

CURRICULUM VITAE

THOMAS SMAHEL, M.ARCH, CCPE, RSP1
President and Principal Consultant

Human Factors North Inc.
500 King Street West, Suite 300
Toronto, Ontario
M5V 1L9

Telephone: (416) 596-1252
E-mail: tsmahel@hfn.ca

DESIGNATIONS

Canadian Certified Professional Ergonomist (CCPE) – 2007
Road Safety Professional (Level 1) (RSP1) - 2021

EDUCATION

BASc. – 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 – January 2007
Research Associate – Human Factors North Inc.

January 2007 – January 2011
Consultant – Human Factors North Inc.

January 2011 – March 2021
Principal Consultant – Human Factors North Inc.

March 2021 – present
President – 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 Ottawa:

- Conduct human factors review of the Fallowfield at-grade rail crossing

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

OC Transpo:

- Conduct an assessment of the visual and physical ergonomics-related hazards in relation to the bus operators' workspace in the new Alexander Dennis E500 bus
- Conduct an ergonomic assessment of a new video monitor location on the Alexander Dennis E500 bus

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 Community Housing Corporation (TCHC):

- Conduct cognitive demands analyses for 27 job types

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
- Conduct ergonomic assessment of one person train operation on subway vehicles
- Conduct line of sight assessment for Geismar Crane vehicle
- Conduct ergonomic assessment of alarms faced by Power Control Operators at Transit Control
- Conduct ergonomic assessment of inattention and distraction for subway Operators
- Conduct ergonomic review of the guard indicator light on T1 subway cars

- Conduct ergonomic review of lighting in main transit control room
- Conduct ergonomic review of handrails on new Bombardier low-floor streetcars
- Conduct ergonomic assessment of proposed Control Room at Wilson Yard
- Conduct ergonomic assessment of Bus Operator startle response at railway crossings

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:

- Contribute to the literature view of laboratory testing methods and results for Level 2 and Level 3 driver interfaces
- Asses the environmental, economic, safety and social benefits of roundabouts

Clients – Corporate

407 ETR

- Conduct human factors assessment of driver distraction in vicinity of digital billboards

AECOM

- Design and carry out comprehension test to evaluate detour sign options for Highway 115 near Peterborough

CIMA:

- Provide human factors contribution to the development of guidelines for static electronic advertising signs for the Town of Oakville
- Conduct human factors assessment of the March Road at-grade crossing in Ottawa
- Provide human factors contribution to the Digital Billboard guidelines for MTO (location selection, placement criteria, and design)
- Prepare human factors guidelines for dynamic message sign messages
- Provide human factors contribution to the TAC Road Safety Course

Daimler Buses North America:

- 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

Dillon Consulting (for Ministry of Transportation - Ontario):

- 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) (for Canada Post):

- 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

Hatch:

- Conduct an on-site evaluation on the effect of train bells on customer behaviour on UP Express platforms (for Metrolinx)

IBI Group (for Ministry of Transportation – Ontario):

- 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 (formerly iTRANS Consulting):

- Develop methodology and carry out visual night-time inspection of the conspicuity, visibility, and legibility of MTO guide signs on 11 freeway segments in southern Ontario
- Conduct series of human factors visibility tests to assess the visibility, conspicuity, and visual distinctness of new lighting concepts for winter snow maintenance vehicles
- Conduct operational performance review of the active transportation facility at Duckworth Street and Highway 400
- Provide human factors contribution to literature review regarding state of practice converting HOV lanes to HOT lanes (for MTO)
- 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
- Conduct nighttime visibility assessment to examine the visibility, legibility, and retroreflectivity of ground-mounted freeway signs
- Conduct human factors component of the operational performance review of the active transportation facility at Duckworth Street and Highway 400

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 Ministry of Transportation - Ontario):

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

MORR Transportation Consulting Ltd (for Transportation Association of Canada)

- Design and carry out experiment to assess the conspicuity and comprehension of non-standard crosswalk treatments

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

Parsons:

- Conduct human factors assessment of features at railway grade crossings such as multi-train warning signs (for Metrolinx)
- Develop human factors system requirements specifications for the Broadway Subway Extension (for TransLink B.C.)

Proterra (U.S.)

- Conduct human factors assessment of electric bus for Toronto Transit Commission

R.F. Binnie & Associates

- Conduct human factors assessment of bicyclist-related signing needs specific to bridge joints

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 - Ontario):

- 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
- Conduct human factors assessment of the design and placement of Station Entrance Emergency Information Panels at all 33 SkyTrain stations
- Conduct human factors assessment of the design and placement of two types of dynamic information displays on all platforms at all 33 SkyTrain stations

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 (for Ministry of Transportation – Ontario):

- 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

WSP Canada Inc. (formerly MMM Group / McCormick Rankin Corp / Delphi)

- Conduct human factors assessment of the speed management at the Brighton Swing Bridge (for MTO)

- Conduct human factors assessment of the speed management at the new Highway 7 east terminus (for MTO)
- Conduct human factors component of road safety audit of Highway 407 East (for MTO)
- Contribute human factors expertise in the development of the TAC Geometric Design Guide for Canadian Roads
- Conduct human factors assessment of 263 Adelaide Street West parking access
- Conduct human factors assessment of driver distraction due to dynamic billboards at Pearson International Airport
- Conduct ergonomic assessment of bus operator workspace in the context of railway crossing hazards for OC Transpo
- 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
- Conduct human factors review of proposed signing at St. Peter's Road intersection in Prince Edward Island
- Conduct human factors review of proposed signing at Brighton Swing Bridge
- Conduct human factors review of warning signs on highway adjacent to TC Energy power plant during periods of very low visibility

Clients – Legal

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

- Labanowicz v. Corporation of the Town of Fort Erie
- Hill et al v. Cranney
- Queen v. Bodajla

Provided human factors evidence in Depositions for cases in the States of Indiana and Illinois

Carried out over 200 human factors forensic analysis, including site investigations, and authored expert reports for:

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| • AMR Barristers and Solicitors LLP | • Kelly Law Offices |
| • Agro Zaffiro LLP | • Lerner LLP |
| • Aviva Trial Lawyers | • Linden & Associates |
| • Beard Winter | • Lofranco Correiro |
| • Bell Baker LLP | • Loopstra Nixon LLP |
| • Benson Percival Brown LLP | • Malach Fidler Sugar + Luxenberg LLP |
| • Bergeron Clifford LLP | • MartaWatson LLP |
| • Boghosian + Allen LLP | • McCormick, Haney & Brimblecombe LLP |
| • CBM Lawyers | • O'Brien, Jacklin, Wickett, Sulman |
| • City of Ottawa | • Oatley Vigmond |
| • Conte and Associates | • Paquette Travers & Deutschmann |
| • De Rose Barristers and Solicitors LLP | |

- Dyer Brown LLP
- Erickson & Partners
- Fireman Steinmetz Daya
- Gluckstein Personal Injury Lawyers
- Grillo Barristers
- Haghani Law Office
- Harrison Pensa LLP
- Hughes Amys LLP
- Pipella Law
- Preszler Injury Lawyers
- Quinn Thiele Mineault Grodzki
- Rachlin and Wolfson
- Shillingtons LLP
- Siskinds LLP
- Torkin Manes
- Toronto Transit Commission
- Zuber & Company

Contributed to the human factors forensic analysis, including site investigations, in over 200 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
- Lerners LLP
- Martin & Hillyer
- McLeish Orlando
- Miller Thompson
- Mollison McCormack
- Moodie Mair & Walker
- Oatley Vigmond
- Quinlan Abrioux
- Siskinds
- Toronto Transit Commission
- Wissensz Law

PROFESSIONAL MEMBERSHIPS

- Canadian College for the Certification of Professional Ergonomists
- Association of Pedestrian and Bicycle Professionals
- Transportation Association of Canada
- Association of Canadian Ergonomists

COMMITTEES

- Transportation Association of Canada (TAC) Road Safety Committee (2013-present) (Co-Chair 2021-present; Secretary 2019-2021)
- Canadian College for the Certification of Professional Ergonomists (CCCPE) Board Member (2015-2018)
- 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. ACRP Report 161: Guidelines for improving airport services for international customers. *Presented at the 2017 annual meeting of the AAAE/IAAE North America / Central Europe Airport Issues Conference, Budapest, Hungary. October 2017.*

Smahel, T. Airport features most likely to affect international traveler satisfaction. *Presented at the 2017 annual meeting of the Transportation Research Board, Washington D.C.* January 2017.

Smiley, A., Smahel, T., Pearsall, M., and Dow, T. Field test of visibility markers for snow maintenance equipment. *Presented at the 2017 annual meeting of the Transportation Research Board, Washington D.C.* January 2017.

Smiley, A. and Smahel. Traffic Control Devices. Human Factors in Traffic Safety, 3rd Edition. Alison Smiley, Ed. ISBN 13: 978-1-933264-88-2, Lawyers & Judges Publishing Company, Inc., Tucson, Arizona. 2016.

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

Ontario Provincial Police (full day): "Human Factors in Traffic Safety". May 2013, May 2015. May 2016, May 2017.

University of Toronto, MIE 1414: Human Factors in Transportation: "Human Factors in Bicycle Crashes". 2014-2023.

University of Toronto, MIE 345: Case Studies in Ergonomics: "Human Factors in Bicycle Crashes". 2012-2016, 2018-2023.

Ryerson University, CV 8400: Road Safety: "Introduction to Human Factors". 2014, 2017.

University of Toronto, MIE 345: Case Studies in Ergonomics: "The Effects of Cellular Phone Use on Novice and Experienced Driver Performance". 2007 – 2010, 2012-2016.

University of Toronto, MIE 345: Case Studies in Ergonomics: "Wayfinding Exercise at Robarts and Gerstein libraries". 2007 - 2009.

University of Toronto, MIE 345: Case Studies in Ergonomics: "Slip and Fall Accidents". 2008 - 2010, 2012-2014.

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

EPIC Municipal Infrastructure Training (full day): “Design Safer Roads for Pedestrians and Cyclists”. March 2014, February 2016, February 2017. February 2019.

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

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.

TECHNICAL REPORTS

Smahel, T. and Smiley, A. *Signing Needs / Requirements Specific to Bridge Joint Sites*. Report prepared for R.F. Binnie & Associates. March 2023.

Smahel, T. and Smiley, A. *Comprehensive Motorcycle Safety Study*. Report prepared for City of Toronto Transportation Services. December 2022.

Montufar, J., Olfert, M., Gu, S., Baugh, N., Smiley, A., Smahel, T., Bahar, G. *Non-Standard Pavement Markings for Crosswalk*. August 2022.

Smahel, T. and Smith, S. *Union-Pearson Express Bell Cessation Pilot – Impact of Train Bells on Customer Behaviour*. Report prepared for Hatch Engineering (for Metrolinx). December 2021.

Smith, S. and Smahel, T. *Ergonomic Evaluation – TTC Electric Bus Comparison*. Report prepared for Toronto Transit Commission. March 2021.

Smith, S. and Smahel, T. *Ergonomic Evaluation of the BYD K9M Bus*. Report prepared for Toronto Transit Commission. February 2021.

Smith, S. and Smahel, T. *Ergonomic Evaluation of the New Flyer Xcelsior Bus*. Report prepared for Toronto Transit Commission. February 2021.

Smahel, T. *Ergonomic Review of Bus Operator Startle Response at Railway Crossings*. Report prepared for Toronto Transit Commission. November 2020.

Smahel, T. *Human Factors Analysis of Highway 401 Corridor Between London and Tilbury*. Report prepared for Stantec. October 2020.

Smith, S. and Smahel, T. *Ergonomic Evaluation of the Catalyst E2 Duopower Bus*. Report prepared for Proterra Inc. August 2020.

Smahel, T. and Smith S. *Human Factors / Ergonomics Review of the Wilson Yard Control Room Renovation*. Report prepared for Toronto Transit Commission. August 2020.

Smith, S. and Smahel, T. *Ergonomic Review: Low Floor Light Rail Vehicle Handrail and Handstrap Addition*. Report prepared for Toronto Transit Commission. December 2019.

Smiley, A. and Smahel, T. *Driver Distraction on 407ETR due to Digital Billboards*. Report prepared for 407ETR. August 2019.

Smahel, T. and Smiley, L. *Human Factors Guidelines for Dynamic Message Sign Messages*. Report prepared for CIMA+. August 2019.

Smith, S. and Smahel, T. *Ergonomic Assessment of the T1 Subway Car Reset Button Relocation*. Report prepared for Toronto Transit Commission. June 2019.

Smahel, T. and Smith S. *Human Factors / Ergonomics Review of the Transit Control Theater – fourth Row*. Report prepared for Toronto Transit Commission. March 2019.

Smahel, T. and Smiley, L. *User Comprehension Testing – Overhead Sign Options on Highway 115*. Report prepared for AECOM. February 2019.

Smahel, T. *Geismar Crane Line of Sight Assessment*. Report prepared for Toronto Transit Commission. June 2018.

Smahel, T. *Ergonomic Review of Power Control Alarms*. Report prepared for Toronto Transit Commission. June 2018.

Smahel, T. *Ergonomic Review of Subway Operator Distraction Prevention Strategies*. Report prepared for Toronto Transit Commission. November 2017.

Smahel, T. *Operational Performance Review – Active Transportation Facility – Duckworth Street and Highway 400*. Report prepared for HDR Corporation (for the Ministry of Transportation in Ontario). October 2017.

Smiley, A., Smahel, T., and Green, P. *Laboratory Testing of Level 2 and Level 3 Driver Interfaces: A Review of 19 Studies*. Report prepared for Transport Canada. August 2017.

Smahel, T. *MTO Guide Sign Reflectivity – Visual Night-time Inspection*. Report prepared for the Ministry of Transportation in Ontario. June 2017.

Smahel, T. *Ergonomic Assessment of New Location of Video Monitor on Alexander Dennis E500 Bus*. Report prepared for OC Transpo. May 2017.

Smahel, T. *Ergonomic Assessment of the Guard Indicator Light on T1 Subway Cars*. Report prepared for Toronto Transit Commission. March 2017.

Smahel, T. and Smiley, A. *Human Factors Assessment of 263 Adelaide Street West Parking Access*. Report prepared for WSP / MMM Group. January 2017.

Smahel, T. and Smiley, A. *Human Factors Assessment of Station Entrance Emergency Information Panels*. Report prepared for South Coast B.C. Transportation Authority (TransLink). October 2016.

Smahel, T. and Smith, S. *Human Factors / Ergonomics Review of One Person Train Operation (OPTO) on Line 4*. Report prepared for Toronto Transit Commission. May 2016.

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 Models*. Report prepared for Toronto Transit Commission. November 2015.

Smahel, T. and Smith, S. *Ergonomic Review of the Placement of PRESTO equipment on Two Streetcar Models*. 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.

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