

CURRICULUM VITAE

THOMAS SMAHEL, CCPE, LEED AP Principal Consultant

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DESIGNATIONS

Canadian Certified Professional Ergonomist (CCPE) – 2007
Leadership in Energy and Environmental Design Accredited Professional (LEED AP) – 2009

EDUCATION

B.A.Sc. – Industrial Engineering (Human Factors Specialist) – 1999
University of Toronto
(Thesis title: “Attentional Demands of Driving: A Study in Driver Looking Behaviour”)

M.Arch. – Master of Architecture (Environmental/Human-Centred Design) – 2007
University of Toronto

PROFESSIONAL EXPERIENCE

May 1999 – present

Consultant – Human Factors North Inc.

Clients – Government

Canada Post Corporation:

- Conduct literature review to determine ergonomic issues for mail delivery vehicles

Centre for Leadership and Human Resource Management (CLF/HRM):

- Conduct literature review to determine health and safety and ergonomic issues associated with the use of video display terminals in correctional institute control rooms

City of Brampton:

- Conduct cognitive demands analysis (CDA) for Bus Operator position

City of Toronto:

- Conduct on-road experiment to evaluate legibility of street name signs in downtown and suburban regions
- Conduct on-road experiment with eye-tracking equipment to measure amount of driver distraction due to commercial advertising

Grand River Transit – Kitchener / Waterloo:

- Conduct on-road study to assess bus driver workload while making manual stop announcements

Greater Toronto Airport Groundside Association:

- Conduct two laboratory studies to measure drivers' decision times and accuracy as they responded to simulated wayfinding tasks using road signs guiding them into and out of the airport
- Conduct literature review of speed reducing countermeasures to be implemented on roadways leading into the airport

Hydro One:

- Contribute to analysis of vehicle fleet crashes and provide countermeasure recommendations

Insurance Bureau of Canada:

- Design and supervise on-road study to examine the effects of cell phones on novice drivers compared to experienced drivers

Ministry of Transportation in Ontario:

- Conduct on-road experiment with eye-tracking equipment to assess safety of monitoring during G2 driver licence examinations
- Conduct safety assessment of an at-grade intersection on Highway 17 near Sudbury

National Research Council:

- Conduct literature review on expected safety impacts of introduction of Low Speed Vehicles on public roadways

New Brunswick Department of Tourism and Parks:

- Provide human factors expert opinion on highway sign design issues relating to the Scenic Drive program in New Brunswick

Office of the Worker Adviser:

- Participate in the re-design of an office workstation for a client with special needs including building prototype

Parks Canada:

- Conduct on-road and laboratory testing with a representative group of drivers to provide an empirically sound basis for sign layouts and selection of retro-reflectivity of sign background for Guide Sign Manual

Toronto Transit Commission (TTC):

- Assess visual concerns from operators of the Orion VII bus vehicle
- Assess visual concerns from an operator of a commercial van
- Create drawings for the re-design of the speed control display for the new Automatic Train Control for use by Yonge-University Subway operators
- Assess visual line of sight obstruction of Fare Media Validation Prototype (Orion V and Orion VII)
- Conduct visual and cognitive assessment of the operator control panel for the Bombardier prototype low-floor streetcar
- Assess visual obstruction due to the protective barrier for large operators in NOVA RTS buses
- Assess visual clarity of new collector booth design
- Conduct review of subway stations with elevated frequency and severity of slip, trip, and fall events
- Conduct ergonomic review of 11 Subway Work Car vehicles in order to identify factors that would affect the safe and effective operation of the Subway Work Car fleet
- Conduct ergonomic assessment of the upper portion of the protective barrier on TTC buses
- Conduct ergonomic assessment of view obstructions associated with bicycles placed in the front bike rack on the Nova LFS Artic bus
- Conduct ergonomic re-assessment of view obstructions associated with bicycles placed in the modified front bike rack on the Nova LFS Artic bus

Transportation Association of Canada:

- Conduct evaluation of current standards used for sign letter size and to establish guidelines for optimal sign letter size for text signs

Transportation Development Centre – Transport Canada:

- Co-ordinate data collection efforts of fatigue management program implementation at trucking companies in Montreal (with AlphaLogik, Inc.), Calgary (with SagaTech Electronics Inc.), and California (with Alertness Solutions). Analyze before and after corporate and driver measures to assess impacts on fatigue.
- Investigate, through literature review and laboratory, simulator and on-road testing, and provide recommendations to improve the conspicuity, alerting capabilities, and safety effectiveness of various highway-railway grade crossing elements
- Conduct literature review concerning the investigation of commercial motor vehicle driver cumulative fatigue recovery periods

Transport Canada:

- Study of the environmental, economic, safety and social benefits of roundabouts

Clients – Corporate

Daimler Buses North America:

- Conduct human factors review to address visual concerns from operators of the Orion VII Next Generation transit bus

Davies Ward:

- Conduct human factors review to address visual concerns from operators of the Orion VII Next Generation transit bus

Delcan:

- Provide human factors, signage and wayfinding expertise for Hwy 407 Transitway Value Engineering Workshop
- Provide human factors analysis of the Highway 26 Realignment Preliminary Design which involved three roundabouts

Delphi / McCormick Rankin Corporation / MMM Group / WSP

- Conduct human factors review of Ontario Bikeway Planning and Design Guidelines
- Provide human factors advice on signing for Confederation Bridge guide signage
- Provide human factors contribution for simulation study of roundabout at Hwy 406 and Regional Road 27 to determine the effectiveness of the positive guidance proposed by MTO
- Provide human factors advice on signing for Cobequid Pass toll signage
- Conduct speed profile analysis for freeway transition zones
- Conduct speed profile analysis for Hwy 403 safety review

Dillon Consulting (for Ministry of Transportation):

- Conduct laboratory study to examine comprehension of warning and construction symbols and signs for Books 6 & 7 of the *Ontario Traffic Manual*

Downtown Yonge Business Improvement Association:

- Provide human factors advice on Downtown Yonge Street Traffic Pole Branding & Holiday Decorations Project, to ensure conspicuity of traffic signals

ErgExperts (New York, New York):

- Design and conduct laboratory study to evaluate visual demands associated with multiple postal delivery methods

Fondation MAIF (France):

- Conduct interviews with young drivers and their parents to determine capabilities of teenage drivers

Gresham, Smith & Partners (Nashville, Tennessee):

- Provide human factors contribution to ACRP Wayfinding and Signing Guidelines for airport terminals and landside operations

- Provide human factors analysis and wayfinding assessment for roadway, parking, curbside, and terminal signage at Denver International Airport
- Provide human factors analysis and wayfinding assessment for parking, curbside, and terminal signage at San Francisco International Airport

IBI Group:

- Design and conduct on-road and laboratory experiments to determine reading time requirements and message comprehension for bilingual changeable message signs
- Conduct design charette, focus group with representative drivers, field examination, and two phases of comprehension testing for bilingual changeable message signs, including traffic and safety messages
- Contribute to human factors and traffic safety review of system sponsorship and advertising on changeable message signs

HDR Corporation (formerly iTRANS Consulting):

- Provide human factors expertise for Holt Rd Interchange (Clarington) Value Engineering Workshop
- Provide human factors expertise for Hwy 6 Value (Guelph) Value Engineering Workshop
- Provide human factors expertise for Detroit River International Crossing (Windsor) Value Engineering Workshop
- Provide human factors expertise for Hwy 17 (Sault Ste Marie) Value Engineering Workshop
- Conduct human factors literature and field research in support of the design and selection of Rural Community Mail box lay-bys (for Canada Post Corporation)
- Assist in the development of the Rural Mail Box Traffic Safety Assessment Tool (for Canada Post Corporation)
- Conduct literature review of human factors and permanent raised pavement markers (for U.S. NCHRP)
- Conduct review, including interviews with drivers and pedestrians, of pedestrian crosswalks with refuge islands
- Provide human factors expertise to report outline safety issues associated with converting High Occupancy Vehicle (HOV) lanes into High Occupancy Toll (HOT) lanes
- Conduct series of human factors visibility tests to assess the visibility, conspicuity, visual distinctness of new lighting concepts for winter snow maintenance vehicles

ITT Industries:

- Conduct on-road experiments to determine sight distance requirements for non-signalized skew and horizontal curve intersections in urban and rural settings

Keilhauer

- Conduct literature review of ergonomic features and international guidelines and standards for office chair design

KPMG (for MTO):

- Assist in the assessment of human factors issues in regard to commercial signing

Morrison Hershfield:

- Conduct literature review and review of signing plan with respect to safety issues associated with the “Battleship Configuration” at highway work zones

MRI Global (Kansas City, Missouri):

- Conduct on-road assessments of high-risk locations of median collisions

Shore Tilbe Irwin & Partners:

- Provide human factors and wayfinding design input during the Pickering Nuclear Generating Station administration building cafeteria upgrade

Totten Sims Hubicki (for Ministry of Transportation):

- Conduct literature review on traffic calming measures for freeway transition zones

TransLink:

- Conduct human factors assessment of new train warning sign including comprehension testing with a representative sample of drivers

Tyne Engineering (for AECL):

- Contribute to Human Factors Program Plan for Light Water Detritiation Facility at Chalk River Laboratories
- Contribute to Human Factors Verification and Validation Plan for Light Water Detritiation Facility at Chalk River Laboratories
- Contribute to Human System Interface Design Guide for Light Water Detritiation Facility at Chalk River Laboratories
- Contribute to Maintenance, Inspection and Testing Design Guide for Light Water Detritiation Facility at Chalk River Laboratories
- Contribute to Human Factors Engineering Summary Report for Light Water Detritiation Facility at Chalk River Laboratories
- Prepare Human Factors Program Plan (HFEP) for Ontario Power Generation Portable Feedwater Sampling System

URS Canada Inc:

- Conduct human factors assessment of widening section of Hwy 401 between RR25 and the Credit River including a literature review on HOV lane design and lane restrictions of commercial vehicle operators
- Conduct human factors assessment of driveways located in close proximity to a new freeway interchange
- Conduct preliminary human factors assessment of GTA West freeway connection to the interchange of Highway 401 and 407ETR
- Conduct human factors assessment of widening section of Hwy 410 between Highway 401 and Queen Street, including a literature review on HOV lane design

Clients – Legal

Qualified as an Expert Witness in the Ontario Superior Court of Justice.

Carried out human factors forensic analysis, including site investigations, and authored expert reports for:

- AMR Barristers and Solicitors LLP
- Agro Zaffiro LLP
- Bell Baker LLP
- Conte and Associates
- De Rose Barristers and Solicitors LLP
- Erickson & Partners
- Fireman Steinmetz Daya
- Harrison Pensa LLP
- Hughes Amys LLP
- Lerner's LLP
- Linden & Associates
- McCormick, Haney & Brimblecombe LLP
- O'Brien, Jacklin, Wickett, Sulman
- Oatley Vigmond
- Pipella Law
- Rachlin and Wolfson
- Torkin Manes LLP
- Zuber & Company

Assisted with over 250 human factors forensic analysis, including site investigations, in expert reports authored or co-authored by Dr. Alison Smiley for:

- Agro Zaffiro
- Beard Winter
- Bennett Jones
- Boland Howe
- Borden Ladner Gervais
- Dyer Brown
- Evans Philp
- Fasken Martineau
- Harrison Pensa
- Lerner's LLP
- Martin & Hillyer
- McLeish Orlando

- Miller Thompson
- Mollison McCormack
- Moodie Mair & Walker
- Oatley Vigmond
- Quinlan Abrioux
- Siskinds
- Wissensz Law

PROFESSIONAL MEMBERSHIPS

- Canadian College for the Certification of Professional Ergonomists
- Human Factors and Ergonomics Society
- Transportation Association of Canada
- Association of Canadian Ergonomists
- Canada Green Building Council

COMMITTEES

- Canadian College for the Certification of Professional Ergonomists (CCCPE) Board Member (2015 – present)
- Transportation Association of Canada (TAC) Road Safety Standing Committee (2013 – present)
- Toronto Centre for Active Transportation (Steering Committee member, Chair of Research sub-committee) (2011 – 2013)
- Transportation Research Board (TRB) Bicycle Transportation Committee (Friend: Review research papers) (2011 – present)

CONFERENCE PAPERS and PUBLICATIONS (peer reviewed):

Smahel, T., Ng, H., and Chu, S. Human Factors Analysis of Real-Time Rail Crossing Information Sign. *Presented at the 101st annual meeting of the Transportation Association of Canada, Charlottetown, PEI.* September 2015.

Smiley, A., Smahel, T, and Erwin, S. Human factors evaluation of new pictogram-based messages for bilingual variable message signs. *Presented at the 100th annual meeting of the Transportation Association of Canada, Montreal Quebec.* September 2014.

Smahel, T. and Smiley, A. Human factors assessment of distraction, workload, and traffic safety in relation to bus operator workload during manual stop announcements. *Presented at the 100th annual meeting of the Transportation Association of Canada, Montreal Quebec.* September 2014.

McLeod, D., Rowland, T., Rudin-Brown, C., Smahel, T., and Rose, A. New Zealand drivers' perceptions of the costs and benefits of speeding: Comparisons to Canadian Data. *Presented at the 24th annual meeting of the Canadian Association of Road Safety Professionals.* June 2014.

Smiley, A. and Smahel, T. Effect of an advance warning sign on driver behaviour at a passive rail crossing. *Presented at the 91st annual meeting of the Transportation Research Board, Washington D. C.* January 2012.

Smahel, T. and Smiley, A. Evaluation of bilingual sign layout and information load prior to implementation of new signing system. *Transportation Research Record, 2248*, pp. 37-44. 2011.

Smiley, A., Smahel, T., Courage, C., Fitch, G., and Currie, M. Required letter height for street name signs: An on-road study. *ITE (Institute of Transportation Engineers) Journal*, Vol. 81, No. 7, 2011.

Smahel, T. *LEED and Ergonomics: Working together to create healthy and productive workplaces.* Presented at the Association of Canadian Ergonomists Conference. June 2010.

Smahel, T., and Smiley, A. Evaluation of roadway guide signs at Toronto Pearson International Airport. *Transportation Research Record, 2185*. pp. 63-70. 2010.

Smiley, A., Smahel, T., Boivin, D., Boudreau, P., Remmers, J., Turner, M., Rosekind, M. and Gregory, K.B. *Effects of a fatigue management program (FMP) on fatigue in the commercial motor vehicle industry.* Presented at the Apnea/Sleep Disorders sessions of the annual convention of the Ontario Trucking Association, Toronto, Ontario, November 19, 2009.

Smiley, A., Smahel, T., and Donderi, D.C. On-road and laboratory evaluation of bilingual variable message signs. *Advances in Transportation Studies: An International Journal*, B (19), pp. 85-96. 2009.

Smiley, A., Smahel, T., Boivin, D., Boudreau, P., Remmers, J., Turner, M., Rosekind, M. and Gregory, K.B. *Effects of a fatigue management program (FMP) on fatigue in the commercial motor vehicle industry.* Presented at the International Conference on Fatigue Management in Transportation Operations, Boston, Massachusetts, March 2009.

Robinson, J.R., Smiley, A., Smahel, T., and Chisolm, G. Design guidance for freeway transitions to signalized intersection: Some application heuristics. *Transportation Research Board 88th Annual Meeting Compendium of Papers DVD, Paper #09-2861.* 2009.

Smahel, T., Smiley, A., and Donderi, D. The effects of cellular phone use on novice and experienced driver performance: An On-Road study. *Presented at the 52nd Annual Meeting of the Human Factors and Ergonomics Society.* September 2008.

Smiley, A., Persaud, B., Bahar, G., Mollett, C., Lyon, C., Smahel, T., Kelman, L. Traffic safety evaluation of video advertising signs. *Presented at the 84th Annual Meeting of the Transportation Research Board, Washington, D.C.* January 2005.

Smiley, A., Smahel, T., and Eizenman, M. The impact of video advertising on driver fixation patterns. *Presented at the 83rd Annual Meeting of the Transportation Research Board, Washington, D.C.* January 2004.

Bahar, G., Mollett, C., Persaud, B., Lyon, C., Smiley, A., Smahel, T., and McGee, H. (2004). Safety evaluation of permanent raised pavement markers. *NCHRP Report 518*, Transportation Research Board, Washington, D.C. 2004.

Smiley, A., Courage, C., Smahel, T., Fitch, G. and Currie, M. Required letter height for street name signs: An on-road study. *Presented at the 80th Annual Meeting of the Transportation Research Board*, Washington, D.C. January 2001.

INVITED PRESENTATIONS AND COURSES

Transportation Association of Canada (TAC) Workshop: How to conduct an in-service road safety review, “Introduction to Human Factors”. September 2014.

EPIC Municipal Infrastructure Training (full day): “Design Safer Roads for Pedestrians and Cyclists”. March 2014 and February 2016

Ontario Provincial Police (full day): “Human Factors in Traffic Safety”. May 2013, May 2015.

Association of Canadian Ergonomists (webinar at Annual Conference): “Ergonomics: LEEDing the Way”. August 2012.

Ontario Good Roads Associates: “Bicycle Crashes: What Can We Learn From Them”. October 2011.

Association of Canadian Ergonomists (Ontario Chapter): “LEED: Green Design, Green Ergonomics”. June 2010.

Greater Toronto Area Environmental, Health, Safety and Ergonomics Network: “From Sick Buildings to Healthy Workplaces”. May 2009.

International Facility Managers Association: “Ergonomics and Human Factors Aspects of Universal Design”. May 2009.

Ryerson University, CV8400: Road Safety: “Introduction to Human Factors”. 2014 – present.

University of Toronto Human Factors Interest Group: “Human Factors and Road Safety: Case Studies”. April 2009.

University of Toronto, MIE345: Case Studies in Ergonomics: “The Effects of Cellular Phone Use on Novice and Experienced Driver Performance”. 2007 – 2010, 2012 – present.

University of Toronto, MIE345: Case Studies in Ergonomics: “Wayfinding Exercise at Robarts and Gerstein libraries”. 2007 – 2009.

University of Toronto, MIE345: Case Studies in Ergonomics: “Slip and Fall Accidents”. 2008 – 2010, 2012 – 2014.

University of Toronto, MIE345: Case Studies in Ergonomics: “Human Factors in Bicycle Crashes”. 2012 – present.

TECHNICAL REPORTS

Smahel, T., Kawaja, K., and Donderi, D. Ergonomic Assessment of Low Headroom Areas on 8400 Series Nova Buses. Report prepared for Toronto Transit Commission. February 2016.

Smahel, T. and Smiley, A. *Human Factors Assessment of Highway 33 between Collins Bay Road and Coverdale Drive*. Report prepared for Ainley Graham & Associates Ltd. November 2015.

Smahel, T. and Smith, S. Ergonomic Review of the Placement of PRESTO equipment on Four Bus Types. Report prepared for Toronto Transit Commission. November 2015.

Smahel, T. and Smith, S. Ergonomic Review of the Placement of PRESTO equipment on Two Streetcar Types. Report prepared for Toronto Transit Commission. October 2015.

Smiley, A. and Smahel, T. *Driver Distraction due to Dynamic Billboards*. Report Prepared for MMM Group Ltd. June 2015.

Smiley, A. and Smahel T. *Human Factors Review of the Fallowfield At-Grade Rail Crossing*. Report prepared for City of Ottawa. March 2015.

Smiley, A. and Smahel T. *Ergonomic Assessment of Bus Operator Workspace and Railway Crossing Hazards for OC Transpo*. Report prepared for MMM Group Ltd. January 2015.

Smahel, T. *Ergonomic re-assessment of line of sight on Nova LFS Artic buses with modified front bike rack*. Report prepared for Toronto Transit Commission. January 2015.

Smahel, T. *Ergonomic assessment of forward view on Nova LFS Artic buses with bicycles in front bike rack*. Report prepared for Toronto Transit Commission. September 2014.

Smiley, A. and Smahel, T. *Snow Plow Perception of Closing Velocity and Conspicuity Assessment*. Report prepared for Ontario Ministry of Transportation. March 2014.

Smahel, T. and Smith, S. *Human Factors / Ergonomics Review of TTC Subway Work Cars*. Report prepared for Toronto Transit Commission. March 2014.

Smahel, T. *Ergonomic Assessment of the Upper Portion of the Protective Barrier on TTC Buses*. Report prepared for Toronto Transit Commission. February 2014.

Smiley, A. and Smahel, T. *Snow Plow Equipment Visibility Verification Study*. Report prepared for Ontario Ministry of Transportation. January 2014

Smahel, T. *Ergonomic Review of Slip, Trips, and Falls on Subway Station Stairs*. Report prepared for Toronto Transit Commission. January 2014.

Smiley, A. and Smahel, T. *Snow Plow Checkerboard Selection Test*. Report prepared for Ontario Ministry of Transportation. December 2013

Smahel, T. *Ergonomic Assessment of Collector Booth Glass Clarity – Davisville Station*. Report prepared for Toronto Transit Commission. December 2013.

Smahel, T., Smith, S., Donderi, D.C., and Kawaja, K. *Human Factors Engineering Summary Report – Ontario Power Generation Portable Feedwater Sampling System*. Report prepared for Tyne Engineering. July 2013.

Smahel, T., Smith, S., Donderi, D.C., and Kawaja, K. *Human Factors Engineering Program Plan (HFEP) – Ontario Power Generation Portable Feedwater Sampling System*. Report prepared for Tyne Engineering. June 2013.

Smahel, T. and Smiley, A. *Human Factors Analysis – TransLink Rail Crossing Information System (RCIS) Motorist Advisory Signs*. Report prepared for South Coast B.C. Transportation Authority (TransLink). April 2013.

Smahel, T. and Smiley, A. *Human Factors Assessment – Highway 410 from Highway 401 to Queen Street*. Report prepared for URS Canada Inc. November 2012.

Smahel, T. *Ergonomic Assessment of Collector Booth Glass Clarity*. Final Report prepared for Toronto Transit Commission. August 2012.

Smiley, A. and Smahel, T. *MTO Bilingual Variable Message Signs: Phase 2 Results*. Final Report prepared for IBI Group. July 2012.

Donderi, D.C., Smith, S., Kawaja, K., Smahel, T. and Lallani, R. *Human Factors Engineering Summary Report for the Light Water Detritiation Facility (LWDF)*. Report prepared for Tyne Engineering. April 2012.

Donderi, D.C., Smith, S., Kawaja, K., Smahel, T. and Lallani, R. *Design Guide: Maintenance, Inspection, and Testing for the Light Water Detritiation Facility (LWDF)*. Report prepared for Tyne Engineering. February 2012.

Donderi, D.C., Smith, S., Kawaja, K., Smahel, T. and Lallani, R. *Design Guide: Human System Interface for the Light Water Detritiation Facility (LWDF)*. Report prepared for Tyne Engineering. February 2012.

Smiley, A. and Smahel, T. *Human Factors Assessment – Highway 401 from Regional Road 25 to Trafalgar Road*. Report prepared for URS Canada Inc. January 2012.

Donderi, D.C., Smith, S., Kawaja, K., Smahel, T. and Lallani, R. *Human Factors Engineering Program Plan (HFEPP): AECL Chalk River Laboratories Light Water Detritiation Facility, Building 215*. Report prepared for Tyne Engineering. November 2011.

Donderi, D.C., Smith, S., Kawaja, K., Smahel, T. and Lallani, R. *Human Factors Engineering Verification and Validation Plan (HFEVV): AECL Chalk River Laboratories Light Water Detritiation Facility, Building 215*. Report prepared for Tyne Engineering. August 2011.

Smahel, T. *Ergonomic assessment of trip and fall accidents on main stairwells at 2800 Speakman Drive*. Report prepared for Hatch Engineering. September 2011.

Smiley, A. and Smahel, T. *MTO Bilingual Variable Message Signs: Results – Phase 1*. Report prepared for IBI Group. August 2011.

Smahel, T., Smiley, A. and Mitchell, D. *Visual behaviour comparison between two methods of mail delivery*. Report prepared for Canada Post Corporation. November 2010.

Smiley, A. and Smahel, T. *Human Factors Assessment of Highway 406 Southbound Transition*. Final Report prepared for IBI Group. November 2010.

Smith, S. and Smahel, T. *Physical and Visual Ergonomic Evaluation of the Orion VII Next Generation Bus*. Final Report prepared for Daimler Buses North America. November 2010.

Smiley, A, Smahel, T, Trick, L. and Toxopeus, R. *Final Report on Highway 406 Simulation*. Final Report prepared for Delphi-McCormack Rankin. November 2010.

Smahel, T. and Smiley, A. *Assessment of Traffic Safety in Relation to Making Manual Stop Announcements*. Final Report prepared for Grand River Transit. July 2010.

Smahel, T. and Smiley, A. *Pedestrian Signs Photo Summary: Comments and Recommendations for Denver International Airport*. Final Report prepared for Gresham Smith and Partners. June 2010.

Smahel, T. and Smiley, A. *Frequently Asked Question Survey Results for Denver International Airport*. Final Report prepared for Gresham Smith and Partners. June 2010.

Smiley, A and Smahel, T. *Roadway Signs Photo Summary: Comments and Recommendations for Denver International Airport*. Final Report prepared for Gresham Smith and Partners. June 2010.

Smahel, T. and Smith, S. *Ergonomic / Human Factors Review of the Bombardier Streetcar Prototype*. Final Report prepared for Toronto Transit Commission. May 2010.

Smiley, A., Smahel, T. and Page, L. *Analysis of MVA Incident Database for Hydro One Networks inc*. Report prepared for Hydro One Networks Inc. December 2009.

Smahel, T. and Smith, S. *Ergonomic / Human Factors Review of the Fare Media Validation Prototype*. Final Report prepared for Toronto Transit Commission. November 2009.

Smiley, A., Smahel, T., Boivin, D., Boudreau, P., Remmers, J., Turner, M., Rosekind, M., and Gregory, K. *Effects of a Fatigue Management Program on Fatigue in the Commercial Motor Carrier Industry*. Final Report prepared for the Transportation Development Centre of Transport Canada. June 2009.

Bahar, G., Smahel, T. and Smiley, A. *Study of the Environmental, Economic, Safety and Social Benefits of Roundabouts*. Final report prepared for Director General Surface Policy, Transport Canada. March 2009.

Smiley, A., Smahel, T., and Page, L. *Older drivers and highway design*. Report prepared for the Canadian Automobile Association, Ottawa, Ontario. December 2008.

Smiley, A. Smahel, T. and Bahar, G. *Low speed electrical vehicles: Human factors and road safety impacts*. Report prepared for National Research Council, Ottawa. October 2008.

Smiley, A. and Smahel, T. *Human factors assessment of an entrance at Station 19+765 RT in the vicinity of the Gladu Road interchange*. Final report prepared for URS Canada Inc. September 2008.

Smiley, A. and Smahel, T. *Human factors assessment of an entrance at Station 19+900 RT in the vicinity of the Gladu Road interchange*. Final report prepared for URS Canada Inc. September 2008.

Smiley, A. and Smahel, T. *Human Factors expert opinion on highway sign design issues relating to the Scenic Drive program in New Brunswick*. Final report prepared for New Brunswick Department of Tourism & Parks. June 2008.

Smahel, T. *Assessment of Visual Concerns for Fire Prevention Van*. Final report prepared for Toronto Transit Commission. May 2008.

Smiley, A., Kline, D, Caird, J, Smahel, T, Shorten, J., and Jung, S. *Visual Behaviour and Conspicuity / Effectiveness of Grade Crossing Elements*. Final report prepared for Transportation Development Centre of Transport Canada. March 2008.

Smith, S., Smahel, T., and Kawaja, K. *Review of the Physical and Visual Ergonomic Concerns for the Orion VII Bus*. Final report prepared for the Toronto Transit Commission. December 2007.

Smahel, T and Smiley, A. *Driver comprehension of advance sign messages*. Final report prepared for Transportation Development Centre of Transport Canada. November 2007.

Donderi, D. and Smahel, T. *The Yonge-University subway ATC speed control display should look just like the AWS speed control display until routine AWS operation is ended*. Final report prepared for Toronto Transit Commission. November 2007.

Bahar, G., Smiley, A., Cotton, R., Howes, D., Tanaka, K., Ngau, G., Dustin, K. and Smahel, T. *Rural Community Mail Boxes – Lay-by site selection and design*. Final Report prepared for Canada Post Corporation. November 2007.

Kawaja, K and Smahel, T. *Human factors and ergonomic design input for Pickering NGS administration building cafeteria upgrade*. Prepared for Shore Tilbe Irwin & Partners. May 2006.

Smiley, A., Smahel, T., and Donderi, D. *The effects of cellular phone use on novice and experienced driver performance: Part 2 – On-road study*. Final report prepared for The Insurance Bureau of Canada. August 2006.

Smiley, A and Smahel, T. *Laboratory testing of layout alternatives prior to implementation of new signing system*. Final report prepared for Parks Canada. July 2005.

Smiley, A., Donderi, D., and Smahel, T. *Bilingual alternatives for VMS, PVMS and static signs*. Final report prepared for IBI Group (for the Ministry of Transportation, Ontario). May 2005.

Donderi, D, Kawaja, K, Patten, D, Smahel, T. *Expert advice on computer display screens*. Final report prepared for Centre for Leadership and Human Resource Management. February 2005.

Smiley, A. and Smahel, T. *MUTCD warning and regulatory letter heights in relation to the proposed standard*. Final report prepared for Transportation Association of Canada. September 2004.

Smiley, A., Smahel, T., and MacGregor, C. *An evaluation of parents' understanding of the capabilities of teenage drivers*. Final report prepared for Fondation MAIF, Paris, France. October 2004.

Smahel, T and Smiley, A. *On-road test of Parks Canada guide and street name signs*. Final report prepared for Parks Canada. March 2004.

Smiley, A., Donderi, D., Davis, D. and Smahel, T. *Assessment of safety of monitoring during G2 driver licence test*. Report prepared for Ministry of Transportation Ontario. June 2003.

Smiley, A. and Smahel, T. *Phase II: Wayfinding study for Pearson International Airport*. Final report prepared for the Greater Toronto Airport Groundside Association. February 2003.

Smiley, A. and Smahel, T. *Sight distance requirements for non-signalized skew and horizontal curve intersections*. Final report prepared for ITT Industries, Systems Division, Colorado Springs, Colorado. February 2002.

Smiley, A. and Smahel, T. *Freeway to highway transitions and speed-reducing countermeasures on the Highway 417 to 7 transition*. Report prepared for Totten Sims Hubicki Associates (for the Ministry of Transportation in Ontario). September 2001.

Smiley, A. and Smahel, T. *Wayfinding study for Pearson International Airport*. Final report prepared for the Greater Toronto Airport Groundside Association. June 2001.

Smiley, A., Smahel, T. and Bahar, G. *Human factors operational review: Intersection of Highway 17 and Regional Road 55*. Prepared for the Ministry of Transportation in Ontario, Sudbury District. April 2000.

Smiley, A. and Smahel, T. *Driver comprehension of warning and temporary conditions signs to be included in Books 6 and 7 of the Ontario Traffic Manual*. Presented to the Ministry of Transportation in Ontario. October 1999.

Smiley, A., Courage, C., Smahel, T., and Fitch, G. *Driver response to Toronto street name signs: An on-road study*. Final report for Toronto Transportation. August, 1999.

March 2016