Canadian NDS should be explored.
- In December 2007:
 - The CCMTA Board of Directors approved the RSRP recommendation;
 - Council of Transport Deputy Ministers Engineering and Research Support Committee (ERSC) supported NDS and appointed two project representatives.
- A national NDS project group was struck in January 2008.
- In April 2008, the Council of Transport Deputy Ministers supported the initiative and requested that the project group proceed to develop a business case and recruit potential funding partners.
- ERSC/project group to return to Council of Transport Deputy Ministers in Fall 2008 with an update and will seek further direction.
- Terms of reference, a partnership prospectus and draft business case have been completed.

Project Group Mandate

- Develop a proposal for the Canadian NDS including responding to key methodological questions, study design issues and refining cost estimates;
- Seek out corporate, government and other non-governmental partners to support planning and funding the Canadian project;
- Promote involvement of Canadian universities to help build Canadian capacity and expertise in analyzing and using naturalistic driving data; this will also serve to train and support students and graduate students; and
- Develop and implement knowledge transfer protocol.

Project Group Membership

Organizations Currently on Project Team:

- Transport Canada
- Ontario Ministry of Transportation
- CCMTA
- SHRP2
- Engineering and Research Support Committee (ERSC)
- Council of Deputy Ministers

Potential new members and funding partners

- Provincial ministries of transport
- Auto21 (academic road safety research consortium funded by Industry Canada Centre of Excellence)
- Insurance Bureau of Canada
- Canadian Automobile Association
- Canadian Institute of Health Research
- Transportation Association of Canada
- Automotive Industry
- NSERC
- Private Foundations

Prospectus Overview

- Provides overview of SHRP2 and the naturalistic approach.
- SHRP2 has offered to collaborate with the Canadian study, thereby presenting the occasion to leverage more than \$10 million in U.S. research – the Canadian study would benefit from the entire SHRP2 framework, from research question formulation, through data acquisition R&D, to data collection, storage and manipulation specifications.
- Canadian study would examine issues that can complement the SHRP2 study, while ensuring that the data are sufficiently robust to enable compatibility and broader analyses against US, and potentially, European data.

Prospectus Timelines

- A study of this magnitude requires a broad base of public and private sector support. The bulk of the funding will be needed for 2010/2011.
- Funding partners will have a voice in the determination of the study specifics, and in the management of the study.
- Prospective partners need to make their interest known during Fall, 2008.
- A decision on whether to proceed will be made by Spring, 2009 by the Council of Transport Deputy Ministers.

Research Design Issues

- Canadian study should focus on safety issue that yields new data not otherwise obtained by SHRP2
- Consideration to sub-contract with a SHRP2 contractor performing field data collection
- Leverage the SHRP2 naturalistic field data collection methods and procedures to achieve cost efficiencies
- The entire field study will track 200 DAS units on vehicles for two years (400 vehicle-years of data)
- The study location and sampling frame would be either representative or strategic; still too early to specify sampling criteria such as age, gender, and vehicle make and model
- The study results must be statistically significant

Project Overview

- **Scope:** study focus, sample size/remuneration, representative vs strategic, vehicle types, geographic locations etc.
- **Costs:** estimated to be direct function of study focus and design. Planning estimate for a 200-vehicle study is \$2.25 million. This includes DAS purchase and field data collection- but does not include data analysis and storage
- **Operational Tasks :**
 - Ethics and Privacy Approvals/Procedures
 - Driver Recruitment and Assessment
 - Data Acquisition Systems (DAS)- installation, performance monitoring, servicing and removal
 - Data collection from DAS units and secure transmittal to data storage facility
 - Crash investigations
 - Quality Control/Assurance

Project Governance

- The study will be managed by a steering committee comprised of members from the CNDS Project Group and any additional individuals/organizations deemed necessary for effective financial and scientific oversight of this project.
- The steering committee will include at least one representative from the SHRP2 program.
- Project contractor(s) will report directly to the steering committee.

CNDS – Decision Factors

- **Safety.** The CNDS ultimate objective is to improve road safety.
- **Utility for Countermeasure Development.** The results must enable federal government and provincial/territorial governments to develop evidence-based policies and standards; private sector partners must obtain information that improves the quality and value of their products/services.
- **Utility for Research.** The data should be able to foster ongoing research capacity and research expertise in Canada.
- **Value-added to SHRP2** - Data should provide an additional insight into driver behaviour/performance that complements SHRP2.
- **Partner Support.** This would include direct funding, volunteer professional services-in-kind, access to resources/subjects for the actual conduct of the study and letters of support.

Possible Study Topics

Medical Conditions

- Drivers with medical condition(s) of particular interest:
 - the medical conditions would be those that permit drivers to continue driving with a conditional or restricted licence.
 - would provide an opportunity to assess the effectiveness of conditional licensing programs.
 - would be necessary to seek consent to link real-time information about a driver's health status and frequency of medical treatment/prescription drug use with their real-time driving performance data.

Fatigue

- Focus on a strategic sample of drivers identified in the research literature as being at increased risk for fatigue-related collisions.
- Study could include young drivers (university students) or shift-workers (could include professionals such as emergency physicians, nurses, emergency response workers and any employees who do shift-work at private firms with 24/7 operations).

Low BAC

- Some Canadian jurisdictions permit fully-licensed drivers under the age of 21 to consume alcohol.
- This study would offer an opportunity to focus on these young drivers. Passive dermal alcohol sensors on steering wheels could be used to measure BAC and track performance if/when driving with a low BAC.
- The results would help us to better understand the combined effects of low BAC and other risk factors such as distracted driving, fatigue and speeding.

Young and Old Novice Drivers

- Canadian jurisdictions have graduated licensing programs that also apply to adult novice drivers.
- Study would provide a unique opportunity to assess the performance differences between three groups of drivers – teen novices, adult novices and experienced drivers.

Driving in Rural/Remote Areas

- There is a need to better understand how driving behaviour and performance is affected in areas characterized by long driving trips on two-lane arterial roads.
- Driving on such roads is characterized by a significant increase in the risk of fatal/injury collision involvement.

Decision Process and Timeline

- Fall, 2008 – Study focus decision and prospectus response from potential partners
- Dec. 2008 - Draft business case and study design report
- Mar. 2009 - Final report and recommendation to Council of Deputy Ministers
- Spring, 2009 - Final decision by Council of Deputy Ministers
- 2010/2011 - Implementation (contingent upon approval)