

## FRANK DOUMA

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### AREAS OF INTEREST AND EXPERIENCE

Transportation policy: planning, finance, environmental impacts  
Legal implications of new transportation technologies, especially privacy and data use  
Transit and alternative modes: pedestrian and bike facilities, Complete Streets, community-based transit  
Telecommuting and Telework

### EDUCATION

University of Minnesota, Minneapolis, MN  
**Juris Doctor** **1996**

University of Minnesota, Minneapolis, MN  
**M.A. in Public Affairs** **1995**  
Thesis: "The United States and Uniform Safety Standards in International Air Transportation"

Grinnell College, Grinnell, IA  
**B.A. Political Science** **1992**  
Concentration in Russian and Eastern European Studies  
Phi Beta Kappa

### EMPLOYMENT EXPERIENCE

Hubert H. Humphrey School of Public Affairs, University of Minnesota  
**Research Fellow and Associate Director, State and Local Policy Program** **2005 - Present**  
Project manager for transportation policy research projects. Develop scopes of work, drafted, edited and presented reports. Identify and propose new research opportunities and assist program director in increasing program visibility and strategic planning. Supervise program administrative staff.

**Research Fellow, State and Local Policy Program** **1999 - 2005**  
Project manager for transportation policy research projects related to telecommunications, Global Positioning Systems, wireless technology travel behavior, corridor planning, and sustainability. Developed scopes of work, drafted, edited and presented reports.

Canadian Pacific Railway, Minneapolis, MN  
**Project Analyst** **1998-1999**  
Trained in many aspects of railroad operations and marketing. Performed economic analysis for major investments. Aided in coordination of grain marketing and operations.

Minnesota Department of Transportation, St. Paul, MN

**Telework Program Specialist**

**1996-1998**

Project Manager for Telework Center Operational Test. Promoted telework in numerous ways, including conducting telework training for Mn/DOT employees. Developed Web page for B-BOP coalition and planned B-BOP Day event.

Metropolitan Airports Commission, Minneapolis, MN

**Legal Intern**

**1995-1996**

Researched, reported and recommended solutions to various legal issues before the Commission, including air safety, airport leases, and Commission business practices.

Hubert H. Humphrey School of Public Affairs, University of Minnesota

**Research Assistant, State and Local Policy Program**

**1993-1995**

Gathered and analyzed data, coordinated conferences and drafted reports for transportation studies on Intelligent Transportation Systems and Congestion Pricing.

Ashford Borough Council Planning Office, Ashford, Kent, UK

**Intern**

**1991**

Researched, and reported on anticipated impacts of completion of English Channel Tunnel and 1992 European Union reforms.

**PUBLICATIONS AND PAPERS**

**Douma, F.,** and Aue, S. 2012 "'But Officer, it wasn't my fault ... the car did it!' and other Criminal Liability Issues Involving Autonomous Vehicles." (Forthcoming)*Santa Clara Law Review*

Cao, X., Xu, Z\*, and **Douma, F.** "The Interactions between E-Shopping and Traditional In-Store Shopping: An Application of Structure Equations." (Forthcoming) *Transportation*

**Douma, F.,** Aue, S\*. 2011 "ITS and Locational Privacy: Suggestions for Peaceful Coexistence" *Journal of Transportation Law, Logistics and Policy* 78(2): 89-108.

Cao, X., **Douma, F.,** and Cleaveland, F\*. 2010 "Influence of E-shopping on Shopping Travel: Evidence from the Twin Cities" *Transportation Research Record: Journal of the Transportation Research Board*, 2157: 147-154.

**Douma, F.,** and Deckenbach, J\*. 2009 "The Challenge of ITS for the Law of Privacy" *University of Illinois Journal of Law, Technology and Policy*, 2009(2): 295-331.

**Douma, F.,** Poindexter, G., and Frooman, S\*. 2008 "Bus-Only Shoulders in the Twin Cities" *Transportation Research Record: Journal of the Transportation Research Board*, 2072: 41-48

**Douma, F.**, and Hedblom, M. 2001. "Wireless Communication Applications for Transportation: User Boon or Booby Trap?" *William Mitchell Law Review*, 27(4): 2163-2174.

Wells, K., **Douma, F.**, Loimer, H\*, Olson, L\*, and Pansing, C. 2001. "Telecommuting Implications for Travel Behavior: Case Studies from Minnesota" *Transportation Research Record: Journal of the Transportation Research Board*, 1752: 148-156.

## PRESENTATIONS

### ***Invited Presentations***

**Douma, F.** "Smart Cars and Smarter People: Is There Room for Both in our Transportation Future?" Grinnell College, Grinnell, IA, April 5, 2012

**Douma, F.**, and Aue, S. "'But Officer, it wasn't my fault ... the car did it!' and other Criminal Liability Issues Involving Autonomous Vehicles." Invited presentation at Santa Clara Law Review's Annual Symposium, Santa Clara University School of Law, Santa Clara, CA January 20, 2012

**Douma, F.** "Transit and 'Complete Streets' in Central Minnesota" *Collage of Sustainability* conference sponsored by the University of Minnesota's Regional Sustainable Development Partnerships Pine River, MN, October 13, 2011

**Douma, F.** "Telework and e-Learning" Video for *Minnesota GO* Strategic Planning effort, Spring 2011

**Douma, F.** "Protect Yourself: Addressing Privacy Issues Both Legally and Politically," *Planning & Enabling Smart Transportation Summit*, Toronto, Ontario, Canada, December 2010

**Douma, F.** "Itasca County Area Transportation Study" of Minnesota Center for Transportation Studies Research Seminar, Minneapolis, MN, September 2010

**Douma, F.** "The Challenge of ITS for the Law of Privacy in the United States," *Computers, Freedom and Privacy Conference*, San Jose, CA, June 2010

**Douma, F.** "Itasca County Area Transportation Study" Minnesota Public Transit Conference, Rochester, MN June 2010

**Douma, F.**, and Aue, S\*. "The Implications of Current and Emerging Privacy Law for ITS" University of Minnesota Intelligent Transportation Systems (ITS) Institute Board of Directors, Minneapolis, MN, December 2009

**Douma, F.**, and Deckenbach, J\*. "The Implications of Current and Emerging Privacy Law for ITS" University of Minnesota ITS Institute Advanced Transportation Seminar Series, Minneapolis, MN, September 2009

**Douma, F.**, Poindexter, G., and Frooman, S\*. "Examining Success of Bus Only Shoulder Lanes" invited presentation to Metro Transit Senior Staff, Minneapolis, MN, December 16, 2008

**Douma, F.** "Keys in Transit Corridor Planning" Citizen's Forum, Roseville, MN, March 14, 2008

**Douma, F.**, and Barnes, G. "Transit for All Ages" Minnesota Gerontological Society Annual Conference, Brooklyn Park, MN, April 27, 2007

**Douma, F.**, Closing remarks at "Minnesota's Stake in Plug-In Hybrid Electric Vehicles" St. Paul, MN, January 18, 2007

**Douma, F.** "Planning for Multi-Modal Transportation Corridors: Developing a Best Practices Framework" St. Paul Transportation Management Organization Board of Directors, St. Paul, MN June 2005

**Douma, F.** and Lovejoy, A. "Corridor Best Practices" City of St. Paul Planning Commission, St. Paul, MN, January 2003

**Douma, F.** and Hedblom, M. "Wireless Communication Applications for Transportation: User Boon or Booby Trap?" Telecommunications and Information Society Policy Forum, Minneapolis, MN, September 2002

#### ***Refereed Research Presentations***

Lari, A., **Douma, F.**, Lang Yang, K\*., Caskey, K\*., and Cureton, C\*. "Innovative Parking Pricing Demonstration: Introducing Flexibility and Incentives to Parking Contracts" Poster Presentation at 91<sup>st</sup> Annual Meeting of the Transportation Research Board, Washington, DC, January 23, 2012

Cao, X., Xu, Z\*., and **Douma, F.** "Substitution between E-shopping and Travel: Evidence from the Twin Cities" at 90<sup>th</sup> Annual Meeting of the Transportation Research Board, Washington, DC, January 26, 2011

Lari, A., **Douma, F.**, Lang Yang, K\*., Caskey, K\*., "Parking Pricing" Poster Presentation at 90<sup>th</sup> Annual Meeting of the Transportation Research Board, Washington, DC, January 25, 2011

Cao, X., and **Douma, F.** "Substitution between E-shopping and Travel: Evidence from the Twin Cities" at 89<sup>th</sup> Annual Meeting of the Transportation Research Board, Washington, DC, January 2010

**Douma, F.**, and Gaug, R\*, "Carsharing in the Twin Cities: Measuring Impacts on Travel Behavior and Automobile Ownership" at 88<sup>th</sup> Annual Meeting of the Transportation Research Board, Washington, DC, January 2009

**Douma, F.**, and Cleaveland, F\*. "Impact of Bicycling Facilities on Commute Mode Share" Poster Presentation at 88<sup>th</sup> Annual Meeting of the Transportation Research Board, Washington, DC, January 2009

**Douma, F.**, Frooman, S\*, and Deckenbach, J\*. "What You Need to Know and Not Know: Current and Emerging Privacy Law for Intelligent Transportation Systems" Poster Presentation at 87<sup>th</sup> Annual Meeting of the Transportation Research Board, Washington, DC, January 2008

**Douma, F.**, Poindexter, G., and Frooman, S\*. "Bus Only Shoulders in the Twin Cities" 87<sup>th</sup> Annual Meeting of the Transportation Research Board, Washington, DC, January 2008

Zmud, J., Bradley, M., and **Douma, F.** "Panel Survey Evaluation of Attitudes and Willingness to Pay for Tolled Facilities" 86<sup>th</sup> Annual Meeting of the Transportation Research Board, Washington, DC, January 2007

**Douma, F.**, Peterson, S\*, and Zmud, J. "Before and After Results of I-394 HOT Lane Panel Survey" Poster Presentation at 86<sup>th</sup> Annual Meeting of the Transportation Research Board, Washington, DC, January 2007

Anderson, J., and **Douma, F.** "Telework as a Return to Work Strategy: Challenging Barriers and Unprecedented Opportunities" International Telework Academy's 11th International Workshop on Telework, Fredricton, New Brunswick, Canada, August 2006

Schively, C., Blackstad, L., **Douma, F.**, and Garner, M. "Planning for Multi-Modal Transportation Corridors: Developing a Best Practices Framework" American Planning Association National Conference, San Antonio, TX, April 2006

**Douma, F.** and Andrew, J\*. "Developing a Model for Carsharing in Twin Cities Neighborhoods" Poster Presentation at 85<sup>th</sup> Annual Meeting of the Transportation Research Board, Washington, DC, January 2006

**Douma, F.** and Wilson, S\*. "Transportation Needs of Foreign-born Ethnic Subpopulations in Rural and Urban Communities: an Environmental Justice Perspective" Poster Presentation at 85<sup>th</sup> Annual Meeting of the Transportation Research Board, Washington, DC, January 2006

**Douma, F.** and Patterson, T\*. "Pricing Comes to Minnesota: Baseline Attitudinal Evaluation of I-394 HOT Lane Project" Poster Presentation at 85<sup>th</sup> Annual Meeting of the Transportation Research Board, Washington, DC, January 2006

**Douma, F.** and Wilson, S\*. "Transportation Needs of Foreign-born Ethnic Subpopulations in Rural and Urban Communities: an Environmental Justice Perspective" Annual Meeting of the Intelligent Transportation Society of America, Long Beach, CA, April 2005

**Douma, F.** "Intelligent Transportation Systems and Other Technological Assistance Used in Minnesota Community-Based Transportation" 84<sup>th</sup> Annual Meeting of the Transportation Research Board, Washington, DC, January 2005

**Douma, F.** and Hedblom, M. "ITS Opportunities Resulting from Developments in Home Broadband Telecommunications" Annual Meeting of the Intelligent Transportation Society of America, San Antonio, TX April 2004

**Douma, F.** "Guidestar 2001 Survey and Diary" Poster Presentation at 83<sup>rd</sup> Annual Meeting of the Transportation Research Board, Washington, DC, January 2004

**Douma, F.** and Kriz, K., "Planning for Multi-Modal Transportation Corridors: Developing a Best Practices Framework" Poster Presentation at 83<sup>rd</sup> Annual Meeting of the Transportation Research Board, Washington, DC, January 2004

Wells, K., **Douma, F.**, and Pidaparathi, P\*. "How Was Your Trip? Exploring the Relationship Between Telecommunications and Travel Through Time Use Diary" 81<sup>st</sup> Annual Meeting of the Transportation Research Board, Washington, DC, January 2002

Kuhn, E\*, and **Douma, F.** "Utilizing Transportation Technology to Support Strategic Management Initiatives" 81<sup>st</sup> Annual Meeting of the Transportation Research Board, Washington, DC, January 2002

Wells, K., **Douma, F.**, Loimer, H\*, Olson, L\*, and Pansing, C. "Telecommuting Implications for Travel Behavior: Case Studies from Minnesota" 80<sup>th</sup> Annual Meeting of the Transportation Research Board, Washington, DC, January 2001

***Other Presentations (project reviews, practitioner-oriented presentations and panels)***

**Douma, F.** "Emerging Policy and Legal Issues" as part of "Location Data and Privacy Values: Implications for Policy and Planning" Panel at 91<sup>st</sup> Annual Meeting of the Transportation Research Board, Washington, DC, January 25, 2012

Horan, T., **Douma, F.**, and Munnich, L. "SafeRoadMaps and CrashHelp," Minnesota Towards Zero Deaths Quarterly Breakfast, January 11, 2012

Munnich, L, Horan, T., and **Douma, F.** "Center for Excellence in Rural Safety" at Minnesota Tribes and Transportation Conference, Prairie Island Reservation, October 25, 2011

Lari, A., **Douma, F.**, and Lang Yang, K. "eWorkPlace: Earth Friendly, Work-Life Friendly, Smart Business Strategy" at the Annual Conference of the Minnesota chapter of the American Planning Association, St. Cloud, MN, September 30, 2011

**Douma, F.**, "ITS Data Needs: How Much Do We Really Need to Know?" at University of Minnesota TechPlan Roundtable, Minneapolis, MN, August 19, 2011

Lari, A., **Douma, F.**, Lang Yang, K\*, Caskey, K\*, "Parking Pricing" at University of Minnesota Center for Transportation Studies Annual Transportation Research Conference, St. Paul, MN, May 25, 2011

**Douma, F.**, Cureton, C\*, Schmit, M\*, and Fan, Y., "Itasca County Area Transportation Study" University of Minnesota Center for Transportation Studies Annual Research Conference, St. Paul, MN April 2010

Aue, S\*., and **Douma, F.** "ITS and Privacy: Suggestions for Peaceful Coexistence" University of Minnesota Center for Transportation Studies Annual Research Conference, St. Paul, MN April 2010

**Douma, F.**, and Deckenbach, J\*. " The Implications of Current and Emerging Privacy Law for ITS," ITS Minnesota 16th Annual Meeting & Information Exchange, St. Paul, MN, March 2010

**Douma, F.**, "In-Vehicle Technology: Monitoring Teen Compliance with Graduated Driver Licensing Requirements (Privacy Implications)" invited presentation to American Association of Motor Vehicle Administrators 76th Annual International Conference, San Diego, CA August 2009

Cao, X., **Douma, F.**, and Cleaveland, F\*. "Substitution between E-shopping and Travel: Evidence from the Twin Cities" University of Minnesota Center for Transportation Studies Annual Research Conference, Bloomington, MN, May 2009

**Douma, F.**, and Gaug, R\*, "Carsharing in the Twin Cities: Measuring Impacts on Travel Behavior and Automobile Ownership" University of Minnesota Center for Transportation Studies Annual Research Conference, St. Paul, MN, May 2008

**Douma, F.**, and Cleaveland, F\*. "Impact of Bicycling Facilities on Commute Mode Share" University of Minnesota Center for Transportation Studies Annual Research Conference, St. Paul, MN, May 2008

Deckenbach, J\*., and **Douma, F.** "ITS and Privacy: Developing New Rules for Virtual Roads" University of Minnesota Center for Transportation Studies Annual Research Conference, St. Paul, MN, May 2008

**Douma, F.**, and Rohde, B. "Center for Excellence in Rural Safety" West Central Minnesota Transportation Advisory Committee, Fergus Falls, MN, July 2007

Stein, B\*., Frooman, S\*., and **Douma, F.** "Twin Cities Bus-Only Shoulder Lanes – Are They Working?" University of Minnesota Center for Transportation Studies Annual Research Conference, St. Paul, MN, May 2007

**Douma, F.** and Raju, R\*. "Urban Transportation Corridor Development Case Studies: Midtown Greenway and Bottineau Boulevard" University of Minnesota Center for Transportation Studies Annual Research Conference, St. Paul, MN, May 2007

**Douma, F.**, Horan, T., and Munnich, L. "Emergency Medical Services in Rural Areas" Minnesota Tribes and Transportation Conference, Leech Lake Reservation, October 2006

Peterson, S\*., and **Douma, F.** "Before and After Results of I-394 HOT Lane Panel Survey" University of Minnesota Center for Transportation Studies Annual Research Conference, St. Paul, MN, May 2006

Wilson, S\*., and **Douma, F.** "Transportation Needs of Foreign-born Ethnic Subpopulations in Rural and Urban Communities: an Environmental Justice Perspective" University of Minnesota Center for Transportation Studies Annual Research Conference, St. Paul, MN, May 2005

Patterson, T\*., and **Douma, F.** "Pricing Comes to Minnesota: Baseline Attitudinal Evaluation of I-394 HOT Lane Project" University of Minnesota Center for Transportation Studies Annual Research Conference, St. Paul, MN, May 2005

**Douma, F.** "Planning for Multi-Modal Transportation Corridors: Developing a Best Practices Framework" University of Minnesota Center for Transportation Studies Annual Research Conference, St. Paul, MN, May 2005

Andrew, J\*., and **Douma, F.** "Developing a Model for Carsharing in Twin Cities Neighborhoods" University of Minnesota Center for Transportation Studies Planning and Environment Council, Minneapolis, MN, February 2005

**Douma, F.** "Community-Based Transit" invited presentation to City of St. Paul Senior Advisory Committee, July 2004

**Douma, F.** and Hedblom, M. "ITS Opportunities Resulting from Developments in Home Broadband Telecommunications" University of Minnesota Center for Transportation Studies Annual Research Conference, St. Paul, MN, May 2004

**Douma, F.** "Using ITS to Better Serve Diverse Populations" University of Minnesota Center for Transportation Studies Annual Research Conference, St. Paul, MN, May 2004

**Douma, F.** "Corridor Best Practices" University of Minnesota Center for Transportation Studies Annual Research Conference, St. Paul, MN, April 2003

**Douma, F.** "Community-Based Transportation" panel presentation at University of Minnesota Center for Transportation Studies Annual Research Conference, St. Paul, MN April 2003

**Douma, F.** "Guidestar 2001 Survey and Diary Presentation" University of Minnesota Center for Transportation Studies Annual Research Conference, St. Paul, MN April 2003

**Douma, F.,** Kuhn, E\*., and Chen, W\*. "Sustainable Transportation" Sustainable Development forum, New Ulm, MN, August 2001

Munnich, L., Pansing, C., and **Douma, F.** "Sustainable Transportation" Minnesota Department of Transportation Office of Environmental Services, St. Paul, MN June 2001

Munnich, L., Pansing, C., and **Douma, F.** "Sustainable Transportation" Minnesota Department of Transportation Executive Team, St. Paul, MN, March 2001

## EDITORIAL REVIEWS

Journal of Transportation Law, Logistics and Policy

Transportation Research Record

Journal of Transport and Land Use

## PROJECTS AWARDED

Itasca County Area Transportation Study, Phase II (2011)

Sponsor: Blandin Foundation

In 2008, the United Way of 1000 Lakes identified transportation as a key barrier in Itasca County, Minnesota. That work noted that these transportation problems most specifically impacted low income workers, students, and senior populations in Itasca County. A subsequent study by the Humphrey School identified a number of strategies to address these issues. Regarding student transportation, the study recommended a number of items, including the creation of an After School Circulator program that would extend transportation services to students after school hours. A question was raised regarding the feasibility of using school buses to provide additional transit options to all members of the general public. The Humphrey School team subsequently examined this question, finding that while such arrangements are permissible under Minnesota law, funding for such service needs to be identified and significant coordination between school districts and potential users is required. This research builds upon the findings and recommendations of both the Area Transportation Study and follow-up work on use of school buses to enhance transportation options for students in Itasca County. Specifically, this research sought to identify options for coordination and collaboration that will yield efficiencies and opportunities to expand existing services.

ITS Data Needs: How Much Do We Really Need to Know? - FY11 TechPlan (2011)

Sponsor: University of Minnesota (United States Department of Transportation)

Intelligent Transportation Systems (ITS) need vehicle location, speed, and route data to function. While often this data includes little or no information about the users of the transportation system, many ITS applications require some data about the user, including information about their specific location, travel patterns, and/or identity. Realization of the need to share this data has led to some opposition, or at least political controversy, over whether the benefits of the ITS application outweigh the loss, or perceived loss, of privacy to the user. This project analyzed where the law allows the various stakeholders (ITS system operators and the individuals who use an ITS system) to achieve their goals, and where the law and/or these goals come into conflict. In these latter situations, the research identified what types of data, or methods for obtaining it, create the conflict. The researchers then provide recommendations for resolving these conflicts by suggesting alternative data collection methods and/or means of shielding the identity of the user to achieve similar ends without the level of specificity that originally created the conflict.

ITS and Locational Privacy: Suggestions for Peaceful Coexistence - FY10 TechPlan(2009)

Sponsor: University of Minnesota (United States Department of Transportation)

Continuing developments in the fields of transportation technology and privacy law present an abundance of opportunities for conflict. Without knowledge of the legal framework that applies to emerging technology, Intelligent Transportation System (ITS) developers set themselves up for

frustration as ideas that appear flawless in an engineering office may become controversial when they reach the implementation stage. From the legal perspective, advocates of comprehensive privacy law struggle to update existing law at a pace that keeps up with innovative advancements in technology. This project reviewed several cases where implementation of transportation technologies has raised civil liberties arguments, examining them from legal and political perspectives. The understanding of privacy both as a political concept and a legal protection provides the foundation for future ITS progress, allowing new technologies to be developed in ways that can withstand these types of challenges or avoid them altogether.

#### Itasca County Area Transportation Study (2009)

Sponsor: Blandin Foundation

A team of researchers from the University of Minnesota's Humphrey Institute of Public Affairs and Center for Transportation Studies conducted a study evaluating the cost and ease of implementing a variety of options for people to travel within and outside Itasca County, Minnesota. The county presents a challenge to transportation planners, as it is the third largest in the state by land area, but one of the smallest in terms of population. To gain an understanding of the key transportation needs, researchers held a series of focus groups, listening sessions, and one-on-one interviews, and also conducted background research that included demographic analysis, mapping of the "mis-match" between the location of jobs and where the workers lived, and a national scan of best practices in providing rural transportation. This work resulted in a number of recommendations ranging from improving bike routes and awareness of public transportation, to improving bus service linking Itasca County to Duluth, and launching an online carpool service.

#### The Implications of Current and Emerging Privacy Law for ITS - FY08 TechPlan (2007)

Sponsor: University of Minnesota (United States Department of Transportation)

As Intelligent Transportation Systems (ITS) incorporate the gathering and compilation of data into the transportation infrastructure, questions about privacy implications, stemming from the potential misallocation or abuse of collected data, have arisen. As the United States has no comprehensive national regulatory structure for privacy, answers to these questions can only be found by considering a variety of sources of federal and state privacy law. In this project, researchers investigated federal and state privacy law as applied to modern technology and transportation systems. They focused on the legal status of various ITS technologies, particularly traffic management and in-vehicle applications, and addressed privacy with respect to both government entities, such as law enforcement, and private entities, such as insurance companies. Research was conducted with the intent to help ITS developers and providers construct and deploy ITS technologies that avoid or survive legal challenges, and that comply with public expectations of privacy; it may also help legal professionals and public policymakers update privacy law and account for the development of ITS technologies. The researchers also created a toolbox to help ITS developers and providers understand when privacy issues arise and identify opportunities to mitigate these risks.

### Telework as a Return to Work Strategy funded by US Department of Labor (2004)

Sponsor: United States Department of Labor

The primary goal of this project was to identify and describe the key elements of telework, including types and numbers of jobs as well as characteristics of jobs, employees, and work environments, which are necessary if telework is to be an effective strategy for returning persons with disabilities to the workforce. This goal was accomplished primarily through a literature review and national survey, and testing in two pilot projects. The pilot project sites were located in the Midwest but represented vastly different geographic regions: the Twin Cities of Minneapolis and St. Paul, Minnesota, and west-central Wisconsin. The Twin Cities is a large urban location with over 3 million residents. St. Paul is the state capital, the central core of all government departments, and the region has a broad range of employers encompassing the fields of technology, medical, manufacturing, insurance, and financial services. West central Wisconsin, on the other hand, represents a rural area with towns ranging from 1,000 to 50,000 in population. This area includes public sector workers, employees of federal government divisions, and state and county public workers who are widely dispersed.

### PROJECTS MANAGED

#### Identifying Issues Related to Deployment of Automated Speed Enforcement (2012)

Sponsor: University of Minnesota (United States Department of Transportation)

Automated Speed Enforcement can be an effective strategy for reducing road fatalities, especially in rural areas where low traffic volumes and smaller populations make human-based enforcement mechanisms inefficient, if not impossible. However, political and legal obstacles have stood in the way of implementing this safety measure. This effort focused on Minnesota as a case study. This project identified the key issues raised by the prospect of deploying automated speed enforcement in Minnesota, and sought to provide valuable information on which technologies, approaches, and requirements would be most likely to gain legislative support.

#### Smartphone-Based Travel Experience Sampling and Behavior Intervention among Young Adults (UbiActive Phase I) - FY11 TechPlan (2011)

Sponsor: University of Minnesota (United States Department of Transportation)

People spend a significant amount of time everyday traveling in cars, on foot, by bicycle, and/or using public transit. Travel behavior directly influences individual health; walking and bicycling contribute to moderate physical activity and different travel behaviors often come with varying well-being experiences. Utilizing the computing, communication, and sensing capabilities of smartphones, this study sought to: 1) design an Android phone application (named UbiActive) that semi-automatically senses and collects momentary information about travel-related physical activity and the negative and positive experiences associated with travel; and 2) apply the UbiActive prototype in a three-week field study that investigates participants' existing travel behavior patterns and intervenes with participants for promoting healthier travel behavior. Findings from this research shed light on the potential of smartphone applications for understanding travel-related physical activity and well-being effects, as well as for promoting healthy travel behavior changes.

Assessment of Mn/DOT's Strategic Highway Research Program (SHRP2) Project C-18: Pilot Test the Collaborative Decision Making Framework (2010)

Sponsor: Transportation Research Board

MnDOT is leading a multi-jurisdictional and multi-modal collaborative effort to develop and implement a "Complete Streets" planning process in Grand Rapids, Minnesota, and to do so while pilot testing the Strategic Highway Research Program 2 (SHRP2) "Transportation for Communities: Advancing Projects through Partnerships" (TCAPP) decision guide. MnDOT designed the research methodology to utilize the TCAPP decision guide on a prospective planning issue, i.e. developing a Complete Streets planning process that better integrates community, economic, and environmental considerations into new highway capacity.

The research component of this project was to conduct the evaluation of the product as an independent and impartial team of policy and program evaluators. The evaluation team is very familiar with the transportation system in the target community for Complete Streets planning process evaluation, having completed a study of transportation needs in Itasca County, where Grand Rapids is located.

Innovative Parking Pricing Demonstration Project - Phase II (2009)

Sponsor: Minnesota Department of Transportation

This project examined how innovative pricing strategies can impact the mode choice of downtown commuters with monthly parking contracts. The principal goal of this research was to demonstrate an innovative pricing strategy in the Twin Cities to determine whether monthly parking contracts prevent downtown Minneapolis commuters from using transit. A secondary research objective was to determine commuter's tipping point for price acceptability in bundling flexibility into their commuting package.

The demonstration consisted of running four different test modules over the course of three four-month periods. The four test modules include a discounted transit pass option (Buying Flexibility), two forms of rebate programs (Marginal Rebate and PayGo), and a free transit pass option (Disincentive Removal). The first rebate program, Marginal Rebate, offered a rebate for the difference between the marginal parking cost and transit fare on days when transit was used. The second rebate program, PayGo, offered the same transit rebate in addition to a rebate for the full marginal parking cost on days when a mode other than parking or transit was used. Analysis of the commuting behavior among participants in this study demonstrated that the level of incentive positively correlates to the propensity for mode shift to occur, with significant and increasing mode shift in the two programs that offered the greatest flexibility and incentive. However, the data collected also indicates that a discounted or free transit pass is not enough to entice mode change.

Substitution between E-shopping and Travel: Evidence from the Twin Cities- FY09 Tech Plan (2008)

Sponsor: University of Minnesota (United States Department of Transportation)

Significant research has been done on how information and communication technologies (ICTs) influence where work is done and how the resulting changes affect travel. However, little work has been conducted to understand the impact of ICTs on individuals' shopping travel, especially in the United States. Further, existing empirical studies have produced inconclusive findings on the relationship

between e-shopping (Internet shopping) and travel. This research examined the interactions between e-shopping and in-store shopping using a sample of Internet users in the Minneapolis-St. Paul metropolitan area. This project adopted an innovative research design by integrating a conventional shopping survey with an activity diary. Two ordered probit models and structural equation models were developed to investigate the influence of geography on online shopping usage and the influence of e-shopping on traditional shopping.

#### Improving Car-sharing and Transit Service with ITS (2006)

Sponsor: Minnesota Department of Transportation

Previous research had shown that carsharing and advanced traveler information services (ATIS) were two ITS applications that could offer significant benefits to an increasingly diverse travelling public. The focus of this project was twofold: 1) to understand if and how being a member of a car-sharing program affected travel behavior and auto ownership of its members, particularly for students at the University of Minnesota; and 2) to empirically investigate how citizen use of an e-government Web site (e.g., transit planning site) affected citizen/user trust and confidence in the related government service (e.g., the public transit system) and the public service agency (transit authority). The results of this research aided in developing policies for a diverse population with increasingly diverse transportation needs. The data revealed that: 1) each HourCar removes 2.5 other vehicles; 2) HourCar members demonstrate an interest in deciding whether a car is their most efficient option for their trip; 3) HourCar respondents were not significantly different from the control group in terms of household size, income, age, or housing type; and 4) most members indicated convenience and financial considerations were key to joining. For the second component, a survey and focus group indicated connections between online use of a transit planning site and perceptions about the agency. Notably, a strong positive view of the trip planner was associated with trust in the agency to perform the service.

#### Examining the Success of Bus Only Shoulder Lanes (2006)

Sponsor: Hennepin County

As part of continuing efforts to make travel time via public transit competitive with travel time via single-occupant automobile, buses in the Minneapolis-St. Paul metropolitan area are allowed to travel on selected freeway shoulders to bypass congested segments. While other metropolitan areas have also implemented these types of programs, the Twin Cities program was among the first and the most successful, with more miles of these "bus-only shoulder lanes" than any other metropolitan area in the United States. Using an integrated framework for analyzing transportation corridor development that evaluates five aspects of a corridor (citizen preferences, governance, financing, economic effects, and design) the researchers undertook an in-depth documentation of how and why bus-only shoulder lanes began and the reasons underlying their success in the Twin Cities. Key elements contributing to this success included an innovative culture at both the transit provider and the Department of Transportation, supported by top management; passage of a state statute authorizing the creation and use of these facilities; and creation of a dedicated staff position at the DOT to oversee the maintenance and expansion of the system.

#### Impact of Bicycle Facilities on Commute Mode Share (2006)

Sponsor: Minnesota Department of Transportation

In a recent paper, researchers examined bicycle commuting rates in the Twin Cities in 1990 and 2000, particularly how changes in commuting rates related to the creation of new bicycle facilities. While some areas near new facilities exhibited very high bike commuting rates, the research found that this high level already existed before the facilities were built. However, the facilities did have a small but consistent and statistically significant impact. This project expanded on the previous research by applying the same methodology to a set of other cities where significant new bicycle facilities were constructed during the 1990s, to see if the results held true elsewhere and to determine reasons if they did not. This work provided much-needed evidence to aid in the evaluation of bicycle facility investment as a strategy for reducing traffic congestion. Researchers concluded that the "build it and they will come" theory is not universally applicable; contextual factors were an important element in determining the effectiveness of new commuting facilities. Among key factors the researchers identified were the level of publicity surrounding new facilities, the utility of routes to commuters, and the overall connectivity of the city's bicycling network.

#### Developing ITS to Serve Diverse Populations (2004)

Sponsor: Minnesota Department of Transportation

The objective of this research continued to examine the nature of the gap between the emerging needs of an increasingly diverse travelling public and existing transportation services, and to propose ways of using technology to bridge the gap, both in terms of providing better transportation options and in reducing the cost of these options. Through a series of analyses, the study found that technologically advanced Community-Based Transit, Car Sharing, using ITS to implement Value Pricing through conversion of a High-Occupancy Vehicle (HOV) lane to a High-Occupancy/Toll (HOT) lane, and Web-based Advanced Traveler Information Systems were promising Intelligent Transportation Systems (ITS) applications.

#### In-Depth Examination of Urban Corridor Development (2003)

Sponsor: Hennepin County, Minnesota

This project examined case studies of urban transportation corridors that are examples of best practices in one or more of the following areas: citizen preferences, governance, financing, economic effects, and design. This work led to the creation of a "decision model" that could be used by corridor planners as a guide in their effort to identify and develop new corridors. The decision model was enhanced by an understanding of the underlying principles of corridor development, and lessons learned were tailored for use by corridor planning professionals.

#### Using ITS to Better Serve Diverse Populations (2003)

Sponsor: Minnesota Department of Transportation

This project investigated ways Intelligent Transportation Systems (ITS) can be used to serve an increasingly diverse travelling public, in terms of travel behavior, age, and abilities. A substantial portion will not be able to drive themselves due to age (both old and young), disability, or poverty, among other reasons. But even among people who drive, an increasing number will not fit the traditional definition of a traveler; for example, they might have very long commutes to work, they may chose to not drive for

environmental reasons, or they might drive long distances on a regular basis for recreation or other purposes. The study found that populations not traditionally addressed in the transportation planning process that could most benefit from these applications are senior citizens, immigrant and non-English-speaking populations, and the disabled, and a combination of surveys and focus groups revealed that combining community-based transit (CBT), carsharing, telework and telemedicine, and advanced traveler information services (ATIS), could create the greatest benefits.

#### Telecommunications and Sustainable Transportation (2001)

Sponsor: Minnesota Department of Transportation

This research investigated how advances in telecommunications-based technologies could aid in making transportation more sustainable. The first task examined the effect of telecommunications on work and shopping trips. The second task focused on how community-based transit could be improved through new technology. The third task considered how wireless telecommunications, particularly e-911 services, could improve transportation system safety in rural areas. These efforts found that advances in these technologies and in broadband telecommunications may lead to increased travel, which demonstrates a need for increased collaboration between telecommunication and transportation infrastructure planning.

#### ACADEMIC SERVICE

Effects of Information and Communications Technologies on Travel Choices Committee, Transportation Research Board	January 2001 – January 2012
Emerging Technology Law Committee, Transportation Research Board	August 2007 – present

#### UNIVERSITY SERVICE

Humphrey School of Public Affairs Dean Search Committee	November 2010 – July 2011
University of Minnesota Senate	September 2004 – June 2011
Professional and Administrative Senate	September 2000 – present
Committee on Committees	September 2007 -- present

#### COMMUNITY SERVICE

Session member, Macalester-Plymouth United Church	January 2011 – present
Board member, Neighborhood Energy Connection	October 2005 – October 2011
Judge, Minnesota Environmental Initiative Awards	2004
Member, Board of Deacons, Westminster Presbyterian Church	1998 – 2001