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Research Reports
Transportation-related research reports by University of Minnesota researchers, published by CTS, MnDOT, the Minnesota Local Road Research Board, and other sponsors in 2015. These reports are available in PDF format at www.cts.umn.edu/Publications/ResearchReports/.

Transportation Planning and the Economy
Access Across America: Walking 2014
Andrew Owen, David M. Levinson, Brendan Murphy
Report no. CTS 15-03
http://www.cts.umn.edu/Publications/ResearchReports/reportdetail.html?id=2420

Access Across America: Walking 2014 Methodology
Andrew Owen, David M. Levinson
Report no. CTS 15-04
http://www.cts.umn.edu/Publications/ResearchReports/reportdetail.html?id=2422

Exploring Strategies for Promoting Modal Shifts to Transitways
Jason Cao, Yingling Fan, Andrew Guthrie, Yi Zhang
Report no. MnDOT 2015-49
http://www.cts.umn.edu/Publications/ResearchReports/reportdetail.html?id=2478

The Influences of the Hiawatha LRT on Changes in Travel Behavior: A Retrospective Study on Movers
Jason Cao, Alireza Ermagun
Report no. CTS 15-10
http://www.cts.umn.edu/Publications/ResearchReports/reportdetail.html?id=2466

The Minnesota Bicycle and Pedestrian Counting Initiative: Implementation Study
Greg Lindsey, Michael Petesch, Steve Hankey
Report no. MnDOT 2015-34
http://www.cts.umn.edu/Publications/ResearchReports/reportdetail.html?id=2454

MnPASS Modeling and Pricing Algorithm Enhancement
John Hourdos, Michael Janson, David M. Levinson, Gordon Parikh
Report no. MnDOT 2015-22
http://www.cts.umn.edu/Publications/ResearchReports/reportdetail.html?id=2430

Real Estate Development in Anticipation of the Green Line Light Rail Transit in St. Paul
Jason Cao, Dean Porter
Report no. CTS 15-09
http://www.cts.umn.edu/Publications/ResearchReports/reportdetail.html?id=2464

Statewide Cycloplan: Bicycle Planning Tool & Participatory GIS
Loren Terveen
Report no. MnDOT 2015-29
http://www.cts.umn.edu/Publications/ResearchReports/reportdetail.html?id=2440

Transportation Investment and Economic Development in Minnesota Counties
Zhirong Zhao
Report no. MnDOT 2015-12
http://www.cts.umn.edu/Publications/ResearchReports/reportdetail.html?id=2414

Transportation Planning to Support Economic Development: An Exploratory Study of Competitive Industry Clusters and Transportation in Minnesota
Lee Munnich, Michael Iacono, Jonathan Dworin, Bethany Brandt-Sargent
Report no. MnDOT 2015-02
http://www.cts.umn.edu/Publications/ResearchReports/reportdetail.html?id=2400

Travel Behavior Over Time
David M. Levinson, Greg Lindsey, Yingling Fan, Jason Cao, Michael Iacono, Martin Brosnan, Andrew Guthrie, Jessica Schoner
Report no. MnDOT 2015-23
http://www.cts.umn.edu/Publications/ResearchReports/reportdetail.html?id=2460

Transportation Safety and Traffic Flow
Development of Active Traffic Management Strategies for Minnesota Freeway Corridors
Eil Kwon, Chongmyung Park
Report no. MnDOT 2015-26
http://www.cts.umn.edu/Publications/ResearchReports/reportdetail.html?id=2434

Development of Guidelines for Permitted Left-Turn Phasing Using Flashing Yellow Arrows
Gary A. Davis, John Hourdos, Vahid Moshtagh
Report no. MnDOT 2015-27
http://www.cts.umn.edu/Publications/ResearchReports/reportdetail.html?id=2446

Development of a Sensor Platform for Roadway Mapping: Part B - Mapping the Road Fog Lines
Brian Davis, Max Donath
Report no. MnDOT 2015-11
http://www.cts.umn.edu/Publications/ResearchReports/reportdetail.html?id=2412

This 2016 update supplements the CTS Publications Catalog published in 2004 and subsequent annual updates. A listing of all publications available from CTS along with ordering information are online at www.cts.umn.edu.
Estimation of Winter Snow Operation
Performance Measures with Traffic-Flow Data, Phase 2
El Kwon, Chongmyung Park, Seongah Hong, Soobin Jeon
Report no. MnDOT 2015-44
http://www.cts.umn.edu/Publications/ResearchReports/reportdetail.html?id=2462

Evaluating Twin Cities Transitways Performance and their Interaction with Traffic on Neighboring Major Roads
John Hourdos, Derek Lehrke
Report no. MnDOT 2015-09
http://www.cts.umn.edu/Publications/ResearchReports/reportdetail.html?id=2410

Field Implementation, Testing, and Refinement of Density Based Coordinated Ramp Control Strategy
John Hourdos, Nikolaos Geroliminis, Stephen Zitzow, Ypatia Limmati
Report no. MnDOT 2015-37
http://www.cts.umn.edu/Publications/ResearchReports/reportdetail.html?id=2448

Human Factors of Vehicle-Based Lane Departure Warning Systems
Christopher Edwards, Jennifer Cooper, Alice Ton
Report no. MnDOT 2015-35
http://www.cts.umn.edu/Publications/ResearchReports/reportdetail.html?id=2452

Impact of Exempting the Recording of Low Level Speed Violations In Minnesota
Frank Douma, Nebiyuu Tilahun, Spencer Peck
Report no. CTS 15-01
http://www.cts.umn.edu/Publications/ResearchReports/reportdetail.html?id=2406

Implementation of Traffic Data Quality Verification for WIM Sites
Chen-Fu Liao, Indrajit Chatterjee, Gary A. Davis
Report no. MnDOT 2015-18
http://www.cts.umn.edu/Publications/ResearchReports/reportdetail.html?id=2428

Interstate 35E MnPASS Managed Lanes Extension: Little Canada Road to County Road 96 Pre-Implementation Study
Frank Douma
Report no. CTS 15-05
http://www.cts.umn.edu/Publications/ResearchReports/reportdetail.html?id=2432

Appendix H I-35E MnPASS Extension Land Use Study Support, Encourage, and Enhance Transit & Carpool Use
Lee Munich
Report no. CTS 15-05 Appendix H
http://www.cts.umn.edu/Publications/ResearchReports/reportdetail.html?id=2438

Lighting Levels for Isolated Intersections: Leading to Safety Improvements
Christopher Edwards
Report no. MnDOT 2015-05
http://www.cts.umn.edu/Publications/ResearchReports/reportdetail.html?id=2402

Transportation Infrastructure
Development and Integration of Advanced Timber Bridge Inspection Techniques for NBIS
Brian Brashaw, Justin Dahlberg, Travis Hosteng, James Wacker
Report no. MnDOT 2015-01
http://www.cts.umn.edu/Publications/ResearchReports/reportdetail.html?id=2404

Effect of Temperature on Prestressed Concrete Bridge Girder Strand Stress During Fabrication
Tanner W. Svenson, Catherine E. French
Report no. MnDOT 2015-50
http://www.cts.umn.edu/Publications/ResearchReports/reportdetail.html?id=2476

Laboratory Performance Test for Asphalt Concrete
Eshan V. Dave, Chelsea E. Hanson, Benjamin Helmer, Jay Dailey, Chelsea M. Hoplin
Report no. MnDOT 2015-24
http://www.cts.umn.edu/Publications/ResearchReports/reportdetail.html?id=2436

Matrix (Partially Grouted) Riprap Lab Flume Study
Jeff Marr, Rita Weaver, Omid Mohseni, Craig A. Taylor, Jon Hilsendager, Sara Mielke
Report no. MnDOT 2015-15
http://www.cts.umn.edu/Publications/ResearchReports/reportdetail.html?id=2418

Permeable Pavements in Cold Climates: State of the Art and Cold Climate Case Studies
Peter Weiss, Masoud Kayhanian, Lev Khazanovich, John S. Gulliver
Report no. MnDOT 2015-30
http://www.cts.umn.edu/Publications/ResearchReports/reportdetail.html?id=2444

Protocols and Criteria for Acoustic Emission Monitoring of Fracture-Critical Steel Bridges
Anton S. Tillmann, Arturo E. Schultz, Javier E. Campos
Report no. MnDOT 2015-38
http://www.cts.umn.edu/Publications/ResearchReports/reportdetail.html?id=2450

Environment and Energy in Transportation
Assessing the Use of Shrub-Willows for Living Snow Fences in Minnesota
Diomy Zamora, Eric Ogdahl, Gary Wyatt, David Smith, Gregg Johnson, Dean Current, Dan Gulickson
Report no. MnDOT 2015-46
http://www.cts.umn.edu/Publications/ResearchReports/reportdetail.html?id=2468

Determination of Effective Impervious Area in Urban Watersheds
Ali Ebrahimian, John S. Gulliver, Bruce Wilson
Report no. MnDOT 2015-41
http://www.cts.umn.edu/Publications/ResearchReports/reportdetail.html?id=2458

Minnesota Steel Culvert Pipe Service-Life Map
Barbara Heitkamp, Jeff Marr
Report no. MnDOT 2015-31
http://www.cts.umn.edu/Publications/ResearchReports/reportdetail.html?id=2442

Sediment Transport through Recessed Culverts: Laboratory Experiments
Jessica Kozarek, Sara Mielke
Report no. MnDOT 2015-08
http://www.cts.umn.edu/Publications/ResearchReports/reportdetail.html?id=2408

Web-Based Preventative Blowing and Drifting Snow Control Calculator Decision Tool
Gary Wyatt, Diomy Zamora, David Smith, Dan Gulickson, Dean Current
Report no. MnDOT 2015-21
http://www.cts.umn.edu/Publications/ResearchReports/reportdetail.html?id=2426

Research Summaries
Perception of Waiting Time at Transit Stops and Stations
Yingling Fan, Andrew Guthrie, David M. Levinson
CTS Research Brief 2015-02
http://www.cts.umn.edu/Publications/ResearchReports/reportdetail.html?id=2506

Real Estate Development Impacts of Transitway Funding Announcements
Jason Cao
CTS Research Brief 2015-01-V2
http://www.cts.umn.edu/Publications/ResearchReports/reportdetail.html?id=2474

Annual Reports
2015 CTS Annual Report

Newsletters
CTS publishes print and electronic newsletters covering many facets of transportation, including research, public policy, and engineering. Subscribe online at:
http://www.cts.umn.edu/Publications/subscribe/

CTS Catalyst
A publication on the latest transportation innovations at the University of Minnesota (monthly). Available in both print and e-mail.
Minnesota LTAP Exchange
A newsletter of the Minnesota Local Technical Assistance Program (LTAP) (print newsletter; quarterly).

Minnesota LTAP Exchange Express
E-mail newsletter with new publications and resources from various sources, plus other items of interest to local agencies (periodic).

Roadway Safety Institute News
E-mail news update about research and educational activities at the Roadway Safety Institute (quarterly).

AirTAP Briefings
News and how-to information for personnel operating, maintaining, and administering Minnesota’s public-use airports (periodic) Available in both print and electronic formats.

CTS Freight & Logistics E-News
News and events from the community of freight and logistics professionals (periodic).

Journals
Journal of Transport and Land Use
An open-access, peer-reviewed online journal publishing original inter-disciplinary papers on the interaction of transport and land use.
http://www.jtlu.org

Videos
These and other videos are available at http://www.cts.umn.edu/Publications/videos/ and on the CTS YouTube channel: http://www.youtube.com/ctsumn.

2015-16 CTS Research Highlights Video
This year’s video highlights several research and education initiatives.

Better Designs for Minnesota Concrete Pavements
An overview of the 2015 CTS Research Partnership Award winning MnPAVE–Rigid concrete pavement design tool development project. https://www.youtube.com/watch?v=RgBbZEQde4k

CTS 2015-16 Seminar Series
Available for viewing online at www.cts.umn.edu/events/seminars/

December 10, 2015
“A Positioning and Mapping Methodology Using Bluetooth and Smartphone Technologies to Support Situation Awareness and Wayfinding for the Visually Impaired”
Roadway Safety Institute Seminar
Chen-Fu Liao is the senior systems engineer at the Minnesota Traffic Observatory at the University of Minnesota.
http://www.roadwaysafety.umn.edu/events/seminars/2015/121015/index.html

December 3, 2015
“Distracted Driving: The Last Two Seconds of Your Life”
Roadway Safety Institute Seminar
Donald L. Fish is the head of the Department of Mechanical and Industrial Engineering at the University of Massachusetts Amherst, as well the director of the Arbella Insurance Human Performance Laboratory in the College of Engineering.
http://www.roadwaysafety.umn.edu/events/seminars/2015/120315/index.html

November 19, 2015
“Pedestrian Safety, Pedestrian Behavior, and Intersection Design and Control”
Roadway Safety Institute Seminar
Per Garder is a professor in the Department of Civil and Environmental Engineering at the University of Maine.
http://www.roadwaysafety.umn.edu/events/seminars/2015/111915/index.html

November 12, 2015
“Assessing Roadway Safety Risks in American Indian Reservations”
Roadway Safety Institute Seminar
Kathy Quin is an assistant professor at the University of Minnesota’s Humphrey School of Public Affairs. Guillermo Narvaez is a research associate at the University of Minnesota’s Humphrey School of Public Affairs.
http://www.roadwaysafety.umn.edu/events/seminars/2015/111215/index.html

November 5, 2015
“Magnetic Sensor Systems for Collision Prediction, Traffic Counting, and Other Applications”
Roadway Safety Institute Seminar
Rajesh Rajaman is a professor of mechanical engineering at the University of Minnesota.
http://www.roadwaysafety.umn.edu/events/seminars/2015/110515/index.html

October 22, 2015
“Automated Identification and Extraction of Horizontal Curve Information from GIS Roadway Maps: Improving Safety on All Roadways”
Roadway Safety Institute Seminar
David Noyce is the Arthur F. Hawnn Transportation Engineering Professor and Chair of the Department of Civil and Environmental Engineering and the director of the Traffic Operations and Safety (TOPS) Laboratory at the University of Wisconsin–Madison (UW-Madison). http://www.roadwaysafety.umn.edu/events/seminars/2015/102215/index.html

October 21, 2015
“Accessibility Metrics for Metropolitan Analysis and Planning”
CTS Research Seminar
Andrew Owen is the director of the Accessibility Observatory and a research fellow in the Department of Civil, Environmental, and Geo- Engineering at the University of Minnesota.
http://www.cts.umn.edu/events/seminars/2015/102115/index.html

October 15, 2015
“Unmanned Aircraft Systems in Traffic and Infrastructure Surveillance: Opportunities and Challenges”
Roadway Safety Institute Seminar
Demoz Gebres-Egziabher is an associate professor and director of graduate studies in the Department of Aerospace Engineering and Mechanics at the University of Minnesota.
http://www.roadwaysafety.umn.edu/events/seminars/2015/101515/index.html

October 8, 2015
“Modeling the Effects of Drivers’ Adaptive Behavior on System Safety”
Roadway Safety Institute Seminar
Linda Ng Boyle is a professor and chair of the Department of Industrial and Systems Engineering at the University of Washington.
http://www.roadwaysafety.umn.edu/events/seminars/2015/100815/index.html

October 1, 2015
“Low-Cost Centimeter-Accurate Mobile Positioning”
Roadway Safety Institute Seminar
Todd E. Humphreys is an associate professor in the Department of Aerospace Engineering and Engineering Mechanics at the University of Texas at Austin and director of the UT Radionavigation Laboratory.
http://www.roadwaysafety.umn.edu/events/seminars/2015/100115/index.html

October 8, 2015
“Characterizing the Design of Safety Improvement Projects”
Roadway Safety Institute Seminar
Chen-Fu Liao is the senior systems engineer at the Minnesota Traffic Observatory at the University of Minnesota.
http://www.roadwaysafety.umn.edu/events/seminars/2015/100815/index.html

December 10, 2015
“Environmental, and Geo- Engineering and a resident fellow at the Institute on the Environment.
http://www.cts.umn.edu/events/seminars/2015/121615
September 24, 2015
“Traffic Monitoring in Safety-Critical Environments”
Roadway Safety Institute Seminar
Daniel Work is an assistant professor in the Department of Civil and Environmental Engineering, the Department of Electrical and Computer Engineering (courtesy), and the Coordinated Science Laboratory at the University of Illinois at Urbana-Champaign. http://www.roadwaysafety.umn.edu/events/seminars/2015/092415/index.html

September 17, 2015
“Characterizing Uncertainty in Left-Turn Crash Reconstructions Using Event Data Recorder Data”
Roadway Safety Institute Seminar
Gary Davis is a professor in the Department of Civil, Environmental, and Geo-Engineering at the University of Minnesota. http://www.roadwaysafety.umn.edu/events/seminars/2015/091715/index.html

September 10, 2015
“The Minnesota Strategic Highway Safety Plan”
Roadway Safety Institute Seminar
Brad Estochen is the state traffic safety engineer at the Minnesota Department of Transportation (MnDOT). http://www.roadwaysafety.umn.edu/events/seminars/2015/091015/index.html