

ANNUAL REPORT



UCDAVIS

SUSTAINABLE TRANSPORTATION CENTER
of the Institute of Transportation Studies



ACCOMPLISHMENTS

ACCOMPLISHMENTS BY THE NUMBERS

- 9 Student Travel Awards
- 6 Conference and Event Sponsorships
- 6 Faculty Research Grants
- 6 Summer Undergraduate Research Fellowships
- 6 Student Program Fellowships
- 6 Research Webinars for Transportation Professionals
- 4 New Transportation Courses
- 3 STC Distinguished Speakers and 2 Invited Seminar Speakers
- 2 Faculty Seed Grants
- 1 Outstanding Student of the Year Award
- 1 Campus Travel Assessment



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DIRECTOR'S STATEMENT



Climate change continues to be the predominant concern for the transportation field in California, as the state progresses with the implementation of Assembly Bill 32, the California Global Warming Solutions Act of 2006. The work of the Sustainable Transportation Center has helped to support and inform the state's efforts.

In the STC's fifth year, projects addressed the design of transportation and energy systems to promote alternatives to gas-powered driving; examined how travelers respond to pricing strategies, disruptions in the highway system, and innovative neighborhood design; and explored the processes that influence policy decisions.

Transportation and Energy Systems

Hui Li earned a dissertation fellowship for his proposal to study the effectiveness of cool pavement design strategies in reducing air conditioning needs and improving conditions for pedestrians and bicyclists. Supported by program fellowships, Yudi Yang researched the optimization of bus rapid transit networks and Kalai Ramea worked on a model of transportation energy system in California. Alex Wong, an STC summer undergraduate fellow, worked with Professor Alyssa Kendall to assess the greenhouse gas intensity of sugar beet ethanol. YueYue Fan used a faculty research grant to develop a mathematical model to help in managing disruptions to renewable energy supply chains.

Traveler Behavior

Professor Chris Knittel examined the effect of the pricing of greenhouse gases on their emissions, helping to advance our understanding of how consumers respond to increases in the price of driving. Professor Michael Zhang explored the innovative concept of a credit-based pricing scheme to improve the efficiency of the highway system. Three program fellowship recipients and a summer undergraduate fellow worked with Professor Pat Mokhtarian to study mode choice for commute trips, using data from surveys conducted for the Fix I-5 project in Sacramento. This study provides a rare opportunity to look at changes in behavior that occur in response to a significant but temporary change in the transportation system. Researcher Deborah Salon's faculty research grant supported the completion of a before-and-after study of the impact of the opening of the Target store in Davis with help from undergraduate fellow Matt Russo. Kristin Lovejoy is using her dissertation fellowship

to study carless households, a project that could provide insights into ways to reduce auto use. Elizabeth Gordon, with a program fellowship, worked with me to explore the formation of attitudes toward bicycling.

Policy Decisions

Supported by a dissertation fellowship, Alex Karner is examining the degree to which environmental justice organizations influenced the AB32 Scoping Plan adopted by the California Air Resources Board this year. Professor Deb Niemeier used her faculty research grant to explore the formation of public attitudes toward "road diet" projects, in which traffic lanes are converted to space for transit, bicycles and pedestrians. With seed grant funding, Professor Cynthia Lin is studying the effects of policies on investments in fuel-ethanol plants. Summer undergraduate fellows Matthew King and Dominic La Marche worked with Deb Niemeier on the development of a new method for estimating vehicle trips that will be sensitive to the vehicle-reducing characteristics of "smart growth" development projects and will thus facilitate their approval by local governments. David McCollum, the STC Outstanding Student of the Year, developed an economic/energy model for analyzing California's greenhouse gas policies for his dissertation.

Our faculty and students presented their work at national and international conferences. Their results appear in peer-reviewed articles in leading journals in the field. And, to help get this work into the hands of decision makers and professionals in the field, we have been producing "policy briefs" that distill the research results down to key findings and policy implications. Through these efforts, our projects contribute to policy efforts not only in California but also in other states and beyond the U.S.

This long list of projects also illustrates the commitment of the STC to the integration of education and research. Every research grant employs at least one student, and every fellowship recipient is involved in research. Our students are producing amazing work while they are here, and they gain critical skills that enable them to do amazing work once they leave. I continue to believe that they are our most important product of all, and I am pleased that the STC is able to support them in so many ways. In closing, I offer my sincere thanks to our funding partners, the U.S. Department of Transportation and Caltrans, who make this support possible.

Susan L. Handy

MANAGEMENT & OVERSIGHT

MANAGEMENT STRUCTURE • EXECUTIVE COMMITTEE • EXTERNAL ADVISORY COUNCIL

MANAGEMENT STRUCTURE

The UC Davis Sustainable Transportation Center is managed by a director with assistance from an executive committee, the educational director, an external advisory council, UC Davis transportation faculty, and STC staff.

Susan Handy, Ph.D., a professor in the UC Davis Department of Environmental Science and Policy, is director. Handy oversees all STC activities and programs, and represents the STC at external meetings and events.

The executive committee provides input to the director on STC activities and approves the annual budget, funding decisions, and operating policies. Current executive committee members are Patricia Mokhtarian, Ph.D., a professor of Civil and Environmental Engineering, and Daniel Sperling, Ph.D., a professor of Environmental Science and Policy and Civil and Environmental Engineering and director of the UC Davis Institute of Transportation Studies (ITS-Davis). Mokhtarian also serves as STC educational director, and in this role awards STC program fellowships.

UC Davis faculty affiliated with ITS-Davis review STC faculty research grants and dissertation fellowships, select the outstanding student awards winners, and assist with other activities, as needed. Of approximately 60 faculty from at least 13 academic departments affiliated with ITS-Davis, roughly half focus primarily on transportation.

The STC staff is housed within ITS-Davis. Anne-Marie Flynn serves as the center coordinator to maintain the STC web site, coordinate competitive grant and fellowship programs, organize workshops, symposia, and other outreach activities for the STC, and is the primary administrative contact with government agencies. Christina Adamson, financial coordinator, remains responsible for completing required financial reports. ITS-Davis financial, administrative, and program staff provide support as needed.

EXECUTIVE COMMITTEE

Susan Handy, Ph.D.

STC Director

Department of Environmental Science and Policy

Patricia Mokhtarian, Ph.D.

STC Educational Director

Department of Civil and Environmental Engineering

Daniel Sperling, Ph.D.

Director, Institute of Transportation Studies

Department of Environmental Science and Policy

Department of Civil and Environmental Engineering

EXTERNAL ADVISORY COUNCIL

The STC benefits from the perspective of an external advisory council composed of distinguished leaders whose expertise closely matches the center's focus. The council, which meets annually to review the STC's activities, provides important external guidance on all aspects of the STC program.

Council members represent local and state governments, private industry, and academia. Individual members have expertise in urban and open space planning, sustainable development, environmental and public policy, technical and environmental analysis, and engineering. The STC acknowledges each member's significant contribution of time and expertise.

MANAGEMENT & OVERSIGHT

EXTERNAL ADVISORY COUNCIL



The STC's External Advisory Council and Executive Committee

Andrew Altevogt, Ph.D.

Senior Manager, Climate Programs
California Environmental Protection Agency

Jennifer Dill, Ph.D.

Associate Professor, Nohad A. Toulan School of Urban Studies
and Planning
Director, Oregon Transportation Research and Education
Consortium
Portland State University

Genevieve Giuliano, Ph.D.

Professor, School of Policy, Planning and Development
Director, METRANS Transportation Center
University of Southern California

Larry Greene

Air Pollution Control Officer/Executive Director
Sacramento Metropolitan Air Quality Management District

Lynne Hosley

Environmental Program Manager
CH2M Hill

Hani S. Mahmassani, Ph.D.

Professor, Department of Civil and Environmental
Engineering
Northwestern University

Jeff Morales

Senior Vice President
Parsons Brinckerhoff, Inc.

Jay Norvell

Chief, Division of Environmental Analysis
California Department of Transportation

Sharon Scherzinger

Chief, Division of Transportation Planning
California Department of Transportation

Mitch Sears

Manager, Sustainability Programs
City of Davis

Kevan Shafizadeh, Ph.D.

Associate Professor, Department of Civil Engineering
California State University, Sacramento

Tom Stallard

President
Legislative Intent Services

Eileen Tutt

Executive Director
California Electric Transportation Coalition

Deborah Wong

Transportation Policy Specialist, Government Affairs
AAA Northern California, Nevada & Utah

PROGRAM OVERVIEW





YEAR FIVE: PROGRAM OVERVIEW

The UC Davis Sustainable Transportation Center supported a wide variety of activities in research, education, and technology transfer during its fifth year. Given the center's interdisciplinary focus, it is not uncommon for a single project to bridge these different areas, incorporating education or outreach components into a research project and vice-versa.

Research funded through STC fellowships and grants directly supports national transportation research priorities as articulated in the National Highway R&T

Partnership's *Highway Research and Technology: The Need for Greater Investment* and the U.S. Department of Transportation *Strategic Plan 2003–2008*, particularly in the areas of environment, mobility, planning, and infrastructure. Throughout this report, projects that directly support these national transportation research priorities are identified with a symbol that corresponds with the priority identified in Table 1.

TABLE 1: SUMMARY OF TRANSPORTATION RESEARCH NEEDS

Priority	Highway Research and Technology-Groups and Themes	U.S. DOT Strategic Plan-Objectives and Outcomes
Environment 	Planning and Environment <ul style="list-style-type: none"> • Human health • Ecology and natural systems • Distributional aspects • Planning and performance measures • Land use • Emerging technologies 	Environmental Stewardship <ul style="list-style-type: none"> • Reduced pollution and other adverse environmental effects of transportation and transportation facilities • Streamlined environmental review of transportation infrastructure projects
Mobility 	Operations and Mobility <ul style="list-style-type: none"> • Customers, customer expectations, and customer needs • Maximizing efficiency and minimizing congestion • Information needs and requirements • Environmental issues • Intermodal interfaces and efficiencies 	Mobility <ul style="list-style-type: none"> • Improved infrastructure in all modes • Reduced congestion in all modes • Increased reliability throughout the system • Increased access for all Americans
Planning 	Policy Analysis, Planning, and Systems Monitoring <ul style="list-style-type: none"> • Improving understanding of the interactions between transportation and society • Advancing multimodal transportation planning • Enhancing data-driven decision-making tools • Improving monitoring of evolving trends 	
Infrastructure 	Infrastructure Renewal <ul style="list-style-type: none"> • Decision support tools • Promotion and delivery of innovation 	

Sources: *Highway Research and Technology: The Need for Greater Investment*, National Highway R&T Partnership; U.S. Department of Transportation *Strategic Plan 2003–2008*

EDUCATION

DISSERTATION FELLOWSHIPS

The STC directly supported education with funding for dissertation fellowships, program fellowships, undergraduate fellowships, new transportation courses, and the Outstanding Student of the Year Award.

DISSERTATION FELLOWSHIPS

This year, the UC Davis Sustainable Transportation Center awarded four dissertation fellowships. These fellowships support the research of Ph.D. students who have advanced to candidacy and are working on their own original research. They provide more freedom to Ph.D. students to choose dissertation topics independent of the work of their dissertation chairs. Recipients are chosen based on reviews from researchers outside of UC Davis. Fellowships were awarded to students in Civil and Environmental Engineering (CEE) and Transportation Technology and Policy (TTP).



Yi-Ru Chen, CEE

Modeling Vehicle Interactions in the Ramp Merge Area Adviser: *Michael Zhang*

Freeway bottlenecks often occur at ramp merging areas. Field data show that a major reason for freeway congestion is the merging of a platoon of vehicles from on-ramps into through lanes causing through traffic slowdowns. In addition to increased delay for drivers, this merging increases the risk of accidents. In contrast to traditional studies in which vehicles are represented individually or as continuous flows, this study focuses on the merging behavior of platoons and how it shapes traffic dynamics at ramps. The goal of this study is to identify strategies to minimize merging conflicts at ramps in order to improve both mobility and sustainability. We start by observing arrival patterns, merge types, and conflicts for vehicles merging onto an urban freeway, and by classifying each type

of platoon based on lengths and impact on vehicles in through lanes. We propose to build a platoon merging model that calculates throughput patterns after accounting for interactions between merging and through vehicles, as well as new platoon length and travel speed after merging. The results of the model can provide a basis for designing a signal control system to manage the merging gap so as to reduce traffic impact and travel delay at on-ramps.



Alex Karner, CEE

Evaluating Public Participation in California's Climate Change and Transportation Policies: A Mixed Methods Approach

Adviser: *Deb Niemeier*

Meeting greenhouse gas reduction targets required under California climate change law (AB 32) will require changes in travel behavior. The achievement of meaningful and effective public participation is necessary to ensure that these changes will be acceptable to California residents, but recent experience suggests shortcomings with state agencies' existing approaches. For example, advocates for environmental justice (EJ) recently challenged the implementation plan for AB 32 in state court, claiming in part that public participation was inadequate. This dissertation will provide

a critical assessment of California agency efforts in this regard through two case studies of related policy areas: climate change and transportation planning. The climate change case interviews and surveys AB 32 stakeholders and assesses the influence of different stakeholder groups on the implementation plan by comparing public comments to policy changes. The transportation planning study involves providing technical assistance to EJ advocates lobbying the Metropolitan Transportation Commission to improve its capacity for assessing transportation equity. The results will illuminate where existing programs exceed the mark or fall short and should be helpful for agencies and other stakeholders interested in advancing sustainable transportation systems and improving public participation more generally.



Hui Li, CEE

Improving Outdoor Thermal Environment in Hot Climates Through Cool Pavement Design Strategies

Adviser: *John Harvey*

The improvement of the street thermal environment for walking and cycling is attracting increased attention as a strategy for increasing livability. This approach has also been proposed as a strategy for mitigating the local heat island effect and reducing energy use for buildings and vehicle air conditioning during hot periods. Most research to date on urban microclimate has concentrated on building design and not on the thermal effect of street design details (street layout, pavement type and structure, irrigation operation strategies, etc.). This research will investigate several potential pavement design and management strategies to improve the street thermal environment in various contexts, through experiments combining numerical modeling and initial validation with field measurements on both test sections and as-built pavements with conventional and alternative designs. An integrated analysis model will be developed and validated to estimate the thermal environment on paved areas (e.g. streets, sidewalks, schoolyards, plazas). Thermal comfort indices will be identified and their applicability for different scenarios investigated. The study will produce insights useful for designing cool communities to promote walking and cycling and improve vehicle and building energy efficiency. The results of the study will be directly implementable into guidelines published by the US Environmental Protection Agency, information published by the California Environmental Protection Agency, and ordinances adopted by local governments.



Kristin Lovejoy, TTP

The Landscape of Carlessness in the U.S. and the Factors That Flatten Its Topography

Adviser: *Susan Handy*

In the context of an increasingly auto-oriented landscape and society, it is worthwhile to study those living without cars, for (1) evaluating the well-being of those at risk for physical isolation and exclusion, and (2) identifying for whom and where mobility is achieved without conventional vehicle access, which may point to ways that vehicle use may be reduced among a broader segment of the population. The proposed study includes a mix of qualitative and quantitative methods to address these questions. Qualitative findings from focus groups provide descriptions of experiences and coping strategies among some people with limited vehicle access in California. The 2009 National Household Travel Survey data are used to provide an overall market segmentation of those in low-vehicle-ownership households nationwide; a method for evaluating mobility deficits among them; and a multivariate analysis of where and for whom mobility gaps are least. The study will help identify segments of the population most in need of better services, as well as point to factors – such as infrastructure, services, and informal vehicle sharing – that help close mobility gaps for the carless, potentially offering clues as to how to make less vehicle ownership and use viable for more people.

EDUCATION

PROGRAM FELLOWSHIPS

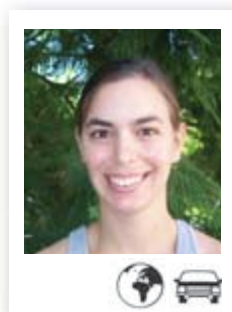
Program fellowships, used primarily to recruit incoming graduate students, were awarded in Civil and Environmental Engineering (CEE) and Transportation Technology and Policy (TTP). All fellowship students, even those fully supported, are required to conduct research under the direction of a member of the faculty or research staff. Six program fellowships were awarded in 2010-2011.



Huijing Deng, CEE

Fix I-5 Project Adviser: *Pat Mokhtarian*

The Fix I-5 project occurred over nine weeks between May 30 and July 31, 2008, and involved four different stages where northbound and southbound lanes of I-5 were alternately closed for several days at a time. In order to study the impacts of the Fix, three Internet-based surveys were conducted, two during the Fix and another six months later. These surveys included questions on the choice to work at home. While some people may have telecommuted temporarily because of the Fix, the study assumes that the data in Wave 3, conducted six months after the Fix, reflect the participants' regular behavior with respect to telecommuting. Huijing Deng's research examined the factors influencing the choice to telecommute and the frequency of telecommuting. The research included an analysis of the role of gender in determining choices about telecommuting. Another key element in this study is the effect on telecommuting of built environment variables, e.g. house type, neighborhood characteristics, distance to transit, and density of road network.



Elizabeth Gordon, TTP

Attitudes Toward Bicycling Adviser: *Susan Handy*

Previous studies of bicycling in Davis have shown that attitudes toward and comfort with bicycling are key factors explaining who does and doesn't bicycle. This project explores the formation of attitudes toward bicycling through a qualitative analysis of 54 in-depth interviews with adult residents of Davis, Calif., on the subject of their experiences with bicycling throughout their lives. Elizabeth Gordon is analyzing the role of social influences in attitude formation. The first step was to identify key themes through exploratory readings of the interview transcripts. She then developed a template for coding interviews with respect to these themes, and the template was tested to ensure that it yields reliable, reproducible results when implemented by different researchers. Data from the coding of the transcripts were combined with data from a self-administered questionnaire that accompanied the interviews and are being used to explore the significance of the identified social influence themes on attitudes and behavior. The analysis focuses on differences and similarities in social influences between frequent and non-frequent bicyclists.



Amanda Neufeld, CEE

Activities Conducted While Traveling: An Empirical Examination of their Impact on the Value of Travel Time Savings Adviser: *Pat Mokhtarian*

This research contributes to a multi-year study on travel multi-tasking. In this specific project, the goals are, first, to further develop a strong conceptualization of relevant ideas (such as how best to categorize various types of multi-tasking), and second, to design a survey to collect empirical data on travel multi-tasking. The initial phases of Amanda Neufeld's research, prior to developing the surveys, will review existing literature on the topic of multi-tasking in general and activities conducted while traveling in particular. The conceptual foundation gained from the literature review is being used to formulate an empirical survey to measure the polychronicity attitudes and multi-tasking behaviors of travelers. Sampling and survey administration is being designed to reach individuals using one of several modes of travel, including buses, cars (drivers), carpools (passengers), and bicycles. The ultimate goal of this research is to link polychronicity attitudes and multi-tasking behaviors to travel, to better understand the travel choices individuals make on a day-to-day basis. This understanding may offer insight as to when and where individuals are more likely to use public transportation, and hence aid transportation engineers in planning more efficient travel systems.



Susie Pike, TTP

How Permanent Are Construction-Induced Adjustments in Commute Behavior?

Adviser: *Patricia Mokhtarian*

This project explores how land use and other factors influence changes in travel behavior. Changes are explored in the context of the temporary closure of Interstate I-5 in Sacramento, Calif. in the summer of 2008. Susie Pike contributed to the project by cleaning and managing the data in order to conduct the analysis. Utilizing the data from three surveys conducted during different phases of the I-5 closure, Susie investigated whether individuals drove alone more or less, and whether those changes were temporary or permanent. She found that land use characteristics, particularly the type of neighborhood and the distance from home to transit stations, were important factors in whether

changes were permanent or temporary. Attitudes, as well as baseline commute patterns, were also important predictors of changes. Also, the factors important to increases in driving alone differed between permanent and temporary changes more than the factors important to decreases did.



Kalai Ramea, TTP

CA-MARKAL/TIMES Model for Energy Dynamics

Adviser: *Sonia Yeh*

The CA MARKAL/TIMES model is a technologically rich, partial-equilibrium model that focuses on the energy system of California. It gives an understanding of how the specific selection of policies would impact the trajectory of technology and fuel/resource mix to the year 2050. During the academic year, Kalai Ramea studied the model and worked on enhancing the existing model version by conducting a literature review on elasticities of several end-use demands and learning rates of new technologies, and incorporating elastic demand for the transportation sector. Kalai developed a database listing elasticities of the demands in all the energy sectors, conducted further analysis on elastic demand, performed sensitivity analysis using different variations of elasticity values, and ran

several elastic demand scenarios in the TIMES model while creating comparison graphs for analysis. She presented her results at the International Energy Workshop in July 2011. Her current work focuses on incorporating technological details for residential and commercial sectors in the TIMES model.



Yudi Yang, CEE

Network Optimization – A Novel View of Sharing Road Resource Between General Traffic and Bus Rapid Transit

Adviser: *Yueyue Fan*

Bus Rapid Transit (BRT) has been given priority in multimode transportation systems in order to maintain its attractiveness. However, BRT operation may cause low efficiency of road resource usage when bus frequency is low. Therefore, practical and economic methods for bus lane sharing between general vehicles and BRT are needed. The objective of this study is to formulate the bus lane sharing problem as a mathematical model and solve it for the optimal sharing strategy. The results include which road segment of BRT lane should be open for general traffic and how much volume should be allocated to the BRT lane in order to reach optimal system performance. Pricing policy, an important

mechanism influencing travelers' choice, will also be examined in this model. Yudi Yang is working to develop a deterministic nonlinear programming model in the current phase of the project. The objective function is to optimize the system performance of the test network with respect to travel costs for all network users, including vehicle hours traveled (VHT) and total toll charged. Sensitivity analysis will also be conducted on the impact of BRT speed, BRT operation interval, traffic volume, pricing strategy and the amount of available BRT lanes for sharing with general traffic.

EDUCATION

SUMMER UNDERGRADUATE RESEARCH FELLOWSHIPS

Undergraduate research fellowships are awarded to outstanding juniors and seniors. The recipients work full time during the summer on a research project directed by a member of the faculty or research staff. Seven undergraduate students received fellowships for summer 2011 research projects.



Matthew King, Civil and Environmental Engineering

Adviser: *Deb Niemeier*

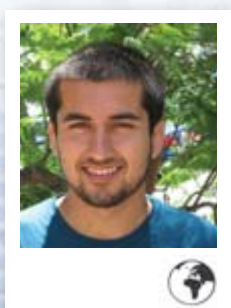
Matthew King worked with Nanako Tenjin, a graduate student in Civil and Environmental Engineering, on a project to develop a new method for estimating trip generation for “smart growth” development projects. Matthew’s background research helped to lay the groundwork for the project. He gathered information from developers of smart growth projects and officials from city departments of public works for use in running the URBEMIS and CalEEMod models. Matthew discovered how much work must go into logistical concerns, background research and the foundation of the project before modeling or regression analysis can even begin. He also learned how much time researchers spend qualifying assumptions and recording every detail of a conversation with a research contact.



Dominic La Marche, Civil and Environmental Engineering

Adviser: *Deb Niemeier*

In one project, Dominic La Marche used the Metropolitan Planning Organizations’ documents to trace and categorize the funding sources for all “self help” projects in California (transportation projects funded through local sales tax revenue). In a second project, Dominic worked with another undergraduate and a graduate student to analyze trip generation models on a variety of property developments in California, including multi-use and urban infill developments. He focused on the feature of California Emissions Estimator Model (CalEEMod) that estimates annual vehicle miles traveled (VMT) associated with a development. Dominic noted that through the course of this research he learned techniques for analyzing a system of “organized complexity.” He also learned new technical and communication skills, and appreciated gaining an introduction to conducting real research.



Darwin Moosavi, Environmental Policy Analysis and Planning

Adviser: *Stephen Wheeler*

Darwin Moosavi mapped and compared the built landscapes of two international cities—Rio de Janeiro in Brazil and Amsterdam in the Netherlands—in order to better understand their development impacts. This was part of a larger project comparing built landscapes of 18 metropolitan areas worldwide headed by Professor Stephen Wheeler. He found that the most common built landscape type found in Rio de Janeiro is degenerate and fragmented grids, while in Amsterdam it is apartment blocks and quasi grid types. Although Rio de Janeiro is a much larger city with a higher population density, the prevalence of so much degenerate and fragmented grid development leads to road networks that are not well connected and result in greater energy use. Due to the detailed planning of Amsterdam and consideration for transportation, the road networks in what is still a fairly dense city, are better suited for sustainability and greenhouse gas emission reduction than the road networks in Rio de Janeiro.



Kyle Prosen, Environmental Policy Analysis and Planning

Adviser: *Susan Handy*

The Transportation and Parking Services (TAPS) Campus Travel Survey analyzes how people get to campus. A gender bias was discovered in the response to the survey and Kyle carried out various statistical analyses to test whether the difference between weighting by both role (undergrad, grad, etc.) and gender versus only role were statistically significant (they were not). Second, he coded the free response section where respondents were allowed to write anything they wanted about the survey, their habits, or services offered by TAPS. Respondents wanted better bike paths in certain areas; better law enforcement on campus; and more bus service to off campus destinations. Third, Kyle pre-tested the 2011-2012 Campus Travel Survey to better format and word questions on the survey. In order to

do this, he created 30 profiles of types of people likely to answer the survey and answered questions as if that person were taking the survey.



Matt Russo, Environmental Policy Analysis and Planning

Adviser: *Susan Handy*

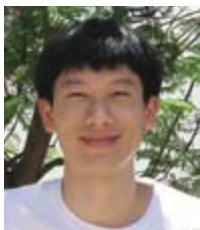
Matt's first project was compiling a report on data collected during spring quarter about the proposed Davis 5th Street "road diet" project. Matt analyzed bicycle and pedestrian data for 5th Street as the "before" half of a study to better understand the impacts of the road diet after its completion in 2012. Matt also evaluated data collection methods used for other road diet studies. In a third project, he pre-tested questions pertaining to UC Davis West Village project that will be included in the Campus Travel Survey for undergraduates this fall. The survey will help analyze whether where a student lives has an effect on his or her travel behavior.



Alex Wong, Civil and Environmental Engineering

Adviser: *Alissa Kendall*

Alex explored the life cycle analysis (LCA) of sugar beet ethanol. He began by conducting a literature review of over 30 journal articles related to sugar beet ethanol and reviewing the California Low Carbon Fuel Standard (CA LCFS). After summarizing both the literature review and CA LCFS, Alex conducted a life cycle inventory (LCI) of sugar beet production using data from the literature. Using GaVi, a LCA tool, he modeled the green-house gas (GHG) intensity of sugar beet ethanol under U.S.-specific production processes. Alex said the work convinced him to pursue a graduate degree in Civil and Environmental Engineering.



Cheng Zhuo, Civil Engineering

Adviser: *Pat Mokhtarian*

Cheng Zhuo studied why people chose certain transportation modes during a closure of the I-5 freeway in the Sacramento region. Cheng used ordinal logic regression models to analyze how commuters' perception of "like the idea of walking or biking" was related to various socioeconomic and attitudinal factors. He studied whether travel behaviors for people who walk, bike, or take transit are related to these variables. Research results show that males tend to commute more by all forms of transportation and people with higher educational backgrounds tend to walk and bike more. People who have anti-driving attitudes also tend to commute more via walking, biking, and transit. Lastly, people who are more pro-exercise, variety seeking, and have a sense of personal responsibility liked the

idea of walking and biking more.

TEACHING/COURSES

The STC supports the development of new courses to complement the existing transportation curricula at UC Davis. In 2010-2011 the STC directly supported four courses.

TTP 210, Introduction to Transportation Technology

Nathan Parker (Winter Quarter 2011)

This course explored the fundamental science and engineering concepts at the heart of the modern automobile. Students investigated the current dominant automotive technology—the use of petroleum-based fuels in the internal combustion engine—as a springboard to study more advanced technologies to reduce environmental impacts and energy use from automobiles. This study of the automobile offered an understanding of its basic workings, energy conversion from a fuel to vehicle propulsion, pollution control mechanisms, and factors that contribute to fuel economy. The class examined advanced vehicle technologies, such as plug-in hybrid vehicles, biofuels and fuel cells, for their potential to reduce vehicle emissions and energy use.

ESP 198, Road Diet Seminar

Susan Handy and Steve Tracy (Spring Quarter 2011)

Fifth Street is a major east-west arterial in the City of Davis. In 2010, the Davis City Council adopted a resolution endorsing a “road diet” redesign of Fifth Street. The plan is to reconfigure the street as two-lane arterial with left-turn lanes/pockets and on-street bicycle lanes. Professor Handy is working with the City of Davis to evaluate the impacts of this project. The goal of the seminar was to develop and test a method for collecting data on pedestrian and bicycle activity on Fifth Street and its vicinity. As a team, students examined methods used in other studies, developed a plan for conducting observations of pedestrian and bicycle activity, and pilot-tested this method. The team prepared a final report that explained the methodology and presented data from the pilot test.

TTP 289A, Urban Economics

Deborah Salon (Spring Quarter 2011)

Microeconomics provides a framework to explore how people make choices when resources are limited. Urban economics introduces space into this framework, focusing on household and firm location choices. This course used the framework of urban economics to explore why cities exist in the first place, what determines whether they grow, how and why households and firms choose locations within a city, and how these choices affect and are affected by city policies regarding transportation, housing, and labor markets.

TTP 289A, Mobile Programming for Transportation Applications

Mike Nicholas (Spring Quarter 2011)

This course was designed for graduate students interested in completing transportation or location based programming projects for mobile devices. The course included an overview of general concepts applicable to all mobile platforms. Learning the specific programming required for a platform was the responsibility of each class participant. Each participant chose a platform based on interest. Platforms covered included iOS, Android, and WebOS. Mobile web programming that can be used across platforms was also an option in place of native application development. Subjects covered included data input and output from xml or json sources, data storage, and GPS integration into mobile programs.

OUTSTANDING STUDENT OF THE YEAR

For accomplishments that point to an exceptional career as a leader in the field of transportation and energy, David McCollum, a Ph.D. student in the Transportation Technology and Policy (TTP) program, was selected as the Sustainable Transportation Center's 2010-11 Outstanding Student of the Year. In his dissertation he is using various energy system modeling tools to study options for achieving long-term energy and climate objectives, and he is developing an economic/energy model for California to be used to analyze California's greenhouse gas policies. His master's thesis, chosen as the best thesis in transportation at UC Davis in 2007-08, was a comprehensive study of the likely effects of expanded use of coal on the U.S. rail system. McCollum is also the recipient of a Dwight David Eisenhower Graduate Transportation Fellowship and a Fulbright Full Research Grant to Germany, and was selected for the Young Scientist Summer Program (YSSP) at the International Institute for Applied Systems Analysis (IIASA) in Austria and for internship programs at the Argonne National Laboratory and National Energy Research Laboratory.

The STC Outstanding Student of the Year award is given to a student who excels in research, academic performance, and professionalism and leadership. Evidence of research merit is based upon faculty nomination and evaluation of submitted written papers or reports.



Academic performance is based upon courses attempted and grades attained. Evidence of professionalism and leadership is measured in presentations at professional society meetings and symposia, and leadership in student professional activities. Eligible candidates must have a GPA greater than 3.25.

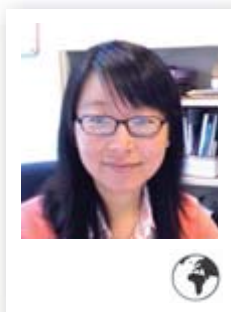
David McCollum shows off his Outstanding Student award at the CUTC banquet. Pictured with his wife Lindsay McCollum and ITS researcher Chris Yang.

RESEARCH

The UC Davis STC research program supports projects that both address transportation and planning agency concerns and meet rigorous academic standards.

FACULTY RESEARCH GRANTS

During 2010-2011, the STC funded six faculty research grants and two seed grants. Researchers from outside UC Davis reviewed projects as input to the selection of the grant recipients. In addition to supporting the named faculty researcher, the funded project supports at least one graduate student and integrates education into the research project.



Yueyue Fan, Civil and Environmental Engineering
Renewable Energy Supply Chain Disruption Management

In this project Professor Fan and her research team are developing methods for disruption management of renewable energy supply chain systems against recurrent supply/ demand fluctuation and non-

recurrent disasters, with an objective of achieving system security and efficiency. A key feature of this research distinguishing it from most existing studies is the integration of physical facility design and the operational management of the entire supply chain. Supply chain disruption management is a new research topic. How to best capture recurrent and non-recurrent risks and disruptions, and to incorporate these different types of risks and various risk preferences into a mathematical model, has not been well studied. The research should help fill this void in literature. The domain of renewable energy itself is directly related to greenhouse gas emission reduction and energy

source diversification. The measure of system security and resilience, emphasized in this study, is also an important theme of sustainability.



Christopher Knittel, Economics
Carbon Pricing Policies and Their Effect on Greenhouse Gas and Criteria Emissions

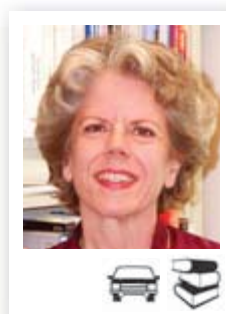
Professor Knittel and his research team are studying the impact of pricing greenhouse gases on both greenhouse gas and criteria pollutant emissions. The project brings

together a variety of unique datasets that are especially suited to answer these questions, examine several broad research questions and study both the extensive (which vehicles people buy and when they scrap their current vehicle) and the intensive (how many miles they drive) margins. The ultimate goal is to test the idea held by many policy makers that increasing the cost of driving has little effect on consumer behavior and thus emissions.

EVIDENCE OF IMPACT:

Processes developed from Alison Berry's previously funded faculty research grant, *Integrated Management of Roads and Roadsides: Longterm Research Framework for Road Effect Zones in California*, were adapted in winter 2011 for use by the California Department of Transportation engineering team of Jim Hanson, Landscape Architect District 4 (Bay Area), David Emerson, Landscape Architect District 5 (Monterey to San Luis Obispo), and Meng Shi Hung, Caltrans geotechnical engineer. In addition, the process of soil amendment for revegetation was used as the basis of a project to demonstrate compost amendment and revegetation at the highway 85 and Winchester Boulevard interchange by Michele Young, City of San Jose Environmental Services Department starting summer 2011.

The project will add to our broader understanding of how consumers respond to increases in the cost of driving and how this response affects emissions. In addition, the project aims to show empirically that the elasticity of miles traveled with respect to gas prices is the wrong metric for considering how pricing policies influence vehicle emissions, because it ignores important heterogeneities in this sensitivity measure.



Patricia Mokhtarian, Civil and Environmental Engineering

How Permanent are Construction-Induced Adjustments in Commute Behavior? Change Persistence Six Months after the Fix I-5 Project in Sacramento, Calif.

Temporary events may induce changes in travel behavior, some of

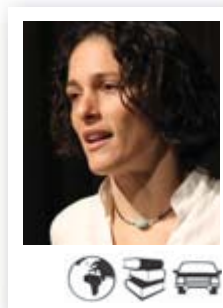
which may lead toward more sustainable commute patterns. But to what extent do those changes persist after the event concludes, and what influences some people to maintain the new behavior indefinitely while others return to their previous pattern as soon as possible? This study addresses these questions in the context of the reconstruction of Interstate 5 (Fix I-5) in downtown Sacramento, Calif., in summer 2008. Professor Mokhtarian's research team conducted an Internet survey of commuters six months after the Fix was completed, achieving a sample size of over 2000, in which they explored both temporary and permanent changes that respondents may have made during the Fix. After cleaning the data and analyzing some key descriptive statistics, the researchers will develop discrete choice models of the key commute changes made, as a function of attitudes, socioeconomic characteristics, and the built environment. The results will provide insight into the factors distinguishing between temporary and permanent changes, which in turn may suggest strategies for shifting some environmentally beneficial changes from temporary to permanent.



Deb Niemeier, Civil and Environmental Engineering **Understanding How Public Perceptions of Road Diets Are Formed**

State and federal goals for decreasing greenhouse gas emissions and U.S. dependence on foreign oil can only be achieved if local governments develop and implement projects that

enhance non-motorized transportation options. Community perceptions of benefits and costs of these types of projects often diverge, particularly when they reallocate vehicle capacity along congested corridors. A greater understanding of how to effectively conduct outreach and communication with the public on potential project merits and challenges is needed. The City of Davis, Calif. is currently studying a proposed "road diet" project along the busy 5th Street corridor. Road diets have only recently become a viable mode strategy in most cities and we know very little regarding how related public perceptions are formed. Professor Niemeier's research consists of a city-wide public opinion survey and a second focused survey of residents and businesses in neighborhoods adjacent to the proposed project, for the purpose of investigating public perceptions and attitudes related to the project. This research will expand our understanding of how people judge the desirability and potential feasibility of road diet projects. This survey will also serve as the precursor to a subsequent study on changes to public opinion and will be utilized to further inform communication materials for future road diets.



Deborah Salon, Institute of Transportation Studies

**Evaluating the Impact of Local
Actions on Vehicle Miles Traveled:
Case Study in Davis, Calif.**

Dr. Salon's project brings the methods of program evaluation to the field of transportation policy, evaluating the effect on vehicle miles traveled of three local changes to the land use-transportation system in Davis, Calif. The three changes are the opening of the first big-box store in Davis, the opening of an innovative mixed-use development, and a "road diet" project on a major arterial road adjacent to downtown. The research design for all three evaluations is a before/after data collection approach with treatment and control groups where feasible. This study encompasses the second year of a four-year project. The project will make two important contributions: it will be a test bed and model for before/after program evaluation methods in local transportation and land use planning more generally and the results will provide much-needed evidence of the relative potential of different local actions for reducing vehicle miles or travel.

RESEARCH

FACULTY RESEARCH GRANTS • SEED GRANTS



Michael Zhang, Civil and Environmental Engineering

Credit-based Pricing for Multi-user Class Transportation Facilities

Professor Zhang's study proposes an innovative arc-based credit (ABC) pricing scheme to improve system performance in a transportation

network by considering differences in the value that travelers ascribe to time. The pricing scheme proposed by the researchers is different from the traditional congestion pricing



schemes, in which users always pay to use the toll road. Instead, the project develops a credit system by associating each arc with a positive or negative credit rate in order to influence the use of the system to achieve a desired policy objective. By allowing credits, rather than just tolls, the proposed scheme offers extra flexibility for accomplishing multiple planning goals simultaneously, such as system efficiency in time or monetary units, fairness for users with different income levels or different locations, and financial sustainability. The study uses numerical examples to examine the potential advantages offered by the credit scheme as compared with other existing toll schemes, in terms of travel disutilities, fairness, and system efficiency.

SEED GRANTS

Seed grants are limited to no more than \$10,000, and the majority of the funding supports graduate and/or undergraduate student researchers for at least one quarter. The funds may be used for new research initiatives, for information sharing projects, to leverage funding from other sources, and to support projects that synthesize existing research or evaluate best practices.



Susan Handy, Environmental Science and Policy

Online Versus Phone Surveys: Comparison of Results For a Bicycling Survey

For decades, travel behavior researchers and transportation planning agencies have relied on phone surveys as the primary means of collecting data on household travel patterns. But given the shift to cell phones, these surveys are increasingly problematic. Online surveys offer an intriguing alternative, particularly given their relatively low cost. But for these surveys, too, sampling is difficult and not all households have easy access to the internet. Non-response bias is thus a serious concern for both phone surveys and online surveys. But how do the biases compare between the two surveys? Professor Handy's research examines this question by looking at results from online and phone surveys with identical questions conducted in Davis, Calif. The primary purpose of the surveys was to measure bicycling and various potential explanatory factors. The project compares characteristics of the samples for each survey as an indicator of biases. In addition, the coefficients of models of travel behavior estimated for each sample separately are compared to assess the degree to which the models yield consistent conclusions and policy recommendations.



C.-Y. Cynthia Lin, Agricultural and Resource Economics

The Effects of Policy, Economics and Strategic Factors on Investment in Fuel-Ethanol Plants

Professor Lin's project analyzes the factors that affect the decision to invest in ethanol worldwide using a dynamic structural econometric model of the investment timing game. The results will help determine which policies and factors can promote fuel-ethanol industry development. In addition to the dynamic decision-making process, the study analyzes the potential strategic interactions between neighboring plants. For example, a new plant could benefit from the transportation or marketing infrastructure, or the educated work force, already developed by an existing plant. But neighboring plants might be competitors, too.



EVIDENCE OF IMPACT:

Susan Handy's studies on bicycling in Davis point to the important role that families play. In families where parents bicycle and encourage their children to bicycle, children are more likely to bicycle to school, soccer games, and other activities. A presentation on these results by Dr. Handy to the Schools Committee of DavisBicycles!, a local advocacy group promoting bicycling of all kinds for all kinds of people in Davis, led to the creation of the annual Bike Loop-a-Looza event. During the event, families bicycle the Davis Bicycle Loop, a 12-mile route through the city using on-street bicycle lanes and off-street bicycle paths. Children participate in activities at stations along the route and have their "passports" stamped. Sponsored by DavisBicycles! and the City of Davis, the third Loop-a-Looza is planned for May 2012.

Enterprise article:

<http://www.davisenterprise.com/features/davis-loopalooza-is-back-and-better-than-ever/>



TECHNOLOGY TRANSFER

Technology transfer is a critical component of the STC's mission. It enables information-sharing between researchers on the UC Davis campus and at other academic institutions, and between the academic community, policymakers, and practitioners. The STC brings outside experts to campus and supports off-campus student and faculty travel to conferences, meetings, and special events. Other STC outreach activities include the annual campus travel assessment, a California UTC webinar series, regular updates in the ITS-Davis electronic newsletter, and conference and event sponsorships.

CAMPUS TRAVEL ASSESSMENT

Each fall, UC Davis students, faculty and staff complete an online survey about their travel to campus for the Campus Travel Assessment, a partnership between the Sustainable Transportation Center and UC Davis Transportation and Parking Services (TAPS). TAPS and STC together fund a graduate student to administer the survey, analyze the data, prepare a report and present findings to advisory committees and decision makers on and off campus. TAPS uses the data in its planning for the campus, particularly to gauge its success in promoting travel to campus by means other than solo driving. Joshua Miller, a Transportation, Technology and Policy master's student, led the assessment in 2010.

The annual assessment measures changes in how people physically travel to campus from year to year (referred to as "mode split"). On an average weekday, about 90 percent of people are physically on campus (a projected 36,475 people, including those living on campus). Among these, about 41 percent bike to get there, 33 percent arrive in personal vehicles, 20 percent ride public transit, and 6 percent walk or skate. These figures represent the percent of people primarily using each means of transportation (that is, for the greatest share of their distance) from wherever they live to their campus destination, on an average weekday. Comparisons of the 2010-11 mode split estimates with 2008-09 and 2009-10 reveal that while there is some year-to-year fluctuation, the overall mode split has not changed significantly since 2008. However, the number of people

traveling to campus declined 3.3 percentage points from 2007-08 to 2010-11, representing about 1,300 fewer people on an average weekday. This change is important not only due to its overall magnitude, but also its potential environmental impact and implications for campus planning.

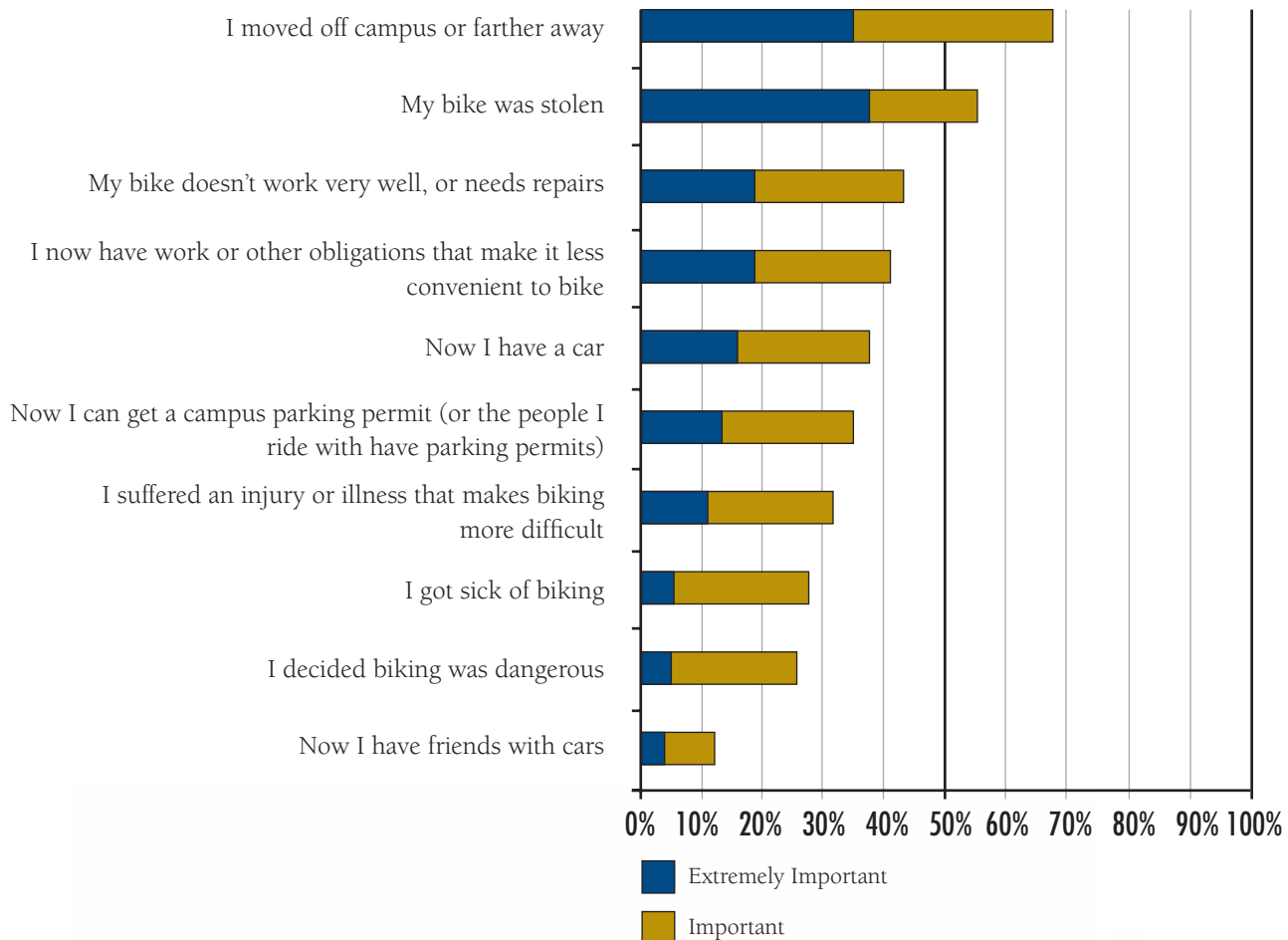
As in previous years' surveys, the mode split varies substantially by residential location and role group. Among undergraduates, most freshmen live on campus and therefore almost exclusively bike or walk to campus destinations. These patterns do not persist when freshmen move off campus sophomore year. Sophomores are more likely to take the bus to campus, and juniors and seniors are more likely to drive or get a ride to campus.

The 2010-11 survey included supplemental questions on the reasons for the drop in bicycling after freshman year. Overall, about 23 percent of sophomores, juniors, and seniors reported bicycling to campus less often this year than they did their freshman year (an estimated 4,672 students). Of these, Figure 1 shows the percent who listed each reason as "important" or "extremely important" for why they bicycle less now. Moving farther away from campus and having a bike stolen were each cited by more than one third of respondents as extremely important reasons for bicycling less often to campus.

TECHNOLOGY TRANSFER

CAMPUS TRAVEL ASSESSMENT

Figure 1. Reasons for Bicycling Less Often than Freshman Year



TECHNOLOGY TRANSFER

CALIFORNIA UTC WEBINAR SERIES

The Sustainable Transportation Center continued to coordinate an effort by the five California University Transportation Centers (UTCs) to make information sharing and research dissemination easier and more cost-effective for their state-level funding partner, the Caltrans Division of Research and Innovation. By offering a series of lunchtime webinars at monthly intervals in both fall and spring, the UTCs were able to present research and engage in discussion with Caltrans without requiring any Caltrans employees to travel or take a full day off from work.

The webinars were free and open to the public and were widely publicized by all of the five UTCs. Each webinar consisted of three presentations by faculty from the UTCs on a related theme. During Q&A sessions following the presentations, online audience members were able to ask questions in real time through the webinar's chat pod, contributing to lively discussions. Each of the monthly webinars had an average of 40 participants. Although the primary intended audience was Caltrans employees, participants included people from a range of other organizations in California and other states.

The UC Davis STC took the organizational lead for these webinars by creating and maintaining the website for the webinar series, developing outreach materials, coordinating email promotion, and operating the technical interface for the webinars.

Recordings of the webinars are posted along with the slides for each presentation on the webinar website, hosted by the STC. More information about the webinars, including the recording for each, is available online at: <http://stc.ucdavis.edu/outreach/UTC-Caltrans-Past-Sems.php>

The webinar programs for 2010-11 were:

September 15, 2010: Efficient Management of Road Construction and Operations

Compressed Natural Gas (CNG) Sweeper Operation Evaluation

Maged Dessouky — METRANS Transportation Center

Revisiting the Estimation of Highway Maintenance Marginal Costs

Samer Madanat — University of California Transportation Center

October 13, 2010: Encouraging Sustainable Travel, Part II

How Do We Get More People Bicycling? Evidence from the Davis Bicycle Studies

Susan Handy — Sustainable Transportation Center, UC Davis

Are Transit-Oriented Developments Overparked?

Robert Cervero — University of California Transportation Center

City Adoptions of Environmentally Sustainable Policies in California's Central Valley

Mark Lubell — Sustainable Transportation Center, UC Davis

November 17, 2010: Equity Considerations in Transportation

Equity Analysis of Land Use and Transport Plans Using an Integrated Spatial Model

Carolyn Rodier — Mineta Transportation Institute, SJSU

Travel Behavior Among Latino Immigrants: The Role of Ethnic Neighborhoods and Ethnic Employment

Gary Painter — METRANS Transportation Center

Daily Activity Patterns, Travel Behavior, and Traffic Exposure Near the Los Angeles-Long Beach Port Complex

Doug Houston — University of California Transportation Center

April 13, 2011: Rethinking Infrastructure

How Do We Make Urban Arterials Safer and More Comfortable for Pedestrians?

Elizabeth Macdonald — University of California Transportation Center

Environmental Life Cycle Assessment for Pavements

John Harvey — Sustainable Transportation Center, UC Davis

Eyeballs on the Street: Using Smartphones for Security at a Los Angeles Transportation Hub

Martin Krieger — METRANS Transportation Center, USC and CSULB

TECHNOLOGY TRANSFER

CALIFORNIA UTC WEBINAR SERIES

May 11, 2011: Topics in Travel Behavior

Getting Around When You're Just Getting By: Transportation Survival Strategies for the Urban Poor

Evelyn Blumenberg — Mineta Transportation Institute, SJSU

Exploring the Effectiveness of Transit Security in Awareness Campaigns in the San Francisco Bay Area

Frances Edwards — Mineta Transportation Institute, SJSU

Energy Information Feedback Field Test: Driver Responses and Behavioral Theory

Ken Kurani — Sustainable Transportation Center, UC Davis

June 15, 2011: Lessons from Abroad

Policy Issues in US Transportation Public-Private Partnerships: Lessons from Australia

David Czerwinski — Mineta Transportation Institute, SJSU

Do Investments in Urban Public Transit Improve Employment Outcomes for Residents? Evidence from Bogota, Columbia

Deborah Salton — Sustainable Transportation Center, UC Davis

Urban Goods Movement Planning in the US and Canada: Lessons from the Vancouver and Los Angeles Metro Areas

Thomas O'Brien — METRANS Transportation Center, USC and CSULB



Lee (Leon) J. Schipper, a longtime friend, colleague and internationally acclaimed transportation and energy researcher, died in August of pancreatic cancer. He was 64.

At the time of his death, Schipper, also known as "Mr. Meter," was a research scientist for the Global Metropolitan Studies Center at UC Berkeley and senior research engineer at the Precourt Institute of Energy Efficiency at Stanford University. A memorial website [<http://www.lee-schipper.org/>] describes Schipper as an "...international physicist, researcher, musician and co-founder of EMBARQ [who] inspired and shaped the thinking of a generation of students and professionals and was widely recognized for enriching policy dialogue with his passion for data and challenging conventional wisdom."

SEMINAR SPEAKERS

The STC funded three Distinguished Speakers and two Invited Speakers as part of the 2010/2011 UC Davis Institute of Transportation Studies Seminar Series.

STC Distinguished Speaker -- October 1, 2010:

Donald Shoup, Professor of Urban Planning, UCLA
The High Cost of Free Parking

STC Distinguished Speaker -- February 18, 2011

Will Recker, Professor of Civil Engineering, UC Irvine
A Bridge between Travel Demand Modeling and Activity-Based Travel Analysis

STC Distinguished Speaker -- May 20, 2011

Lee Schipper, Senior Research Engineer, Precourt Energy Efficiency Center, Stanford University
Fuel Economy or Fools Economy: An International Overview

STC Invited Speakers -- May 6, 2011

Marc Schlossberg, Associate Professor of Planning, Public Policy & Management at the University of Oregon; Associate Director of the Oregon Transportation Research and Education Consortium (OTREC), and Co-Director of the Sustainable Cities Initiative (SCI) Nico Larco, Assistant Professor of Architecture at the University of Oregon, Co-Founder and Co-Director of the Sustainable Cities
People Do Walk in Suburbia and They Want to Walk More



Susan Handy, Pat Mokhtarian, Will Recker and Michael Zhang

TECHNOLOGY TRANSFER

CONFERENCE AND EVENT SPONSORSHIPS

During 2010/2011, the STC sponsored six conferences, events, and receptions, all of which were aimed at advancing the technology transfer component of the center's mission.

California Connectivity Forum

Davis, Calif., December 1, 2010

Connectivity is one of the most critical ecosystem attributes and is affected by human land-uses and transportation infrastructure. People similarly rely on connectivity in their communities in order to enjoy quality of life. The California Connectivity Forum provided a unique opportunity for 200 agency, academic, and NGO scientists and planners from around California to discuss connectivity from these perspectives. This was the second such Connectivity Forum organized by the Road Ecology Center; the first in 2008 focused on wildlife movement. There is no similar venue in California for transportation, land-use, and conservation professionals to convene and focus on connectivity for people and the environment. This Forum is critical both because of the importance of connectivity and because resolving impacts on connectivity depends on scientists, planners, and implementers getting together to discuss potential solutions and lessons learned. Participants walked away with a new set of connectivity tools and renewed interest in restoring connectivity for people and ecosystems.

International Conference on Ecology and Transportation

Seattle, Washington, August 21-15, 2011

The mission of the International Conference on Ecology and Transportation is to identify and share quality research applications and best management practices that address wildlife, habitat, and ecosystem issues related to the delivery of surface transportation systems. ICOET is the primary forum for an international gathering of the foremost experts in the field of transportation development, related scientific study, and administrative processes that can enhance both the project development process and the ecological sustainability of transportation systems. UC Davis Professors Alison Berry and Fraser Shilling both gave presentations on their STC funded research at the conference.

World Symposium on Transport and Land Use Research

Whistler, British Columbia, Canada, July 28-30, 2011

This inaugural conference brought together academics and practitioners at the intersection of economics, planning, and engineering in the fields of transport and land use. STC Director Susan Handy was a member of the conference organizing committee as well as both a moderator and a

presenter at the conference. UC Davis ITS Director and STC Executive Committee member Daniel Sterling also lead a discussion of his book "Two Billion Cars: Driving Towards Sustainability." TTP student Susie Pike presented results from her master's thesis.

Thirteenth Biennial Asilomar Conference on Transportation and Energy Policy

Pacific Grove, Calif., August 29 - September 1, 2011

Hosted by ITS-Davis and organized under the auspices of the Energy and Alternative Fuels Committees of the U.S. Transportation Research Board, the conference brought together more than 200 people from around the world to tackle what many agree is the greatest environmental challenge the world faces: climate change. STC Executive Committee member Dan Sperling chaired the conference, and STC Director Susan Handy served on the steering committee in addition to giving a presentation.

ITS-Davis Recruiting Event

Davis, Calif., March 4, 2011

ITS-Davis hosted a reception for the top admission candidates for the Transportation Technology and Policy (TTP) graduate program and the Civil and Environmental Engineering (CEE) graduate program, with sponsorship from the STC. TTP and CEE faculty, staff and current graduate students welcomed the 10 prospective candidates with both group and individual meetings and a lunch reception.

"Environment, Social Inequality and the Rise of American Cities" Dorceta Taylor Presentation & Book Signing

Davis, Calif., April 21, 2011

STC co-sponsored this lecture, reception and book signing by Dorceta Taylor, an Associate Professor of Environmental Sociology and Afro-American and African Studies at the University of Michigan. Her book, *The Environment and the People in American Cities*, was awarded a 2010 Outstanding Publication Award from the Environment and Technology Section of the American Sociological Association.

TECHNOLOGY TRANSFER

STUDENT TRAVEL AWARDS

In 2011, STC sponsored travel for seven students to attend the 17th annual University of California Transportation Center (UCTC) Student Conference held at UC Berkeley. In addition, STC provided travel sponsorship for Kristin

Lovejoy to attend the Transportation Research Board conference where she presented results of the Campus Travel Assessment survey and for Geoff Morrison to attend the Rail-volution conference in Portland, Oregon.



At the Transportation Research Board Conference in January 2011: Recent graduates and current students of the TTP program: John Axsen, Tai Stillwater, Kristen Lovejoy, and Joel Bremson

TECHNOLOGY TRANSFER



Staff and researchers of the Urban Land Use and Transportation Center, which the STC helps support.

URBAN LAND USE AND TRANSPORTATION CENTER

The Urban Land Use and Transportation Center (ULTRANS) was launched in 2008 with core support from the STC. Through research, education, and outreach, ULTRANS supports improved public decision making with respect to transportation and land-use. The center aims to improve understanding of the relationships between transportation and land use, and to develop, test, and deploy tools that enable state, regional, and local agencies to effectively integrate transportation and land use policy to achieve sustainability goals.

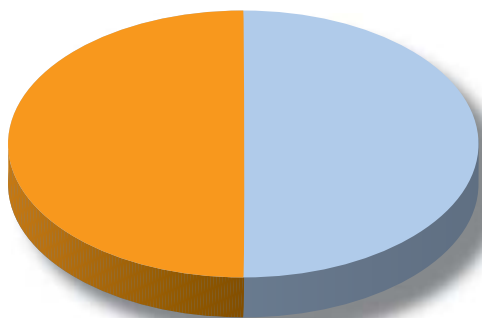
During 2010–11, ULTRANS directed the development of a statewide integrated interregional model (CalSIIM) that analyzes land use, transportation and economic data to forecast California's growth. The model's data development phase is complete, and we are beginning the work of applying 3D visualization tools to provide a more dynamic user interface. Our modelers successfully completed the California Statewide Travel Demand Model for Caltrans to support California's efforts to work towards meeting the greenhouse gas emissions reduction targets set in Senate Bill 375. We are using this same model framework to develop a travel demand model for the eight counties located within San Joaquin Valley, and continue to serve smaller communities in the state with the rule based UPLAN land use model.

Our researchers completed a project funded by the California Air Resources Board that aims to synthesize existing empirical evidence on the impact of land use strategies on vehicle miles of travel and greenhouse gas emissions. A project for the California Energy Commission is underway that makes use of existing travel survey data to estimate these relationships for a wide range of contexts.

In the fall of 2010, ULTRANS sponsored a graduate seminar, "Overview of Integrated Land Use / Transportation Modeling to Support Emerging Policy Issues", exploring the contemporary transportation, land use, economic and environmental policy realms, and considering the role that advanced modeling can play to support decision making. Gordon Garry, research director for the Sacramento Area Council of Governments (SACOG), served as the instructor of this course attended by 15 graduate students and 15 professionals.

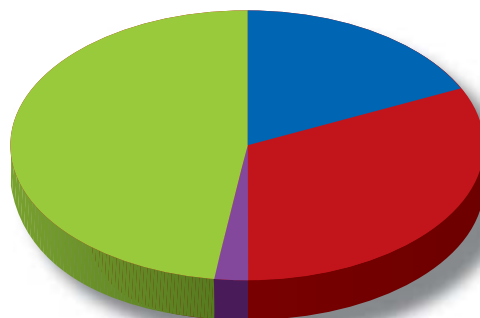
The ULTRANS team, under the leadership of Mike McCoy, includes Susan Handy, Caroline Rodier, Deborah Salon, Robert Johnston, Mark Lubell, Patricia Mokhtarian, Giovanni Circella, Nate Roth and Gian-Claudia Sciara. Liz Grassi serves as the Center's program manager.

FINANCIAL REPORT







FUNDING SOURCES

Federal	50%	
Caltrans	50%	
TOTAL	100%	



EXPENSE SUMMARY

Research	48%	
Tech Transfer	2%	
Administration	18%	
Education	32%	
TOTAL	100%	

STC UPDATES IN ITS-DAVIS E-NEWS

The "Sustainable Transportation Center Update" is published three times a year in ITS-Davis e-news, the electronic newsletter of the UC Davis Institute of Transportation Studies. The update includes student and researcher profiles, summaries of student activities, highlights of research projects, reports on STC-sponsored projects and events, and other activities. The update is also made available in PDF format for easy download and printing at <http://stc.ucdavis.edu/outreach/#newsletters>.

ACKNOWLEDGMENTS

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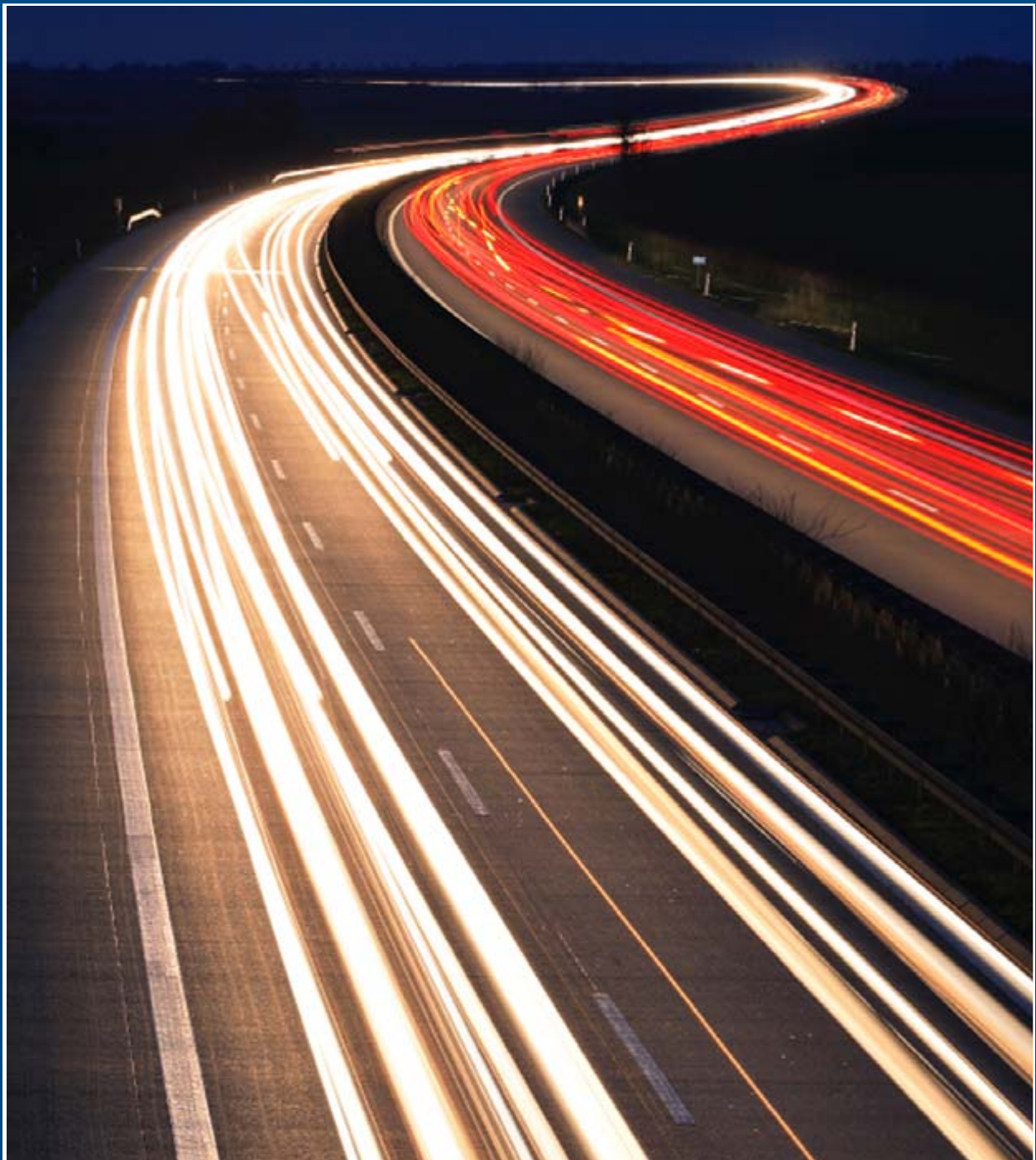
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