



Year 16 (2003-2004)

Annual Report

For the

University of California Transportation Center

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ANNUAL REPORT

(August 1, 2003-July 31,2004)

University Transportation Centers Program
Region IX

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OUR SIXTEENTH YEAR

The University of California Transportation Center has just completed its 16th year. By and large, the year has been a good one. We accomplished a great deal:

- Faculty members completed 13 projects, continued their work on 10 more, and initiated another 16. The research covers a wide range of topics - from transportation for the elderly to traffic operations to road pricing – each a current problem of considerable importance.
- We awarded almost 100 new Masters and PhD degrees, and increased our undergraduate enrollments in transportation. These newly minted transportation specialists have joined private transportation firms, universities, nonprofits, and federal, state, and local government agencies.
- We added 108 papers to our website and converted most of our older papers to electronic format, allowing almost all of UCTC's 721 publications to be obtained over the internet. Keeping track of the downloads, we learned that nearly 100,000 papers were obtained through the Web this year – 100 times the number of hard copies we sent out.
- We published two more editions of ACCESS, our transportation magazine, and distributed 20,000 copies to readers across the US and overseas. An equal number of readers get ACCESS electronically.
- We held a conference on the art of modern transit station design, supported the annual Lake Arrowhead retreat, organized a student-run conference at Davis, and hosted the annual Council of University Transportation Centers – University Transportation Centers Program summer meetings.

Like most other transportation centers in the US, we spent much of the year anticipating the reauthorization of the federal surface transportation program. Several of our faculty members, myself included, testified before Congressional committees and at staff workshops, arguing for increased investment in research. As I write this, we are still waiting for the new legislation and are uncertain what our budget will be in the next year. We have responded to the budget uncertainties by leaving vacated staff positions unfilled and trimming, once again, the research budgets for the year. However, we continue to be excited about the possibilities for improved transportation services, more cost-effective and efficient project delivery, better transportation - environmental performance, more equitable distribution of transportation benefits. Research on these topics can help us find new processes, new technologies, and new institutional designs that will pay off for all of us. We look forward to continuing to be a part of those efforts.

-- Elizabeth Deakin

CENTER THEME AND ACTIVITIES

The University of California Transportation is the Federal Region IX University Transportation Center. Headquartered at UC's Berkeley campus, the UCTC supports transportation research, education, and technology transfer designed to advance the state of the art and the state of the practice of transportation. Researchers from any of the ten UC campuses are eligible to participate in UCTC, and researchers from other campuses outside the UC system may join us as research team members.

As it has done since the UCTC's inauguration, the California Department of Transportation (Caltrans) matched US Department of Transportation (US DOT) funds dollar-for-dollar. USDOT continued to apply RABA reductions to transportation center budgets, and this year we received a somewhat smaller federal allotment than in the previous year - \$906,000. Doubled by our Caltrans match, the resulting budget of \$1,812,000 allowed us to continue a vigorous program of research, education, and technical transfer activities. However, with \$178,000 less than originally envisioned in our strategic plan, we restricted the size of faculty research grants and limited support for conferences and educational innovations. Also, we again delayed increasing our fellowship and dissertation grant funding, both of which remain at the same nominal levels we set for them over a decade ago. Nevertheless, through careful budgeting and many pro bono efforts of faculty, the UCTC community had a very good year. We thank our two sponsors for making our activities possible.

UCTC research focuses on the theme, "Transportation Systems Analysis and Policy." The development of new methods and approaches for transportation forecasting and analysis, explorations of alternative policy approaches, and evaluations of existing policies and programs are examples of the kinds of projects that UCTC supports. Our researchers come from a variety of disciplines, including planning, engineering, economics, political science, policy studies, management, public health, environmental studies, geography, history, psychology, sociology, and the natural sciences. Increasingly, both our projects and the researchers themselves are multi-disciplinary. We emphasize surface transportation modes (highways, rail, etc.) rather than air or maritime transportation, but we support intermodal research involving the air and water modes if it has significant surface transportation components. Both passenger transport and freight transport topics are investigated through the UCTC.

All UCTC research grants are awarded through a process that relies on outside peer review. The process is highly competitive, as available funds are sufficient to cover less than half of the amounts requested. To handle the difficult process of project selection, we conduct a double-blind review of all proposals, then appoint a panel of outside experts who serve much the same function as an editorial board, advising the Director on the projects that appear most worthy of funding. The Director makes the final choices of projects with the advice of the Executive Committee.

The 23 faculty projects and 20 new and continuing dissertation grant projects kept faculty and students engaged in a variety of research activities on six UC campuses. The researchers also were active in conferences, symposia, and workshops across the US and abroad, where the findings from their research were shared with other researchers and with practitioners.

Administration of research projects is an important UCTC function, and the UCTC administrator, Diane Sutch, worked with her counterparts in other units and on other campuses to assure the timely transfer of funds and submission of progress and expenditure reports. Diane retired in spring of 2004, and because of the uncertainties of the federal transportation reauthorization process, we decided to leave her position open until we have a more definite future. We decided to "borrow" staff from other campus units to help with accounting tasks. We already use students and contractors for publication and website services, thus keeping our administrative costs to a minimum.

UCTC not only carries out research but also contributes to transportation education. Our objective is to help produce a vibrant network of transportation professionals who will put their education and research findings into practice. The UCTC supports transportation education through fellowship programs, funding for courses, a competitive PhD dissertation grant program, and the research assistantships offered as part of faculty research projects. Fellowship and course support grants are available to students at the four campuses that have formal transportation programs - Berkeley, Davis, Irvine, and UCLA. Students from any of the UC campuses may apply for a dissertation grant and may work on a transportation project awarded to faculty member on their campus. Together, student fellowships, dissertation grants, research appointments and related student expenses account for almost two-thirds of our total budget.

The UCTC's technology transfer programs are aimed at communicating research results to a broad audience. Our web page provides information on our programs, summaries of our research, and electronic access to an increasing number of our publications. Free copies of all research papers funded by UCTC are provided to those who request them.. We distribute hard copies of our transportation magazine, ACCESS, which we publish twice a year. Many others read ACCESS in libraries and on the web. Our strong publications program is possible because of the talents of our two editors. Editor in Chief Melvin Webber, who is Professor Emeritus of City and Regional Planning, has a talent for identifying topics that are timely and apt. Both he and our Managing Editor, Melanie Curry, work closely with researchers to produce informative, readable articles, even on topics that are highly technical and specialized. In addition, Editor Curry has streamlined ACCESS production processes and has completely updated the mailing list for ACCESS, now with over 20,000 mail subscribers and another 21,000 web readers.

Webmaster Mike Harvey upgraded the web page and oversaw the conversion of nearly all our papers to electronic format, increasing our accessibility and reducing our mailing costs. With a much-improved web page and both ACCESS and most papers now available electronically, we are now getting over 27,000 website "hits" a year, with 21,000 ACCESS downloads per issue and nearly 100,000 downloads of articles in the past year.

The substantial support we receive from the University of California and our faculty has made it possible to maintain a strong UCTC program. Substantial permanent financial support comes from the University for transportation research and education programs. The US DOT requires a \$200,000 commitment in regularly budgeted institutional funds for a university to be eligible for Center designation; even a fraction of the salaries and benefits for the full-time faculty members who conduct transportation research at Berkeley, Davis, Irvine and UCLA sums to an amount far in excess of the \$200,000 required. In addition, several permanently (separately) funded research institutes and academic departments administer individual UCTC research grants and fellowships. The Institutes of Transportation Studies at Berkeley, Davis, Irvine and UCLA and the Institute of Urban and Regional Development at Berkeley provide major assistance each year.

UCTC faculty and students also benefit from their access to University computer, data, and library resources. Of particular note is the Library of the Institute of Transportation Studies, which was established in 1948 and is supported with Caltrans funds allocated through a direct line item in the state budget. The resources of the library are available to faculty and students on all campuses. Each year we sponsor an annual visit to each of the four main UCTC campuses by Librarian John Gallwey, as a way of introducing new students to library holdings and services.

MANAGEMENT STRUCTURE AND CENTER STAFF

The University of California Transportation Center is headquartered on the Berkeley campus of the UC system. Center personnel include a half-time director who also is a faculty member, plus a small administrative and editorial staff. Direction for the UCTC comes from a faculty Executive Committee drawn from several campuses of the UC system. Coordination with other California Transportation Centers and with our Caltrans sponsor takes place through meetings held three times a year (once at each of the three California UTCs.) The UCTC also draws upon a variety of institutional resources at participating campuses, including the administrative services of researchers' academic departments and research institutes, whose support is donated.

Center Director

Professor Elizabeth Deakin of the Dept. of City and Regional Planning at UC Berkeley is the UCTC Director, a position she has held since March 1999. Prof. Deakin has been a member of the faculty at the University since 1985 and has had additional affiliations with the Civil Engineering, Urban Design, and Energy Resources groups for much of that time. Her interests include transportation and land use, transportation policy, and the social, economic, and environmental impacts of transportation. She has conducted research with ITS, PATH, and IURD as well as with the UC Energy Institute and the UC Policy Center. She has served on the UCTC Executive Committee since its inception and previously was a member of the ITS and IURD executive committees. She was acting director of the IURD in 1997-98. In addition to teaching at Berkeley, she taught for a year at UCLA in 1992-93. Her familiarity with the University and the UCTC's partners facilitates her management of the UCTC.

Executive Committee

The UCTC Executive Committee is a faculty committee that sets the overall policy direction for the Center and assures coordination with the major transportation research and education groups on the various campuses. Members of the UCTC Executive Committee volunteer significant amounts of time to the Center. They meet in person at least once a year, and transact business in the interim through telephone conference calls and e-mail.

The Executive Committee consists of the UCTC Director, the directors of the four Institutes of Transportation Studies or their representatives, the director of the Institute of Urban and Regional Development or her representative, and faculty representatives of the major transportation degree-granting programs in the UC system. This representative membership facilitates information exchange about education programs, recruiting, and other academic matters and aids in the coordination of research among the campuses and research units. Members of the Executive Committee for 2003-2004 were:

Jean Daniel Saphores, Asst. Prof. of Policy, Planning and Design, , UC Irvine
Robert Cervero, Prof. of City & Regional Planning, UC Berkeley
Randall Crane, Assoc. Prof. of Urban Planning, UC Los Angeles
Elizabeth Deakin, UCTC Director, Prof. of City & Regional Planning, UC Berkeley
Susan Handy, Assoc. Prof. of Environmental. Science & Policy, UC Davis
Charles Lave, Prof. Emeritus of Economics, UC Irvine
Samer Madanat, Prof. of Civil & Environmental Engineering, UC Berkeley
Patricia Mokhtarian, Prof. of Civil and Environmental Engineering, UC Davis
Will Recker, Director, Institute of Transportation Studies, UC Irvine
Amelia Regan, Assoc. Prof. of Computer Science Systems, UC Irvine

Daniel Sperling, Director, Institute of Transportation Studies, Davis
Brian Taylor, Asst. Prof. of Urban Planning, UC Los Angeles
Martin Wachs, Director, Institute of Transportation Studies, Berkeley

The Executive Committee is responsible for establishing the theme for the Center and reviewing it from time to time, allocating funds among research, education, and technology transfer programs, determining subject matter priorities for research funding, setting rules for allowable expenditures on research projects, and making final recommendations on research awards. In addition, the Executive Committee conducts an annual review of the Center's overall performance and resources, and redirects funds allocations and activities as necessary. When the Directorship of the UCTC becomes vacant, the Executive Committee conducts the search and recommends a Director to the Office of the President of the University, which so far has always acted favorably on the Executive Committee's recommendations.

The Executive Committee's time is donated.

Center Faculty

Faculty affiliates of the UCTC include individuals throughout the UC system who participate in the research, teaching, and continuing education programs funded by the UCTC. We maintain contact with our faculty affiliates by inviting them to participate in our research, education, and technology transfer programs, by coordinating UCTC research with other research activities these faculty members are conducting, and by providing them with publications and other information services. Table 1 lists current faculty affiliates. The list is updated annually and is posted on the UCTC website, www.uctc.net, with full addresses, telephone and fax numbers, and email addresses.

Staff

The UCTC staff consists of the director (half time) plus one administrative staff member, part time student assistants, and a half time staff editor, plus contract webmasters and accounting staff and an emeritus faculty member who is paid a nominal sum for his time as editor of ACCESS. The staff members in 2003-2004 were:

Elizabeth Deakin, Associate Professor of City and Regional Planning, Director (half time)

Diane Sutch, Administrator (retired June 2004). Ms. Sutch handled budgets and administration for the Center until her retirement.

Melanie Curry, Editor (half time). Ms. Curry is the managing editor responsible for ACCESS, UCTC's twice-yearly magazine.

Melvin Webber, Professor Emeritus of City and Regional Planning, UC Berkeley and former Director of UCTC. Prof. Webber was the creator of ACCESS magazine and serves as its editor in chief.

Michael Harvey, Webmaster (25-50% time as needed)

Danielle Hutchings and **Angel Lu**, student assistants (25-50% time), handled publications requests.

Accounting Staff – as needed (1 FTE total, individuals vary.)

Table 1. UCTC Faculty Affiliates

First Name	Last Name	Address	City / Campus
Matthew J.	Barth	Ctr. for Environmental Research	Riverside
Antonio M.	Bento	Donald Bren School of Env. Sci. & Mgmt.	Santa Barbara
Evelyn	Blumenberg	Urban Planning	Los Angeles
Marlon G.	Boarnet	Urban and Regional Planning	Irvine
Peter C.	Bosselman	Dept. of City & Regional Plan.	Berkeley
David	Brownstone	Economics	Irvine
David	Bunch	Management	Davis
Andrew F.	Burke	Transportation Studies	Davis
Michael J.	Cassidy	Civil & Environmental Engineering	Berkeley
Robert	Cervero	City & Regional Planning	Berkeley
Ted	Chang	Civil & Environmental Engineering, UC Davis	Davis
Karen	Chapple	City & Regional Planning	Berkeley
Ted	Chira-Chavala	ITS Extension - 452 RFS	Berkeley
William A.V.	Clark	Geography-1255 Bunche Hall	Los Angeles
Linda	Cohen	Dept. of Economics	Irvine
Theodore E.	Cohn	Optometry	Berkeley
Randall D.	Crane	Lewis Ctr. for Regional Studies	Los Angeles
Carlos	Daganzo	Civil & Environmental Engr.	Berkeley
Joy	Dahlgren	PATH-RFS Bldg. 452	Richmond
Kristen	Day	Urban and Regional Planning	Irvine
Karen K.	De Valois	Psych., Vision Sci. & Optometry	Berkeley
Elizabeth A.	Deakin	City and Regional Planning	Berkeley
Mark A.	Delucchi	Environmental Studies	Davis
Joseph	DiMento	Urban and Regional Planning	Irvine
Michael	Disch	Psychology	Berkeley
Harry A.	Dwyer	Mechanical & Aeronautical Engineering, UC Davis	Davis
Bryan	Ellickson	Dept. of Economics	Los Angeles
Wm. Ronald	Fawcett	Chemistry, UC Davis	Davis
Robert	Feenstra	Economics, UC Davis	Davis
J. Gordon	Fielding	Social Sciences	Irvine
Mark	Francis	Environmental Design, UC Davis	Davis
Andrew	Frank	Mechanical & Aeronautical Engineering, UC Davis	Davis
William L.	Garrison	Civil & Environmental Engineering	Berkeley
Bruce C.	Gates	Chem. Engineering & Mtrl. Science, UC Davis	Davis
David	Gillen	Inst. of Transportation Studies	Berkeley
Amihai	Glazer	Economics	Irvine
Steven	Goldman	Economics	Berkeley
Reginald G.	Golledge	Geography	Santa Barbara
Thomas	Golob	Transportation Studies	Irvine
Joanna R.	Groza	Chem. Engineering & Mtrl. Science, UC Davis	Davis
Judith	Gruber	Political Science	Berkeley
Peter	Hall	Urban and Regional Development	London
Susan	Handy	Environmental Science and Policy	Davis
Michael	Hanemann	Agr. & Res. Econ.	Berkeley

Table 1 cont.

Mark	Hansen	Civil Engineering	Berkeley
Robert	Harley	Civil Engineering	Berkeley
John	Harvey	Civil and Environmental Engineering	Davis
J. Karl	Hedrick	Mechanical Engineering	Berkeley
Wolfgang	Homburger	Inst. Transp. Studies	Berkeley
Arpad	Horvath	Civil & Env. Eng.	Berkeley
Linda	Howe-Steiger	ITS Extension - 452 RFS	Richmond
Judith	Innes	City and Regional Planning	Berkeley
Allan B.	Jacobs	City and Regional Planning	Berkeley
R.	Jayakrishnan	Civil Engineering	Irvine
Bryan M.	Jenkins	Bio. & Ag. Engineering, UC Davis	Davis
Robert A.	Johnston	One Shields Ave.	Davis
Adib	Kanafani	Chair, Civil & Environ. Engr.	Berkeley
Dean	Karnopp	Mechanical & Aeronaut. Engr.	Davis
Ryuichi	Kitamura	Transp. Engr., Davis (Prof., U Kyoto)	Davis
Michael	Kleeman	Civil & Environmental Engineering, UC Davis	Davis
Daniel B.	Klein	Dept. of Economics	Irvine
Jess	Kraus	Public Health-Epidemiology	Los Angeles
Kenneth	Kurani	Inst. Of Trans. Studies, Davis	Davis
John	Landis	City & Regional Planning	Berkeley
Charles A.	Lave	Dept. of Economics	Irvine
Robin	Liggett	Urban Planning	Los Angeles
Anastasia	Loukaitou-Sideris	Urban Planning	Los Angeles
John	Lysmer	Civil Engineering	Berkeley
Elizabeth	Macdonald	City and Regional Planning	Berkeley
Samer	Madanat	Civil & Environmental Engr.	Berkeley
Michael G.	McNally	Civil & Environ. Engineering	Irvine
James A.	Misener	PATH	Berkeley
Patricia	Mokhtarian	Civil & Environmental Engineering	Davis
Deb	Niemeier	Dept. of Civil & Environmental Engineering	Davis
Raymond W.	Novaco	Social Ecology	Irvine
Paul	Ong	3250 Public Policy Bldg.	Los Angeles
Christos	Papadimitriou	Computer Science - 689 Soda Hall	Berkeley
Nadesan	Permaul	Parking and Transportation	Berkeley
Steven C.	Pitts	Center for Labor Research and Education	Berkeley
John M.	Quigley	Public Policy	Berkeley
John	Radke	Landscape Department	Berkeley
David R.	Ragland	Public Health	Berkeley
Steven	Raphael	Public Policy	Berkeley
Will	Recker	Institute of Transportation Studies	Irvine
Amelia	Regan	Computer Sciences	Irvine
Stephen G.	Ritchie	Chair, Civil & Environ. Engr.	Irvine
David M.	Rocke	Management	Davis
Paul A.	Ruud	Economics	Berkeley

Table 1 cont.

Paul	Sabatier	Environmental Studies	Davis
Jean Daniel	Saphores	Planning	Irvine
Robert F.	Sawyer	Dept. of Mech. Engr.	Berkeley
Allen J.	Scott	Urban Planning	Los Angeles
Steven	Shladover	Deputy Dir., PATH-RFS Bldg. 452	Richmond
Donald C.	Shoup	Institute of Transportation Studies	Los Angeles
Alexander	Skabardonis	Department of Civil Engineering	Berkeley
Kenneth A.	Small	Dept. of Economics	Irvine
Michael	Southworth	City and Regional Planning	Berkeley
Robert C.	Spear	Public Health –EHS	Berkeley
Daniel	Sperling	Institute of Transportation Studies	Davis
Aaron	Steinfeld	PATH	Berkeley
Michael A.	Stoll	Policy Studies	Berkeley
Jayashankar	Swaminathan	Haas School of Business	Berkeley
Brian D.	Taylor	Urban Planning	Los Angeles
Thomas	Turrentine	UC Davis – ITS	Aptos
Karen	Valois	Psychology	Berkeley
Kurt	Van Dender	Economics	Irvine
Pravin	Varaiya	EECS - 271M Cory Hall	Berkeley
Steven A.	Velinsky	Mech. & Aero. Engineering, UC Davis	Davis
Martin	Wachs	Institute of Transportation Studies	Berkeley
Melvin	Webber	UC Transportation Center	Berkeley
Margaret	Weir	Sociology	Berkeley
Anthony	Wexler	Mech. & Aero. Engineering, UC Davis	Davis
Arthur	Winer	Public Health	Los Angeles
Candace	Yano	Chair, Ind. Engr. & Oper. Res. (IEOR)	Berkeley
YB	Yim	PATH Program	Richmond
Carol	Zabin	Center for Labor Research and Education	Berkeley
H. Michael	Zhang	Civ. & Environ. Engr.	Davis

Institutional Support

The UCTC depends upon the support of several academic departments and research institutes for most of its day-to-day operations. The departments and research institutes manage education grants, fellowship funds and research grants, and contribute the office and laboratory space, instructional facilities, computational equipment, accounting services and other administrative support needed to carry out these programs and activities. Most of this support is provided without charge. In addition, the University provides administrative services, but does not charge overhead on the portion of funds used for fellowships. To date the University also has waived overhead on matching funds from Caltrans, recognizing that Caltrans funds UCTC's administration and that Caltrans does not control the research agenda. It is only because the UCTC can rely on these university resources, and on Caltrans' substantial support, that we are able to devote most of our funding to the direct costs of research, education, and technology transfer.

The University also provides resources in the form of access to data centers, computer facilities, and libraries. The University is a federal data repository and has developed extensive capabilities to support the efficient retrieval and analysis of information from a variety of sources. A US Census Center at UC Berkeley makes this important data source far more accessible. Our computer facilities include advanced software for modeling, analysis, and data display. A major resource is the University of California library system. We are especially proud of the Harmer E. Davis Library of the Institute of Transportation Studies at Berkeley, which houses one of the largest collections of transportation materials in the world and provides a wide range of support services to UCTC faculty and student researchers on all campuses. ITS also provides publicity for UCTC events.

Faculty members' time commitments to research projects are another highly valuable resource provided to the UCTC. Faculty members typically hold nine-month (academic year) appointments that are fully funded by the University. They are expected to spend a substantial portion of this University time on research. Consequently, UCTC faculty grant recipients typically devote a third or more of their time during the academic year to their research projects. The UCTC itself funds only a portion of their summer salaries. For the past several years we have limited faculty payment on UCTC research to one summer month as a way of stretching our dollars and compensating, in part, for the RABA reductions in federal funds (and consequent loss of part of our state matching funds.) The UC-funded time on research multiplies the UCTC's salary support for research by a factor of three or four. Likewise, students with fellowships from the University, from NSF, and from a variety of other sources often participate in UCTC projects without being paid with UCTC funds.

Participation in the governance of the UCTC is a second way that faculty time is donated. Indeed, the willingness of faculty members and others to provide these services is critical to the Center's mode of operation. Faculty members serve on the Executive Committee, on committees that review fellowship applications and dissertation grant proposals, and on ad hoc committees formed to develop conferences, workshops, and other outreach activities.

California University Transportation Centers Coordinating Committee

Two other University Transportation Centers have been established in California, the Norman Y. Mineta International Institute for Transportation Policy Studies (the Mineta Center) at California State University, San Jose, and METRANS - the Center for Metropolitan Transportation Studies at the University of Southern California in Los Angeles. These two centers, like UCTC, receive matching

support from Caltrans. To coordinate our efforts, the Center Directors and key administrators meet together with Caltrans staff three times a year, with the meeting location rotating among campuses.

Other Partners

UCTC benefits from the advice and participation of transportation professionals drawn from a variety of public and private organizations. Over 200 individuals outside the UC system are on our reviewer list and over one-third of them participated in reviews during the 2003-2004 grant cycle. About half of the reviewers are from other universities; 20 percent are from federal, state and regional agencies, and thirty percent are from the private sector.

In addition, UCTC has received funding from several private firms to help support conferences and workshops.

ACCOMPLISHMENTS: EDUCATION, RESEARCH, TECH TRANSFER

Education Programs

Formal programs and concentrations in transportation are offered by the Berkeley, Davis, Irvine, and UCLA campuses' civil engineering, city and regional planning, economics, and public policy departments. Additional courses with significant transportation content are offered in other departments at these universities and at other campuses of the UC system, including Riverside, Santa Barbara, and San Diego. Computer science, energy resources, environmental studies, management, geography, political science, law, economics, sociology, mechanical engineering, electrical engineering, chemical engineering, operations research, architecture, landscape architecture, and urban design now include transportation topics in one or more courses, reflecting the increased faculty interest in transportation largely generated by the UCTC.

As a research unit, the UCTC does not itself offer courses, admit students, hire faculty, or award degrees; instead, we provide support to the academic departments and units that do carry out these functions in the UC system. This support is available both as direct funding for courses and through research opportunities, as many students receive course credit for participation in UCTC-funded faculty projects.

Course support may be requested by any campus offering a transportation degree or specialization. Faculty applications for course support are reviewed and approved by the Director, and may be for specialty courses, the development of a new course intended to become part of the curriculum, or the refinement or significant update of an existing course. In 2003-4, UCTC funding supported the refinement of new courses on transportation and the environment at UC Irvine, the refinement of a graduate course on Intelligent Transportation Systems and an undergraduate course on transportation planning at UC Berkeley, funded an undergraduate seminar at UCLA, and supported the offering of specialty seminars and short courses at UC Davis.

Graduate Programs

Ten formal degree graduate programs or concentrations in transportation are now offered in the UC system, with three each at Berkeley, Davis and Irvine, and one at UCLA. The civil and environmental engineering departments at Berkeley, Davis, and Irvine offer transportation engineering degrees. Programs in transportation planning and policy are offered at Berkeley, Davis, Irvine, and UCLA, and a concurrent degree program in transportation engineering and planning is also offered at Berkeley. At

Irvine, the Department of Economics administers an interdisciplinary doctoral program in transportation science. Davis has established an interdisciplinary program in Transportation Technology and Policy. Most recently, Santa Barbara has made hiring decisions that will position the campus to begin a formal transportation program in the near future.

The campuses have slightly different program emphases. The Davis transportation engineering program provides a focus on energy and air quality, and Irvine and Davis both emphasize demand analysis and travel behavior. Irvine also has an especially strong program in transportation economics. The Berkeley transportation program has strong offerings in traffic operations, logistics, systems analysis, and transportation science; Berkeley also has extensive offerings in transportation, land use, and urban design. UCLA is developing a specialty in equity and the transportation needs of low-income communities. Santa Barbara expects to work on GIS applications and advanced modeling.

Each of the campuses continues to maintain and improve their transportation programs, and to add new course offerings and programmatic specialties as opportunities arise. At Berkeley, a new, interdisciplinary Metropolitan Studies program is getting started. Its faculty are from planning, engineering, and political science and sociology. Transportation education will be a significant focus of this new initiative, and the first faculty hire will be in the area of infrastructure and the environment. Four additional new faculty hires will take place over the next several years.

While the other UC campuses do not have formal transportation programs, several campuses do offer courses and research opportunities in transportation. In particular, both UC Santa Barbara and UC Riverside have added transportation content to degree programs and to courses over the past several years.

Undergraduate Education Programs

UCTC funding for undergraduate education at the various campuses has continued to be focused on the development of new transportation courses. Undergraduate transportation courses offered with UCTC sponsorship have been well subscribed and well received, and have helped to spark interest in careers in transportation. A number of the undergraduates from these courses enroll in graduate transportation programs at UC or other top transportation programs.

During Year 16, the UCTC supported a the second offering of a new undergraduate transportation planning course at Berkeley and provided assistance to student recruitment efforts on all the campuses. The Berkeley campus's new undergraduate urban studies major, which includes three transportation courses, attracted over 50 students.

Continuing Education

Transportation courses and other education and training opportunities are offered through the ITS Extension (which operates statewide) and the Extension programs of the various campuses. These courses reach transportation professionals and others who need a better understanding of transportation to effectively carry out their work in fields such as air quality planning and land use planning. UCTC research is frequently included in short courses offered by the University Extension. The UCTC actively encourages researchers to participate in these activities and provides support for them to do so, to the extent that resources permit. In Fall 2003, several UCTC faculty affiliates, including Professors Martin Wachs, Brian Taylor, Elizabeth Deakin, and Randall Crane, participated in the transportation conference held at Lake Arrowhead, California, in cooperation with the UCLA Public Policy Extension and Caltrans.

Fellowships

US graduate students in the Berkeley, Davis, Irvine and UCLA transportation programs are eligible for UCTC fellowships, which provide support for university fees and living expenses and may be combined with part-time research appointments. Academic departments nominate the students on the basis of grades, test scores, letters of recommendation, and record of accomplishments. Students must demonstrate that they have an exceptional record and outstanding potential for a career in surface transportation to receive a UCTC fellowship. Overall fellowship funding is coordinated through the departments in accordance with University and departmental rules to assure an equitable distribution of financial support for top students, so that a student who is offered a transportation fellowship from another program is generally not awarded full UCTC funding.

In 2003-2004, the UCTC provided approximately \$610,000 in graduate student fellowships at the Berkeley, Davis, Irvine, and UCLA campuses. This accounted for about 34% of the total UCTC budget.

Graduate Student Research Appointments

Graduate student research appointments, not including transportation fellowship appointments, accounted for about 20% of the total UCTC budget in 2003-2004. Funding cuts necessitated the imposition of a general limitation on research project support for graduate student researchers (GSRs) to one half-time position per research project. Because some projects were carried over from the previous year and some students worked less than half time, we were able to support some 40 students as GSRs.

GSRs are considered to be junior colleagues of the principal investigator and other faculty participants and often play a major role in the actual conduct of the research. Graduate student contributions to research projects are acknowledged in any publication resulting from research funded in whole or in part by the Center. The acknowledgment can range from a footnote recognizing the student's participation and assistance to full co-authorship of reports and articles, depending upon the nature and extent of student contributions.

Doctoral Dissertation Grants

Each year, the UCTC offers ten doctoral dissertation grants of \$15,000 (plus indirect costs if applicable). Applicants must be students at the University of California and must be carrying out dissertation research on transportation topics consonant with UCTC's theme of systems analysis and policy. Applicants must have advanced to candidacy for the Ph.D. degree prior to the application deadline and must submit a brief synopsis of their dissertation proposal for review, along with a curriculum vita, graduate school transcripts, and a letter of nomination from the student's principal academic advisor. The pool of applications is reviewed by a committee of faculty and/or recent PhDs from several UC campuses, appointed by the UCTC Director. Grants are awarded on the basis of reviewers' assessments of the originality and significance of the research topic, the applicant's overall record of academic and professional accomplishment, and the relevance of the research topic to current issues in transportation policy. Applications for the grants are due April 1 for funding the next fall, and November 1 for funding in the winter/spring term. The RFP for dissertation grants is maintained on the UCTC website, and notices of impending due dates are sent to faculty associates for distribution.

The dissertation grant abstracts are listed on our website along with faculty research projects.

Student of the Year

Each year UCTC Executive Committee members choose a Student of the Year, who is awarded \$1000 and the costs to attend the award ceremony held during the annual meeting of the Transportation Research Board (TRB) in Washington, DC each January.

Lisa Sweitzer won the UCTC's student of the year award for 2003-2004. Lisa received her PhD in Urban Planning from UCLA in June and is now an assistant professor of city and regional planning at Virginia Tech.

Tracking Alumni

During the 2003-2004 academic year, in consultation with administrators at the degree-offering departments at the four campuses, we completed the development of our system for tracking transportation students and alumni in programs on the four campuses that grant transportation degrees, and expanded the system to transportation alumni from other UC campuses. The tracking system was co-funded by the UC Office of the President and the UCTC and was developed under the direction of Lyn Long of the UC Irvine campus. The website can be found at <http://transalum.its.uci.edu/>

Research Programs

A substantial portion of the UCTC's work is devoted to the solicitation of research proposals, proposal review, selection of projects, and performance monitoring. In Year 16 we again maintained a high level of interest in our program, as indicated by the 26 faculty proposals and 31 PhD dissertation grant applications received. We were able to fund less than half of these proposals.

The research funded by the UCTC must respond to the Center's theme, transportation systems analysis and policy. The UCTC Director and Executive Committee annually review our research selection procedures to evaluate their objectivity and fairness, and make adjustments as appropriate. We also meet to discuss our theme and the scope and mix of the projects we are funding, and from time to time issue special calls for research on particular topics to improve the overall balance and policy relevance of the UCTC research program or to respond to particular concerns of the state DOT or MPOs.

The UCTC's success in research relies upon a carefully managed solicitation and project selection process, designed to support creative and innovative work on a variety of topics relevant to current and emerging policy needs, and to communicate our results to a broad audience. The process for dissertation research grants was described under the educational programs. For faculty research, the general procedure for project awards is as follows.

Research Solicitation Process

UCTC makes research project awards either to individuals or to teams of researchers. The Principal Investigator must be a faculty member within the UC System; researchers from universities outside the University of California may be included through a subcontract with the PI's campus.

The UCTC request for proposals (RFP) is maintained on our website. About two months before proposals are due, we send an email notification to faculty members on our associates list as well as to deans,

department heads, and research directors for circulation to their faculty. The deadline for faculty proposals for this grant cycle was March 15.

Each proposal must be prepared in two parts. Part A is a description of the proposed research. Part B includes the vita of the principal investigator, a summary of accomplishments from the applicant's past UCTC research grants (if any), including a list of working papers and other publications produced, and a statement identifying any research funding from other organizations for work on the topic of the proposal. (Multiple sponsors are encouraged, as they expand the feasible scope of the research that can be supported with UCTC funds.) An itemized budget is also included in Part B.

Due to funding reductions, budget restrictions have been in place since 1999-2000. Summer salary for faculty is limited to one month and most projects are limited to one graduate student researcher or undergraduate intern for the academic year. Costs of supplies, postage, computer expenses, travel, etc. are limited to \$1500 unless additional, itemized expenses were justified as necessary for the conduct of the research. Secretarial and clerical support services are not allowed

The proposals received in response to the RFP for this grant cycle came from five UC campuses and 12 departments.

Proposal Review Process

All faculty research proposals undergo confidential external review by transportation experts - university researchers and practicing professionals drawn from public organizations and private firms. The UCTC Director selects three or four persons to review each proposal; three completed reviews are required for each proposal. Additional reviewers are sought if those initially contacted are unable to complete their reviews in a timely fashion.

Reviewers are chosen based on their expertise with the subject matter of the proposal. A reviewer list of over 200 individuals is maintained and includes experts from universities, government (the US DOT, other federal agencies, Caltrans, other state agencies, regional agencies, local government), nonprofits (research groups, foundations) and private for-profit organizations. This year 78 individuals served as reviewers with 38 from universities, 15 from private firms, 10 from Caltrans, and 5 from nonprofits, and 10 from other government agencies.

External reviewers are asked to consider the following in their written evaluations:

- Extent to which the proposed research is original or creative and an important intellectual contribution to transportation scholarship
- Extent to which this research will advance professional practice or inform public opinion
- Appropriateness of the research methodology to the research question
- Appropriateness and feasibility of the data collection plan.
- Any other issues the reviewer deems important.

The Director and staff review the staffing plan and budget for compliance with UCTC rules, and consider the reasonableness of any special budget requests (e.g., additional direct expenses such as travel costs, survey costs, testing, etc.)

Project Selection Process

Reviews are compiled and sorted into three categories: Definitely Fund, Consider Funding, and Do Not Fund. For proposals ranked in the middle category, additional reviews are conducted by a panel of three outside experts, who advise the Director on the ranking of these proposals. The Executive Committee is then given a preliminary list of proposals to be funded. Executive Committee members comment on each PI's past performance on UCTC-funded projects (if any) and evaluate the overall fit of the proposed work to the UCTC theme. The UCTC Director then uses the reviews, the outside experts' recommendations, and the Executive Committee's comments in making the final selection of projects for funding. In making the final choices, the Director takes into account the desirability of continuing an ongoing research project into a second phase, versus initiating research on a new topic of importance.

The Director may require changes on some proposals, for example, to fund selected tasks only or to seek revisions in response to reviewers' comments. Further, the Director may provide "seed funding" to proposals in the middle-ranked category. These small grants allow a researcher to begin the investigation of the research topic and further develop the ideas and approach, with the possibility of applying for additional funds in later years.

As in previous years, we received more highly rated proposals than available funds could support. Our outside reviewers rated all but two of the proposals as very good (16) or excellent (8). However, we were able to fund or partly fund only 10 of the 24 highly ranked proposals. (See the Research Status Reports section for descriptions of these projects and the work to date.)

Research Performance Tracking

The UCTC Director and administrator monitor research performance through periodic progress reports as well as through informal communications with researchers. We expect UCTC-funded researchers to publish their results, and consider their publication record in any subsequent applications for UCTC funding. We also provide funding for researchers to present their work at conferences and symposia, reprint papers sponsored by UCTC, and publish research in the form of working papers, and final reports, web page postings, and ACCESS magazine articles.

Our success in producing innovative, policy-relevant results is demonstrated by their use in practice. We count the following among the indicators of the success of our transportation research:

- adoption of UCTC-developed analysis methods
- use of UCTC-developed databases
- appointment of UCTC researchers to important policy-making and advisory positions
- invitations for UCTC researchers to testify before elected and appointed officials
- requests for UCTC researchers to participate in meetings, briefings, and other collaborative activities and exchanges
- requests for UCTC researchers to provide technical assistance to government or the private sector
- changes in federal, state, regional and local transportation policies following recommendations based on UCTC research.

Our research results also have proven useful to other researchers in academia, government, and the private sector, both here and abroad, as evidenced by academic awards, citations in the literature, invitations to organize and participate in important conferences and meetings, requests for guest lectures,

and other collaborative activities and exchanges. Faculty members testify before Congress and the State Legislature, advise regional planning agencies, and assist private firms in improving their practices, drawing in each case upon their UCTC research.

Technology Transfer

The UCTC's technology transfer aims for the availability of research results in a form that a variety of users can readily apply. We view technology transfer as including publications, both on the web and in hard copy; continuing education offerings; conferences and symposia; policy advising and public service; and outreach efforts to business and community groups and the general public. Our ultimate objectives are to increase public understanding of transportation problems and opportunities for improvement, and to produce a cadre of skilled, creative, connected transportation professionals who will effectively address these problems and develop innovations and improvements.

The UCTC encourages its researchers to engage in a variety of public service and professional activities, through which they communicate UCTC-funded research findings to a broad audience. These activities include appointments to committees and boards of federal, state, regional, and local transportation agencies; provision of expert testimony and advice to the Congress, State Legislatures, and regional and local bodies; technical assistance to public and private transportation organizations; and public service on transportation and related matters. When needed, the UCTC provides travel expenses or other support to enable faculty to provide these public services.

Our faculty and students regularly are asked to advise government and the private sector. The UCTC also provides information on transportation to the general public. We do this through faculty engagement in lectures, symposia and other events designed to inform the general public and through exchanges with the popular press designed to help educate a broader audience on transportation issues. We put special emphasis on our publication of working papers and our twice-yearly ACCESS magazine as ways of communicating our research results.

Publications

The UCTC considers publications to be a vital way to communicate our research findings. Each project funded by the UCTC ordinarily produces several papers and reports, which we disseminate both in hard copy and increasingly, on the Web. In addition, we produce the twice-yearly ACCESS Magazine, which summarizes UCTC-sponsored work in a style designed for a general audience.

In 2003-2004, our faculty associates added 108 publications to our list, bringing the total to 721 papers and reports. Table 2 lists the Year 16 publications. (For a full listing of publications, see the UCTC website.) In addition, we now list a dozen books and three videos produced with UCTC support. Graduate students also completed several dissertations funded with UCTC's assistance.

We distribute UCTC publications free of charge, and also make reprints of UCTC-funded journal articles available. Approximately 1000 requests for hard copies of papers and articles were filled in 2003-2004. Thanks to a project completed this year, almost all UCTC publications are now available over the web, and many copies of our papers and reports are obtained electronically. We received 27, 090 web hits this year; over 98,000 papers and reports were downloaded.

In addition, we have over 20,000 hard-copy subscribers to ACCESS magazine, and over 21,000 read ACCESS on the Web.

Conferences and Symposia

In addition to publishing all work supported by the Center, UCTC grant recipients are expected to participate in occasional UCTC-sponsored conferences and symposia, including the annual student conference sponsored by the UCTC. We expect UCTC researchers to give public lectures and seminars in the ongoing events series held at the four campuses, as well as in national and international meetings on transportation research and practice. Travel to conferences is supported as part of research grants, and additional travel grants are made on a case-by-case basis when funds are available.

Numerous UCTC affiliates participate each year in the annual meeting of the Transportation Research Board in Washington, DC. In addition, the UC Transportation Center jointly hosted a reception at TRB with other UC transportation groups, attended by over 300 faculty, students, and friends.

UCTC has been a major sponsor of two permanent conferences, the annual Lake Arrowhead Conference on the Transportation/Land Use/ Air Quality Connection and the biennial Asilomar Conference on Transportation and Energy Policy. These conferences bring together policy makers and opinion leaders in retreat settings to discuss critical policy issues facing the region. They have been widely cited as effective and influential. Several important pieces of transportation legislation, such as the California Employer Parking Cashout legislation and efforts to incorporate remote sensing of vehicular air pollutants into ongoing state pollution control programs, originated from discussions that have taken place at these conferences.

UCTC also helps faculty members to organize special research conferences and events as opportunities arise. Dinner seminars organized by the Institute of Urban and Regional Development at UC Berkeley and research seminars organized by the Institute of Transportation Studies at UC Davis have become regular events with UCTC support, and attract elected officials and public and private agency leaders as well as academics.

Finally, the UCTC student conference is an annual event of growing importance to the transportation community at the various campuses. Students at the UC Berkeley, Davis, Irvine and UCLA campuses take turns organizing the conference, which includes student presentations and poster sessions and allows transportation students and faculty from all of the UC campuses to meet and interact. Caltrans representatives also attend the conference and meet with students there. Students from the Mineta and METRANS transportation centers are invited to participate as well.

UCTC-Sponsored Conferences and Symposia, - 2003-2004

Transportation / Land Use / Air Quality Symposium, Lake Arrowhead, CA, Oct. 19-21, 2003

This year's Lake Arrowhead Fall Symposium, focusing on finance, was convened by the UCLA Extension Public Policy Program in association with UCTC and a number of government, private and nonprofit sponsors. Presentations and discussions examined the status of transportation finance in the US and in California and explored alternative approaches to transportation finance. The invitational retreat had 130 participants, including academics and researchers from UC and other universities, federal, state and local policy-makers and advisors, public agencies responsible for transportation and air quality;

environmental organizations; and private industry (including developers, utilities, and other industry groups.)

IURD Seminar Series, Berkeley, CA, Fall and Spring Semesters, 2003-2004

UCTC provided support for the Institute of Urban and Regional Development (IURD) Dinner Seminar Series. Each seminar brings together a small group of 20-30 faculty members, state and local elected officials, senior staff members from state and local agencies and the Legislature, and other interest group members to hear a talk about a current policy issue and to discuss the issue in depth. The seminars this fall addressed environmental concerns, development practices, and growth issues. Seminars in the Winter semester addressed the implementation of new transit-land development strategies, among other topics.

Transportation Research Board Annual Meeting, Washington, DC, January 2004

Nearly 40 faculty members and graduate students affiliated with UCTC presented papers at sessions of the annual meeting of the Transportation Research Board this January in Washington, DC. In addition, the UC Transportation Center jointly hosted a reception at TRB with its ITS partners from the Berkeley, Irvine, Davis, and LA campuses, the UC PATH program, the UC Center for Traffic Safety, and the National Center of Excellence for Aviation Operations Research. Over 300 faculty and students from all UC campuses, alumni of the UC transportation programs and UCTC, and friends from many other transportation centers and research groups joined us.

10th Annual UCTC Student Conference, Davis, CA, March 11-13, 2004

Students at Davis hosted the 10th Annual UCTC Student Research Conference in March 2004. The conference offers transportation students an opportunity to present their work and discuss research issues with other students and faculty. While an accident prevented Anthony Downs from giving the Mel Webber Lecture in person, his speech (in writing) was well received by the group. Joan Ogden of UC Davis served as luncheon speaker.

The Art of Modern Transit Station Design: Connecting People, Linking Modes and Invigorating Cities, Berkeley, CA, April 29-30, 2004

This symposium brought together award-winning designers, engineers, transportation professionals and academics to examine the design of the urban intermodal transit station, its evolving roles and functions, its artistic and civic character and the economic, political and cultural forces that shape it. The conference was the second in a series of University of California Transportation Research Center (UCTC) symposia on the design of transportation infrastructure.

Council of University Transportation Centers Annual Summer Meeting / University Transportation Center Directors Meeting, Berkeley, CA, June 9-11, 2004

The UCTC and the Institute of Transportation Studies, Berkeley, co-hosted the summer meetings of the UTCs from across the US.

Table 2. UCTC Publications, Year 16 – 2003-2004

Regan, Amelia C., and Jiongjiong Song	An Industry in Transition: Third Party Logistics in the Information Age	2003, Summer	634
Golob, Thomas F., and Amelia C. Regan	CVO Perspectives on the Usefulness of Various Sources of Traffic Information	2003, Summer	635
Song, Jiongjiong, and Amelia C. Regan	Transition or Transformation? Emerging Freight Transportation Intermediaries	2003, Summer	636
Song, Jiongjiong, and Amelia C. Regan	An Auction Based Collaborative Carrier Network	2003, Summer	637
Song, Jiongjiong, and Amelia C. Regan	Approximation Algorithms for the Bid Construction Problem in Combinatorial Auctions for the Procurement of Freight Transportation Contracts	2003, Summer	638
Golob, Thomas F., and Amelia C. Regan	Trucking Industry Preferences for Driver Traveler Information Using Wireless Internet-enabled Devices	2003, Summer	639
Song, Jiongjiong, and Amelia C. Regan	Combinatorial Auctions for Transportation Service Procurement: The Carrier Perspective	2003, Summer	640
Wang, Chuanxu, and Amelia C. Regan	Reducing Risks in Logistics Outsourcing	2003, Summer	641
Daganzo, Carlos, and Karen R. Smilowitz	Asymptotic Approximations for the Transportation LP and Other Scalable Network Problems	2003, Summer	642
Forster, Paul W., and Amelia C. Regan	Electronic Integration in the Air Cargo Industry: An Information Processing Model of On-Time Performance	2003, Summer	643
Goldman, Todd, and Martin Wachs	A Quiet Revolution in Transportation Finance: The Rise of Local Option Transportation Taxes	2003, Summer	644
Zhou, Jianyu (Jack), and Reginald Golledge	An Analysis of Variability of Travel Behavior within One-Week Period Based on GPS	2003, Summer	645
Blumenberg, Evelyn, and Kimiko Shiki	How Welfare Recipients Travel on Public Transit, and Their Accessibility to Employment Outside Large Urban Centers	2003, Summer	646
Boarnet, Marlon G., and Saksith Chalermpong	New Highways, House Prices, and Urban Development: A Case Study of Toll Roads in Orange County, CA	2003, Summer	647
Cervero, Robert	Induced Demand: An Urban and Metropolitan Perspective	2003, Summer	648
Atamtürk, Alper, and Juan Carlos Muñoz	A Study of the Lot-Sizing Polytope	2003, Summer	649
Kim, Taewan, and H. Michael Zhang	An Empirical Study of the Time Gap and its Relation to the Fundamental Diagram	2003, Summer	650
Li, Jianling, and Martin Wachs	The Effects of Federal Transit Subsidy Policy on Investment Decisions: The Case of San Francisco's Geary Corridor	2003, Summer	651
Houston, Douglas, and Paul M. Ong	Child Care Availability and Usage Among Welfare Recipients	2003, Summer	652
Ong, Paul M., and Douglas Houston	Spatial and Transportation Mismatch in Los Angeles	2003, Summer	653

Ong, Paul M., and Hyun-Gun Sung	Exploratory Study of Spatial Variation in Car Insurance Premiums, Traffic Volume and Vehicle Accidents	2003, Summer	654
Blumenberg, Evelyn, and Kimiko Shiki	Spatial Mismatch Outside of Large Urban Areas: An Analysis of Welfare Recipients in Fresno County, California	2003, Summer	655
Verhoef, Erik T., and Kenneth A. Small	Product Differentiation on Roads: Constrained Congestion Pricing with Heterogeneous Users	2003, Summer	656
Brown, Jeffrey	Statewide Transportation Planning: Lessons from California	2003, Summer	657
Brown, Jeffrey	Statewide Transportation Planning in California: Past Experience and Lessons for the Future	2003, Summer	658
Brown, Jeffrey	A Tale of Two Visions: Harland Bartholomew, Robert Moses, and the Development of the American Freeway	2003, Summer	659
Nombela, Gustavo, and Ginés de Rus	Flexible-Term Contracts for Road Franchising	2003, Summer	660
Zheng, Yi, Bo Wang, H. Michael Zhang, and Debbie Niemeier	A New Gridding Method for Zonal Travel Activity and Emissions Using Bicubic Spline Interpolation	2003, Summer	661
Zhang, H. Michael, and T. Kim	A Car-Following Theory for Multiphase Vehicular Traffic Flow	2003, Summer	662
Zhang, H. Michael, and T. Kim	Understanding and Modeling Driver Behavior in Dense Traffic Flow	2003, Summer	663
Cassidy, Michael J., and Shadi B. Anani	Stationary Models of Unqueued Freeway Traffic and Some Effects of Freeway Geometry	2003, Summer	664
Clark, William A.V., and Youqin Huang	Black and White Commuting Behavior in a Large Segregated City: Evidence from Atlanta	2003, Fall	665
Nixon, Hilary, and Jean-Daniel Saphores	Used Oil Policies to Protect the Environment: An Overview of Canadian Experiences	2003, Fall	666
De Valois, Karen K., Tatsuto Takeuchi, and Michael Disch	Judging the Speed of Pedestrians and Bicycles at Night	2003, Fall	667
Brownstone, David, and Kenneth A. Small	Valuing Time and Reliability: Assessing the Evidence from Road Pricing Demonstrations	2003, Fall	668
Reilly, Michael, and John Landis	The Influence of Built-Form and Land Use on Mode Choice	2003, Fall	669
Mokhtarian, Patricia L., Gustavo O. Collantes, and Carsten Gertz	Telecommuting, Residential Location, and Commute Distance Traveled: Evidence from State of California Employees	2003, Fall	670
Nixon, Hilary, and Jean-Daniel Saphores	The Impacts of Motor Vehicle Operation on Water Quality: A Preliminary Assessment	2003, Fall	671
Golob, Thomas F., and Amelia C. Regan	Surveying and Modeling Trucking Industry Perceptions, Preferences and Behavior	2003, Fall	672
Song, Jiongjiong, and Amelia C. Regan	Combinatorial Auctions for Trucking Service Procurement: An Examination of Carrier Bidding Policies	2003, Fall	673
Steimetz, Seiji S.C., and David Brownstone	Heterogeneity in Commuters' "Value of Time" with Noisy Data: a Multiple Imputation Approach	2003, Fall	674

Golob, Thomas F., and Amelia C. Regan	Truck-Involved Crashes and Traffic Levels on Urban Freeways	2003, Fall	675
Boarnet, Marlon G., Kristen Day, and Craig Anderson	Evaluation of the California Safe Routes to School Construction Program	2003, Fall	676
Lam, Terence C., and Kenneth A. Small	The Value of Time and Reliability: Measurement from a Value Pricing Experiment	2003, Fall	677
Taylor, Brian D.	When Finance Leads to Planning: Urban Planning, Highway Planning, and Metropolitan Freeways in California	2003, Fall	678
Prozzi, Jorge A., and Samer Madanat	Analysis of Experimental Pavement Failure Data Using Duration Models	2003, Fall	679
Brown, Jeffrey, Daniel Baldwin Hess, and Donald Shoup	BruinGo: An Evaluation	2003, Fall	680
Taylor, Brian D., and Camille N. Y. Fink	The Factors Influencing Transit Ridership: A Review and Analysis of the Ridership Literature	2003, Fall	681
Taylor, Brian D., Douglas Miller, Hiroyuki Iseki, and Camille Fink	Analyzing the Determinants of Transit Ridership Using a Two-Stage Least Squares Regression on a National Sample of Urbanized Areas	2003, Fall	682
Horvath, Arpad	Life-Cycle Environmental and Economic Assessment of Using Recycled Materials for Asphalt Pavements	2003, Fall	683
Holzer, Harry J., John M. Quigley, and Steven Raphael	Public Transit and the Spatial Distribution of Minority Employment: Evidence from a Natural Experiment	2003, Fall	684
Raphael, Steven, and Michael Stoll	Can Boosting Minority Car-Ownership Rates Narrow Inter-Racial Employment Gaps?	2003, Fall	685
Brown, Jeffrey, Daniel Baldwin Hess, and Donald Shoup	Fare-Free Public Transit at Universities: An Evaluation	2003, Fall	686
Sperling, Daniel	Cleaner Vehicles - Handbook 4: Transport and the Environment	2003, Fall	687
Sperling, Daniel, and Eileen Clausen	The Developing World's Motorization Challenge	2003, Fall	688
Sperling, Daniel	FreedomCAR and Fuel Cells: Toward the Hydrogen Economy?	2003, Fall	689
Lipman, Todd, and Daniel Sperling	Market Concepts, Competing Technologies and Cost Challenges for Automotive and Stationary Applications	2003, Fall	690
Sperling, Daniel, and Deborah Salon	Transportation in Developing Countries: An Overview of Greenhouse Gas Reduction Strategies	2003, Fall	691
Kean, Andrew J., Robert A. Harley, and Gary R. Kendall	Effects of Vehicle Speed and Engine Load on Motor Vehicle Emissions	2003, Fall	692
McNally, Michael G., and Ming S. Lee	Putting Behavior in Household Travel Behavior Data: An Interactive GIS-Based Survey via the Internet	2003, Fall	693
Lee, Ming S., Jin-Hyuk Chung, and Michael G. McNally	An Empirical Investigation of the Underlying Behavioral Processes of Trip Chaining	2003, Fall	694
Lee, Ming S., and Michael G. McNally	On the Structure of Weekly Activity/Travel Patterns	2003, Fall	695

Lee, Ming S., Ramesh Sabetiashraf, Sean T. Doherty, Craig R. Rindt, and Michael G. McNally	Conducting an Interactive Survey of Household Weekly Activities via Internet: Preliminary Results from a Pilot Study	2003, Fall	696
Schipper, Lee, Elizabeth Deakin, and Daniel Sperling	Sustainable Transportation: The Future of the Automobile in an Environmentally Constrained World	2003, Fall	697
Taylor, Brian D., Mark Garrett, and Hiroyuki Iseki	Measuring Cost Variability in Provision of Transit Service	2003, Fall	698
Law, Philip, and Brian D. Taylor	Shelter from the Storm: Optimizing Distribution of Bus Stop Shelters in Los Angeles	2003, Fall	699
Iseki, Hiroyuki, and Brian D. Taylor	The Demographics of Public Transit Subsidies: A Case Study of Los Angeles	2003, Fall	700
Garrett, Mark, and Brian D. Taylor	Reconsidering Social Equity in Public Transit	2003, Fall	701
Taylor, Brian D., Hiroyuki Iseki, and Mark Garrett	How Much Does a Transit Trip Cost?	2003, Fall	702
Luhrsen, Kurt F., and Brian D. Taylor	The High Cost of Flat Fares: An Examination of Ridership Demographics and Fare Policy at the Los Angeles MTA	2003, Fall	703
Taylor, Brian D., Martin Wachs, Kurt Luhrsen, Lewison Lee Lem, Eugene Kim, and Michael Mauch	Variations in Fare Payment and Public Subsidy by Race and Ethnicity: An Examination of the Los Angeles MTA	2003, Fall	704
Taylor, Brian D., Mark Garrett, and Hiroyuki Iseki	Measuring the Effects of Peaking, Vehicle Capital, and Passenger Capacity on the Cost of Providing Transit Service	2003, Fall	705
Boarnet, Marlon G.	The Built Environment and Physical Activity: Empirical Methods and Data Resource	2004, Spring	706
Daganzo, Carlos F., Jorge Laval, and Juan Carlos Muñoz	Some Idea for Freeway Congestion Mitigation with Advanced Technologies	2004, Spring	707
Smilowitz, Karen R., Alper Atamturk, and Carlos F. Daganzo	Deferred Item and Vehicle Routing within Integrated Networks	2004, Spring	708
Mauch, Michael, and Michael J. Cassidy	Freeway Traffic Oscillations: Observations and Predictions	2004, Spring	709
Kurani, Kenneth S., Thomas S. Turrentine, Reid R. Heffner, and Christopher Congleton	Prospecting the Future for Hydrogen Fuel Cell Vehicle Markets	2004, Spring	710
Choo, Sangho, Gustavo O. Collantes, and Patricia L. Mokhtarian	Wanting to Travel, More or Less: Exploring the Determinants of the Deficit and Surfeit of Personal Travel	2004, Spring	711
Muñoz, Juan Carlos, and Carlos F. Daganzo	Moving Bottlenecks: A Theory Grounded on Experimental Observation	2004, Spring	712
Cervero, Robert, and Michael Duncan	Walking, Bicycling, and Urban Landscapes: Evidence from the San Francisco Bay Area	2004, Spring	713
Erera, Alan L., Carlos F. Daganzo, and David J. Lovell	The Access Control Problem on Capacitated FIFO Networks with Unique O-D Paths is Hard	2004, Spring	714
Regan, Amelia C., and Thomas F. Golob	Trucking Industry Demand for Urban Shared Use Freight Terminals	2004, Spring	715

Park, Minyoung, and Amelia Regan	Issues in Emerging Home Delivery Operations	2004, Spring	716
Daganzo, Carlos F.	Reversibility of the Time-Dependent Shortest Path Problem	2004, Spring	717
Sperling, Daniel	Toward Effective Transportation Policy	2004, Spring	718
Shirazi, Elham, and Brian Taylor	Overview of Strategies for Making Connections Between Transportation, Land Use and Air Quality	2004, Spring	719
Zhou, Jianyu (Jack), and Reginald Golledge	Real-time Tracking of Activity Scheduling/Schedule Execution Within A Unified Data Collection Framework	2004, Spring	720
Choo, Sangho, and Patricia L. Mokhtarian	What Type of Vehicle Do People Drive? The Role of Attitude and Lifestyle in Influencing Vehicle Type Choice	2004, Spring	721

RESEARCH PROJECT STATUS

Twenty-three faculty research projects have been underway – 13 projects carried over from Year 15 and 10 new projects funded in Year 16. All projects are one year grants that can be extended upon request of the Principal Investigator for a second year. Most commonly, extensions are requested when funding reaches the UC campus after the school term has already begun, making it difficult to arrange student appointments until the following term.

All 13 projects carried over from Year 15 were completed this year. However, because of late receipt of funds from the state, all Year 16 projects were extended for a second year and will be continuing in 2004-2005.

Table 3 lists the Year 15 projects completed this year, and Table 4 lists the projects awarded this year. Following the tables are project status reports for all of the faculty research projects underway at UCTC in Year 15. The reports cover performance through July 31, 2004.

Table 3. Year 15 (2002-2003) Research Projects Completed in 2003-2004 (13 Projects)

Expanded Evaluation of the California Safe Routes to School Program

Marlon Boarnet, Kristen Day, and Craig Anderson, UC Irvine

Verifying Regularities in Queued Freeway Traffic

Michael Cassidy, UC Berkeley

Commuter Rail, Land Use and Travel Behavior

Robert Cervero, UC Berkeley

Comparing White and Minority Household Commuter Behavior

William Clark, UC Berkeley

Storage System Dynamics and Management Policies

Carlos Daganzo, UC Berkeley

High-Coverage Point-to-Point Transit

R. Jayakrishnan, UC Irvine

Handheld Travel Survey Technology to Supplement Vehicle Tracking

Michael McNally, UC Irvine

I/O Analysis of Communications and Travel for Industry

Patricia Mokhtarian, UC Davis

Public Transit and Residential Location Choices of Minorities and Transit Dependents

John Quigley and Stephen Rafael, UC Berkeley

An Evaluation of Employer-Based Transit Programs

Donald Shoup, UCLA

Effects of Contracting on Fixed-Route Bus Cost-Efficiency

Brian Taylor, UCLA, and Martin Wachs, UC Berkeley

Exploring the Marketability of Fuel-Cell Electric Vehicles

Thomas Turrentine, UC Davis

Theoretical and Empirical Investigations of Traffic Flow at Highway Merges

Michael Zhang, M., UC Davis

Table 4. Year 16 (2003-2004) Research Projects (10 Projects)

Experiments to Increase Freeway Merge Capacity

Michael Cassidy, UC Berkeley

Amber Alert Policy: Laboratory Experiments to Improve a Policy

Theodore Cohn, UC Berkeley

Improved Developer Models for the Sacramento Region

Robert Johnston, UC Davis

Death on the Crosswalk: A Study of Pedestrian Accidents in Los Angeles:

Anastasia Loukaitou-Sideris, UCLA

Aggregate Structural Equations Modeling of the Relationships Between Consumer Expenditures on Communications and on Travel

Patricia Mokhtarian, UC Davis

Auctions for the Procurement of Transportation Service Contracts

Amelia Regan, UC Irvine

Identification and Measurement of Freeway Congestion

Alexander Skabardonis, UC Berkeley

Capacity Provision and Pricing in Road Transport Networks in an Imperfectly Competitive Economy

Kurt Van Dender, UC Irvine

Family Caregivers, the Elderly, and Land-Use: An Evaluation of Transportation in Two California Communities

Martin Wachs, UC Berkeley

Transportation Policy Development: Labor as a Missing Stakeholder

Margaret Weir, UC Berkeley

PROJECT STATUS REPORTS

Year 15 Projects Completed in Year 16 (2003-2004) – 13 Projects

Expanded Evaluation of the California Safe Routes to School Program

Principal Investigator: Marlon Boarnet Institute of Transportation Studies University of California, Irvine Irvine, CA 92697-3600 Tel. 949 824-7695 Email: mgboarne@uci.edu	Other Key Participants: Kristen Day Institute of Transportation Studies University of California, Irvine Irvine, CA 92697-3600 Tel. 949 824-5880 Email: kday@uci.edu
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Abstract: This research expands an ongoing pre- and post-evaluation of the California Safe Routes to School (SR2S) construction program, which allocates \$44 million to local governments for infrastructure projects to improve the safety and feasibility of walking and bicycling to school. We are evaluating 12 SR2S sites in Southern California and sites in Northern California. The research includes: (1) assessment of changes to SR2S sites that are associated with the construction program; (2) observations of pedestrian, bicyclist, and driver behavior before and after SR2S construction at each site; and (3) surveys of parents before and after SR2S construction at each site to assess attitudes and perceptions of safety. The evaluation examines the effectiveness of different neighborhood and traffic interventions in improving the safety of children's non-motorized travel near schools, the frequency of walking and bicycling among children, and the interaction between perceived safety, traffic patterns, the physical environment, and walking and bicycling behavior. **Key Words:** school, pedestrian, bicycle, safety, sidewalks

Work Completed to Date:

Project completed

Papers to Date:

- UCTC Final Report #51
- Boarnet, Marlon G., Kristen Day, and Craig Anderson, Evaluation of the California Safe Routes to School Construction Program, UCTC #676, 2003, Fall.

Conferences Attended:

Transportation Research Board Annual Meeting, 2003, 2004; Assn. of Collegiate Schools of Planning Annual Meeting 2002, 2003

Other Accomplishments:

None to date

Percent Complete: 100%

Direct Cost: \$62,690

Verifying Regularities in Queued Freeway Traffic

Principal Investigator:

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Abstract: This work seeks to make sense of at least two puzzling phenomena of queued freeway traffic: 1) stop-and-go oscillations and 2) the wide scatter invariably observed in plots of queued flows vs. density or occupancy. Recent (preliminary) evidence suggests these are not the results of chaotic driver behavior as has been commonly theorized, but to behaviors that are more regular and easily explained. By measuring queued freeway traffic from video and processing these data in careful ways, we expect to verify that stop and go oscillations are created by the vehicle lane-changing maneuvers that abound near ramps. The details of this suspected cause and effect relation are examined. We further expect to confirm that the scatter observed in flow-density plots is merely the result of extracting (and plotting) data from transition zones between queued and un-queued traffic; these zones may be (spatially) long and likely arise because drivers respond to shocks by changing speeds gradually. The findings should advance current understanding of vehicular traffic and help sort-out which theories adequately describe certain traffic phenomena and which phenomena are not yet described by theory. **Key Words:** traffic theory, queues, freeway on-ramps.

Work Completed to Date:

Project Completed

Papers to Date:

- UCTC Final Report #52
- Cassidy, Michael J., and Shadi B. Anani, Stationary Models of Unqueued Freeway Traffic and Some Effects of Freeway Geometry, UCTC #664, 2003, Summer.

Conferences Attended:

Transportation Research Board Annual Meeting, 2003, 2004

Other Accomplishments:

None to date

Percent Complete: 100%

Direct Cost: \$50,614

Neighborhood Design, Physical Activity, and Travel

Principal Investigator:

Robert Cervero

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Abstract: There's a growing interest in the relationships among neighborhood design, physical activity, and travel choices. Research has linked obesity and other public-health problems to sedentary lifestyles. Some evidence further suggests that postwar residential designs are associated with increased reliance on automobile travel and low levels of walking and cycling. This project will use the BATS 2000 (activity based) survey to extract trip records for limited trip purposes over limited trip ranges – e.g., personal services, convenience-neighborhood shopping, eating, social-recreation, and school travel (over 0 to 5 mile distance ranges). Mode choice for these short trips will be investigated, using metrics that capture walking-scale attributes of built environments – namely street connectivity and block dimensions - along with land-use data and density measures, other attributes of built-environments.. **Key**

Words: public health, biking, walking, mode choice

Work Completed to Date:

Project completed

Papers to Date:

- UCTC Final Report #53
- Cervero, Robert, and Michael Duncan, Walking, Bicycling, and Urban Landscapes: Evidence from the San Francisco Bay Area, UCTC #713, 2004, Spring.

Conferences Attended:

Transportation Research Board Annual Meeting, 2003, 2004; Assn. of Collegiate Schools of Planning Annual Meeting 2002, 2003

Other Accomplishments:

None to date

Percent Complete: 100%

Direct Cost: \$15,000

Comparing White and Minority Household Commuting Behavior: Measuring the Differences

Principal Investigator:

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Abstract: Previous research developed a model of the responses to work-residence separation that linked the probability of moving closer to the job to increasing distance from the work place. Households beyond a threshold distance moved closer to the job when they changed residence. The current project uses that model to examine the commuting behavior of white and minority households, and is specifically interested in how race affects the probability of moving closer to the job when households change residence. Do black, Hispanic and Asian households also move closer to their jobs when they relocate? Do black and Hispanic households who have “constrained” residential choices incur greater commuting costs which arise from the greater spatial separation. The project uses a specialized data set of work residence relationships from the Fulton County school district to examine the patterns of commutes of middle income households, and their dispersed commuting in the Atlanta metropolitan region. The study will provide important new data, on how relatively affluent minority households make commuting decisions in a complex metropolitan environment. **Key Words:** commuting behavior, commuting costs, spatial separation, dispersed commuting

Work Completed to Date:

Project completed

Papers to Date:

- UCTC Final Report #54
- Clark, William A.V., and Youqin Huang, Black and White Commuting Behavior in a Large Segregated City: Evidence from Atlanta, UCTC #665, 2003, Fall.

Conferences Attended:

Transportation Research Board Annual Meeting, 2003, American Assn. of Geographers 2002, 2003

Other Accomplishments:

None to date

Percent Complete: 50%

Direct Cost: \$36,658

Storage System Dynamics and Management Policies

Principal Investigator:

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University of California
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Tel. 510 642-3853

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Abstract: This study investigates the dynamics of networks with link-to-link interactions caused by storage effects and develops effective management policies. Street networks, supply chains and transit lines are the kinds of systems in which instabilities commonly arise when the outflow of a sub-network decreases if some input flows increase. The phenomenon receives different names for different modes (“gridlock” for freeways, “bullwhip effect” for supply chains, and “pairing” for transit systems), but its causes are similar. Instabilities undermine system performance and make management difficult. This research shows how the behavior of storage networks of various kinds can be predicted and managed effectively with new methods. The work focuses on two difficult but related problems: (i) managing the morning commute in a congested city, and (ii) stabilizing freight networks driven by inventory considerations. The morning commute problem is a prototype of systems with centralized management. For this problem, we quantify, based on a physically realistic network model, the connection among residence location and the distribution of congestion costs. Government policies such as tolls, taxation and land-use regulations are evaluated. The freight network problem is a prototype of decentralized systems with multiple managers. For this problem, we demonstrate how to eliminate the “bullwhip effect” and minimize costs with decentralized policies. **Key Words:** networks, flows, congestion, freight management

Work Completed to Date:

Project completed

Papers to Date:

- UCTC Final Report #55
- Muñoz, Juan Carlos, "Driver-Shift Design for Single-Hub Transit Systems under Uncertainty," UCTC #105, 2003.

Conferences Attended:

Transportation Research Board Annual Meeting, 2003, 2004; INFORMS 2003, 2004

Other Accomplishments:

None to date

Percent Complete: 100%

Direct Cost: \$54,544

High-Coverage Point to Point Transit: Institutional Feasibility and Demand Study of Agencies, Users and Operators

Principal Investigator:

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Abstract: We examine demand for and acceptability of a new design for private-public transit, named High-Coverage Point to Point Transit (HCPPT.) The technical and design details of HCPPT are currently under development by the PI in a separately funded project. The design is based on jitney or shuttle-style operations with a large number of deployed vehicles coordinated using advanced information supply and fast routing and route optimization. The system design ensures that no more than one transfer is needed for the travelers, by using transfer hubs and re-routable and non-re-routable portions in vehicle travel plans. Simulation studies have shown that with enough deployed vehicles, the system can be substantially better than more conventional fixed route and demand-responsive transit systems. In the UCTC funded research we investigate (1) the acceptability of the system to public and private transit agencies, (2) acceptability to operators, primarily drivers; and (3) the responses from potential travelers. **Key Words:** transit, advanced transit technologies, simulation, demand

Work Completed to Date:

Project completed

Papers to Date:

- UCTC Final Report #58

Conferences Attended:

Transportation Research Board Annual Meeting, 2003, 2004

Other Accomplishments:

None to date

Percent Complete: 100%

Direct Cost: \$15,000

Handheld Travel Survey Technology to Supplement Vehicle Tracking in a Shared-Use Station Car Program

Principal Investigator:

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Email: mmcnally@uci.edu

Abstract: An experimental shared-use station car program using electric vehicles is being implemented in association with several public and private sector organizations in Irvine, CA. The goal of this program is to demonstrate the potential of linking shared-use electric vehicles with conventional line-haul public transit services to provide automobile-like accessibility at the ends of the commute trip. GPS-based in-vehicle tracking technologies are being utilized with web-based travel surveys to determine how participants schedule activities before and after shared-use vehicles become a travel option. In this project we supplement the survey research using a GPS-based handheld device to track travel and activity when not using program vehicles. The handheld device continuously records and stores spatial position, then dumps the data via a wireless link to the in-vehicle device when completing activities. In conjunction with current program technologies and as a stand-alone technology, the handheld technology is assessed for its acquisition of comprehensive data on daily travel and activities, as well as user effort and inconvenience. The devices also are evaluated as a means of providing remote access to reservation systems and as keyless access to program vehicles. **Key Words:** travel surveys, new technologies, GPS

Work Completed to Date:

Project completed

Papers to date:

- UCTC Final Report #60
- McNally, Michael G., and Ming S. Lee, Putting Behavior in Household Travel Behavior Data: An Interactive GIS-Based Survey via the Internet, UCTC #693, 2003, Fall.

Conferences Attended:

Transportation Research Board Annual Meeting, 2003, 2004

Other Accomplishments:

None to date

Percent Complete: 100%

Direct Cost: \$53,659

An Input-Output Analysis of the Relationships between Communications and Travel for Industry

Principal Investigator:

Patricia L. Mokhtarian
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One Shields Ave.
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Abstract: Numerous public policies have been promulgated on the assumption that telecommunications will be a useful trip reduction instrument. However, many scholars have suggested that the predominant effect of telecommunications may be complementarity – increasing travel. Although short-term, disaggregate studies of single applications such as telecommuting have tended to find a substitution effect, more comprehensive studies, on the aggregate scale, are needed. One of the few such studies used input-output analysis to examine relationships between transportation and communication input intensities across 44 industry classes in Europe for 1980, and found strong evidence of complementarity. The present study would apply a similar methodology to the input-output accounts for the US across multiple points in time (at least 1982, 1987, 1992, 1996, 1997, 1998). This important extension would permit analysis both of industry-specific differences in the relationships of interest, and of how those relationships change over time (e.g. with the increasing adoption of the Internet and other telecommunication technologies). The result will be a more informed view of the extent to which it is realistic to expect telecommunications to substitute for travel, at least in the industrial context, which constitutes a sizable proportion of the total demand for telecommunications and transportation. **Key Words:** telecommunications, industrial development, input-output analysis

Work Completed to Date:

Project completed

Papers to Date:

- UCTC Final Report #61

Conferences Attended:

Transportation Research Board Annual Meeting, 2003, 2004

Other Accomplishments:

None to date

Percent Complete: 100%

Direct Cost: \$59,200

**Public Transit Systems and the Residential Location Choices of Minority and Transit-Dependent Households
Seed Grant**

Principal Investigator: John M. Quigley Dept. of Public Policy 2607 Hearst Avenue University of California Berkeley, CA 94720 Tel. 510-642-4670 Email: quigley@econ.berkeley.edu	Other Key Participants: Steven P. Raphael University of California Berkeley, CA 94720 Email: raphael@socrates.berkeley.edu
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Abstract: In this project, we analyze the impact of several recent extensions of the Bay Area Rapid Transit (BART) system on the residential location choices of minority households and other households that are particularly dependent on public transit. We compare before-after changes in the resident populations of census tracts serviced by the new stations to similar changes in comparable areas located in the region's suburbs but located far from the new stations. Data from the 1990 and 2000 U.S. census are used to measure population change. We characterize the distance between each census tract in the East Bay suburbs to each of the three new BART stations, e.g., physical distance between the centroids of each tract and the nearest station, or .commute time estimates between each tract and the nearest station,, and construct a merged data set at the census tract level describing the residential populations of each for 1980, 1990, and 2000. This data set is constructed using 1990 tract definitions (which will require some imputation of 1980 variables) and is used to construct the dependent variables, measures of population change, as well as to construct a set of variables from the 1980 and 1990 data describing initial conditions. **Key Words:** residential location, transit impacts, minority household

Work Completed to Date:

Project completed

Papers to Date:

- UCTC Final Report #63
- Raphael, Steven, and Michael Stoll, Can Boosting Minority Car-Ownership Rates Narrow Inter-Racial Employment Gaps?, UCTC #685, 2003, Fall.

Conferences Attended:

PPIC Workshop Summer 2004, APPAM 2004

Other Accomplishments:

None to date

Percent Complete: 100%

Direct Cost: \$10,752

Unlimited Access to Work: An Evaluation of Employer-Based Transit Programs

Principal Investigator:

Don Shoup
Institute of Transportation Studies
School of Public Policy and Social Research
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Abstract: Transit agencies have found a new way to increase ridership: offer transit-pass programs that cater to specific user groups. In these programs, a group purchases the right for all its members to ride public transit without paying a fare. Because all members of the group can ride free, they ride public transit more often. We refer to these programs collectively as Unlimited Access. Unlimited Access programs have been developed for the university, the workplace, and the home. Previous research has examined university programs, and has shown that they increase transit ridership, reduce vehicle travel, reduce parking demand, and increase transit riders' incomes. The largest potential market for Unlimited Access is for workplace transit programs, but there have been few studies of these programs. We examine these workplace programs and: 1) explain how the programs work, 2) examine the programs' effects on employee transit ridership, vehicle travel, and parking demand, 3) analyze the programs' effects on transit agency performance, 4) calculate the programs' costs and benefits, and 5) recommend best practice guidelines. Unlimited Access appears to be a promising innovation with great potential, and we will evaluate its potential benefits for employers, transit agencies, and society. **Key Words:** transit fares, transit pass, commuting

Work Completed to Date:

Project completed

Papers to Date:

- UCTC Final Report #64

Conferences Attended:

Transportation Research Board Annual Meeting, 2003, 2004; Assn. of Collegiate Schools of Planning Annual Meeting 2002, 2003

Other Accomplishments:

None to date

Percent Complete: 100%

Direct Cost: \$54,827

The Effects of Contracting for Service on the Cost-Efficiency of Fixed-Route Bus Transit in the U.S.

Principal Investigator: Brian Taylor SPPSR University of California, Los Angeles Box 951656, 5383 Public Policy Bldg. Los Angeles, CA 90095-1656 310-825-7442 Email: btaylor@ucla.edu	Other Key Participants: Martin Wachs Dept. of Civil and Environmental Engineering 110 McLaughlin Hall University of California Berkeley, CA 94720-1712 Email: mwachs@uclink.berkeley.edu
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Abstract: This study examines the economic effects of contracting for fixed-route bus service. Previous research has examined whether contracting for bus service has reduced costs. Our focus in this project is on how contracting affects cost-efficiency, recognizing that earlier studies don't account for the fact that cost-efficiency problems are likely to motivate transit systems to contract for service in the first place. To account for such causality questions, we use advanced regression analysis methods on a rich, new merged cross-sectional data set to examine the influence of contracting for transit service cost-efficiency. The merged data set for this study is drawn primarily from two sources: (1) the National Transit Database maintained by the FTA and 2) a transit service contracting database compiled from a recent Transportation Research Board survey of transit agencies nationwide. **Key Words:** transit, contracting, costs, efficiency

Work Completed to Date:

Project completed

Papers to Date:

- UCTC Final Report #65
- Iseki, Hiroyuki, and Brian D. Taylor, The Demographics of Public Transit Subsidies: A Case Study of Los Angeles, UCTC #700, 2003, Fall.

Conferences Attended:

Transportation Research Board Annual Meeting, 2003, 2004; Assn. of Collegiate Schools of Planning Annual Meeting 2002, 2003

Other Accomplishments:

None to date

Percent Complete: 100%

Direct Cost: \$15,000

Exploring the Marketability of Fuel-Cell Electric Vehicles

Principal Investigator: Thomas Turrentine Institute of Transportation Studies University of California, Davis Davis, CA 95616 530-752-6500 Email:	Other Key Participants: Kenneth Kurani Institute of Transportation Studies University of California, Davis Davis, CA 95616 Email: knkurani@ucdavis.edu
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Abstract: Fuel-cell vehicles (FCVs) promise to reduced greenhouse gases and criteria pollutants, as well as improve fuel efficiency for light-duty motor vehicles. But lack of a developed “green-car” market and uncertainty that such a market is possible has limited industry and government commitment to current green car technologies. We take two first steps in market research for FCVs: 1. A FCV focused review of recent research on consumer response to refueling range, fuel types, social benefits, and fuel distribution; 2. A design and pilot test of custom interactive stated-preference methods for FCV markets with a sample of vehicle owners who currently use and understand in-vehicle power plants—such as RV owners and small businesses who carry generators. **Key Words:** fuel cells, market research, stated preference surveys.

Work Completed to Date:

Project completed

Papers to Date:

- UCTC Final Report #66
- Kurani, Kenneth S., Thomas S. Turrentine, Reid R. Heffner, and Christopher Congleton, Prospecting the Future for Hydrogen Fuel Cell Vehicle Markets, UCTC #710, 2004, Spring.

Conferences Attended:

Transportation Research Board Annual Meeting, 2003, 2004

Other Accomplishments:

None to date

Percent Complete: 100%

Direct Cost: \$15,000

Experimental and Theoretical Investigations on Traffic Flow at Highway Merges

Principal Investigator:

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Abstract: In this project, we gather and analyze empirical data at merge sites to study the possible combinations of stationary states at merges. To get a clearer picture of the underlying relations between stationary states at merges, we study isolated merges, especially those without the presence of significant immediate upstream/downstream diverges, so as to avoid the complications arising from interactions between merges and diverges. We examine a number of data sources to find such merges with usable data, such as the PEMS database, the Berkeley Highway Lab database, the Toronto QEW database. We identify, from a large amount of data collected at certain merges, all possible combinations of stationary states existing in these merges. Stationary states of congestion can be categorized into recurrent and non-recurrent, according to whether they appear from day to day or not. We also are interested in free flow states. The findings of this study should be useful in understanding on merge traffic dynamics, and should suggest better strategies for traffic management and control. **Key Words:** traffic congestion, queues, merges

Work Completed to Date:

Project completed

Papers to Date:

- UCTC Final Report #67
- Zhang, H. Michael, and T. Kim, A Car-Following Theory for Multiphase Vehicular Traffic Flow, UCTC #662, 2003, Summer.
- Zhang, H. Michael, and T. Kim, Understanding and Modeling Driver Behavior in Dense Traffic Flow, UCTC #663, 2003, Summer.

Conferences Attended:

Transportation Research Board Annual Meeting, 2003, 2004

Other Accomplishments:

None to date

Percent Complete: 100%

Direct Cost: \$15,000

Status Reports - Year 16 (2003-2004) Projects Continued into Year 17 (2004-2005)
(New Projects – 10)

Note: All 2003-2004 projects were extended to July 31, 2005 due to late receipt of matching funds.

Experiments to Increase Freeway Merge Capacity

Principal Investigator:

Michael Cassidy
UC Berkeley

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External Project Contact : All UCTC projects are co-sponsored by Caltrans, Contact Sallybeth Scott, Caltrans, 1120 N St., Sacramento, CA 94305, tel. 916 324-2440

Abstract: Ramp metering strategies that increase the capacity of a freeway/on-ramp merge will be designed and experimentally tested. To these ends, we will build upon some preliminary studies of a merge in San Diego, California. Observations indicate that vehicle slowing and lane-changing maneuvers can diminish the capacity of this merge by 8 to 10 percent. The observations further show that these deleterious slowing and lane-changing effects occur when inflows to the merge (from the on-ramp and/or from the freeway) become too high. The research will explore how onramp metering might mitigate these deleterious effects. In this way, we expect to establish traffic management policies that reduce overall commuter delay at the merge. Further, the work will set the stage for future efforts to develop delay-saving policies that do not merely favor the major traffic stream (the freeway) to the detriment of the other (the on-ramp), but instead involve the management of both inflow streams in a more equitable manner. The work should also advance the theory of traffic flow at merges.

Key Words: freeway capacity, ramp metering, merges

Objective: develop strategies for managing merges on freeways

Tasks: Review previous work on the topic, assemble data, analyze data, and prepare reports.

Milestones, Dates: Official start date Aug. 1, 2003, end July 31, 2005

Student Involvement: Graduate Student Researcher

Technology Transfer Activities: Publications will be posted on UCTC's Website and distributed in hard copy, in most instances free of charge. .

Relationship to Other UCTC Research: new project

Potential Benefits: improved traffic management strategies

Work Completed to Date: We have conducted a detailed literature review and analysis and have assembled data, which we are now analyzing.

Papers to Date:

None to date

Conferences Attended:

Transportation Research Board Annual Meeting, 2004

Other Accomplishments:

None to date

Percent Complete: 90%

Direct Cost: \$54,034

Amber Alert Policy: Laboratory Experiments to Improve a Policy

Principal Investigator:

Theodore Cohn

UC Berkeley

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External Project Contact : All UCTC projects are co-sponsored by Caltrans, Contact Sallybeth Scott, Caltrans, 1120 N St., Sacramento, CA 94305, tel. 916 324-2440

Abstract: In 2002, California adopted the communication protocol known as the Amber Alert (AA) which is now becoming a nationwide effort. The purpose is to alert the driving public to emerging events such as child abduction. The AA structure employs Variable Message Signs (VMS) on California highways. Policy is jointly developed by the CHP, the agency that initiates the alert, and Caltrans, the agency that implements it on VMS signs. CHP would like more information conveyed, to improve the odds of success. Caltrans would like less information conveyed so as to minimize congestion that signs have been observed to cause. We propose a laboratory study to examine the ability of drivers to acquire the message without the need to slow while passing by. Abbreviations, compacting of text, optimization of presentations that require two screens of information, are a few of the many possible strategies that we can study. The outlines of a field operational test of what the lab study reveals will be developed.

Key Words: amber alert, variable message signs, congestion management

Objective: study ability of drivers to acquire a message without slowing

Tasks: Review previous work on the topic, assemble data, analyze data, and prepare reports.

Milestones, Dates: Official start date Aug. 1, 2003, end July 31, 2005

Student Involvement: Graduate Student Researcher

Technology Transfer Activities: Publications will be posted on UCTC's Website and distributed in hard copy, in most instances free of charge. .

Relationship to Other UCTC Research: new project

Potential Benefits: develop sign strategies that better meet objectives of both Caltrans and the California Highway Patrol

Work Completed to Date: We have reviewed previous work on message acquisition and signage and have begun the design of an experiment.

Papers to Date:

None to date

Conferences Attended:

None to date

Other Accomplishments:

None to date

Percent Complete: 75%

Direct Cost: \$56,275

Improved Developer Models for the Sacramento Region

Principal Investigator:

Robert Johnston
UC Davis

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External Project Contact : All UCTC projects are co-sponsored by Caltrans, Contact Sallybeth Scott, Caltrans, 1120 N St., Sacramento, CA 94305, tel. 916 324-2440

Abstract: Urban models have advanced greatly in the last 20 years. Recent models represent the floor space developer explicitly, increasing the behavioral validity of the land markets in the models. We believe, however, that there is a need to separately represent the developers of large projects on the urban edge, as these projects can strongly affect subsequent development patterns. We propose to estimate and test such a model, and to apply it within an advanced urban model set for the Sacramento region.

Key Words: land use models, developer behavior

Objective: develop a model of large developer behavior at the urban fringe

Tasks: Review previous work on the topic, assemble data, analyze data, and prepare reports.

Milestones, Dates: Official start date Aug. 1, 2003, end July 31, 2005

Student Involvement: Graduate Student Researcher

Technology Transfer Activities: Publications will be posted on UCTC's Website and distributed in hard copy, in most instances free of charge. .

Relationship to Other UCTC Research: new project

Potential Benefits: improved transportation-land use modeling and analysis

Work Completed to Date: We have reviewed previous work on the topic and have discussed the issues with modelers. We have begun model design.

Papers to Date:

None to date

Conferences Attended:

Transportation Research Board Annual Meeting, 2004

Other Accomplishments:

None to date

Percent Complete: 75%

Direct Cost: \$42,141

Death on the Crosswalk: A Study of Pedestrian Accidents in Los Angeles

Principal Investigator:

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External Project Contact : All UCTC projects are co-sponsored by Caltrans, Contact Sallybeth Scott, Caltrans, 1120 N St., Sacramento, CA 94305, tel. 916 324-2440

Abstract: This research proposes to explore the spatial distribution of pedestrian-automobile accidents in Los Angeles and to analyze the social and physical factors that affect the risk of getting involved in such accidents. More specifically, the proposed study will investigate the influence of socio-demographic characteristics as well as the design of urban form on pedestrian accident rates. This study will involve research both at the macro and micro level. We will first provide an exploratory spatial and statistical analysis of pedestrian collision data in Los Angeles County to identify preliminary relationships between accident frequency and socio-demographic and land use characteristics of census tracts. This analysis will also help us identify major concentrations (regional clusters) of pedestrian collision data. More qualitative and detailed analysis will follow of specific case studies of intersections with high frequency of pedestrian-automobile accidents. The study will use pedestrian accident data provided by the California Highway Patrol, traffic volume data provided by Caltrans, socio-demographic data from the U.S. Census 2000, and pedestrian volume and built environment data from fieldwork research.

Key Words: pedestrian accidents, social factors, demographic factors

Objective: identify socio-demographic characteristics of pedestrian accident victims; identify intersections with high pedestrian accident rates

Tasks: Review previous work on the topic, assemble data, analyze data, and prepare reports.

Milestones, Dates: Official start date Aug. 1, 2003, end July 31, 2004

Student Involvement: Graduate Student Researcher

Technology Transfer Activities: Publications will be posted on UCTC's Website and distributed in hard copy, in most instances free of charge. .

Relationship to Other UCTC Research: new project

Potential Benefits: improve pedestrian safety

Work Completed to Date: We have completed a review of previous work on the topic and begun to assemble and analyze data.

Papers to Date:

None to date

Conferences Attended:

Transportation Research Board Annual Meeting, 2004

Other Accomplishments:

None to date

Percent Complete: 75%

Direct Cost: \$37,163

Aggregate Structural Equations Modeling of the Relationships Between Consumer Expenditures on Communications and on Travel

Principal Investigator:

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Email: plmokhtarian@ucdavis.edu

External Project Contact : All UCTC projects are co-sponsored by Caltrans, Contact Sallybeth Scott, Caltrans, 1120 N St., Sacramento, CA 94305, tel. 916 324-2440

Abstract: Two aggregate studies of the relationships between communications and travel found apparently contradictory results: An input-output (I-O) analysis of relationships between transportation and communication input intensities across industries in Europe (1980) found complementarity (Plaut, 1997), while simultaneous equation models of aggregate consumer expenditures in Australia and the UK (1960- 1986) found pairwise substitution among private transportation, public transportation, and communication (Selvanathan and Selvanathan (S&S), 1994). Given technological advances such as mobile telephony and the Internet, it is possible that consumer relationships between communications and travel have changed substantially in the 17 years since the most recent data used in the latter study. A recent UCTC study replicates the Plaut industry analysis on US data, extending it across 1947-1997. This study will apply the S&S consumer analysis to US data, extending to at least the year 2000. Taken together, the two studies will provide complementary evidence on aggregate relationships between communications and travel for industry and consumers, controlling for spatial and temporal factors. The study also will provide indications (through comparison to the S&S study) of how those relationships might be changing with advances in communication technology. The result will be a more informed view of the extent to which it is realistic to expect telecommunications to substitute for travel, especially in the consumer context.

Key Words: telecommunications, travel substitution

Objective: model and compare telecommunications and travel I/O relationships and consumer consumption of telecommunications and travel using US data

Tasks: Review previous work on the topic, assemble data, analyze data, and prepare reports.

Milestones, Dates: Official start date Aug. 1, 2003, end July 31, 2005

Student Involvement: Graduate Student Researcher

Technology Transfer Activities: Publications will be posted on UCTC's Website and distributed in hard copy, in most instances free of charge. .

Relationship to Other UCTC Research: new project

Potential Benefits: better understanding of the role of telecommunications in travel substitution, travel growth

Work Completed to Date: We have completed the literature review and evaluation.

Papers to Date:

None to date

Conferences Attended:

Transportation Research Board Annual Meeting, 2004

Other Accomplishments:

None to date

Percent Complete: 75%

Direct Cost: \$56,498

Auctions for the Procurement of Transportation Service Contracts

Principal Investigator:

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UC Irvine

Email: aregan@uci.edu

External Project Contact : All UCTC projects are co-sponsored by Caltrans, Contact Sallybeth Scott, Caltrans, 1120 N St., Sacramento, CA 94305, tel. 916 324-2440

Abstract: Large shippers have moved from lane-by-lane negotiation for trucking services to combinatorial auctions, in which several lanes are put out to bid together and trucking companies may bid for more than one package of services. The bid construction and valuation problem is a difficult one involving NP-hard sub problems. This research develops tractable approximation methods for solving these problems and identifies ways that smaller carriers can work together to capture the benefits available to larger carriers.

Key Words: trucking, combinatorial auctions, algorithms

Objective: develop tractable approximation methods for freight service bid construction and valuation

Tasks: Review previous work on the topic, assemble data, analyze data, and prepare reports.

Milestones, Dates: Official start date Aug. 1, 2003, end July 31, 2005

Student Involvement: Graduate Student Researcher

Technology Transfer Activities: Publications will be posted on UCTC's Website and distributed in hard copy, in most instances free of charge. .

Relationship to Other UCTC Research: new project

Potential Benefits: improve health of trucking industry by supporting more effective bidding

Work Completed to Date: A literature review has been carried out. Exploratory analyses have been conducted.

Papers to Date:

None to date

Conferences Attended:

Transportation Research Board Annual Meeting, 2004

Other Accomplishments:

None to date

Percent Complete: 75%

Direct Cost: \$51,603

Identification and Measurement of Freeway Congestion

Principal Investigator:

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UC Berkeley

Email: skabardonis@ce.berkeley.edu

External Project Contact : All UCTC projects are co-sponsored by Caltrans, Contact Sallybeth Scott, Caltrans, 1120 N St., Sacramento, CA 94305, tel. 916 324-2440

Abstract: The objective of the proposed research is to develop a methodology to identify and measure total, recurrent, and non-recurrent congestion delay on urban freeways. The methodology will be applicable to urban freeways that are instrumented with loop detectors or other surveillance systems. The proposed methodology calculates the average and the probability distribution of congestion delays by cause (recurrent, incident related, weather and other factors). The methodology also will quantify the congestion impacts on travel time and travel time variability. The proposed work is based on recent research by the investigator. The findings to-date indicate that reliable measurement of congestion should provide measures of uncertainty in congestion. In applications on two real-life corridors, incident-related delay is found to be between 13 to 30 percent of the total congestion delay during peak periods.

Key Words: recurrent, congestion delay, freeways, surveillance, incident travel time, measurements

Objective: develop methods for measuring freeway delay using surveillance devices estimate uncertainty in delay estimates and delay due to incidents and recurrent congestion

Tasks: Review previous work on the topic, assemble data, analyze data, and prepare reports.

Milestones, Dates: Official start date Aug. 1, 2003, end July 31, 2005

Student Involvement: Graduate Student Researcher

Technology Transfer Activities: Publications will be posted on UCTC's Website and distributed in hard copy, in most instances free of charge. .

Relationship to Other UCTC Research: new project

Potential Benefits: improved congestion management and delay estimation

Work Completed to Date: Data have been assembled and exploratory analyses have been conducted.

Papers to Date:

None to date

Conferences Attended:

Transportation Research Board Annual Meeting, 2004

Other Accomplishments:

None to date

Percent Complete: 75%

Direct Cost: \$38,281

Capacity Provision and Pricing in Road Transport Networks in an Imperfectly Competitive Economy

Principal Investigator:

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External Project Contact : All UCTC projects are co-sponsored by Caltrans, Contact Sallybeth Scott, Caltrans, 1120 N St., Sacramento, CA 94305, tel. 916 324-2440

Abstract: The standard economic prescription for managing network congestion relies heavily on the internalization, through tolls, of the congestion externality. Two basic insights are that (a) charging appropriate tolls reduces congestion to –in principle- optimal levels, and (b) decisions on infrastructure expansion or contraction are less likely to be misguided when tolls are present. These basic principles rely on the assumption that markets are perfectly competitive: a trip is undertaken for one or more purposes, and the prices related to these purposes are competitive. Thus a commute trip is undertaken to earn a competitive wage, and a shopping trip to pay a competitive price for purchased goods. This project will assess the impact of accounting for imperfect competition on the economic prescriptions for road infrastructure pricing and its provision. The assumption of perfect competition is not realistic and is at odds with developments in mainstream economics, where imperfect competition models have become the rule because of their higher degree of realism. A model of the interactions between transport network management and competitive conditions in the economy is required. Preliminary work indicates that even small departures from the perfect competition assumption have major effects on policy prescriptions. The work shows that congestion itself generates non-competitive market results. Empirical evidence is sought in order to determine which of the available models best approximates real conditions. Models will be constructed for policy analysis.

Key Words: imperfect information, road pricing

Objective: account for the effect of imperfect information on road pricing and infrastructure provision

Tasks: Review previous work on the topic, assemble data, prepare models, prepare reports.

Milestones, Dates: Official start date Aug. 1, 2003, end July 31, 2005

Student Involvement: Graduate Student Researcher

Technology Transfer Activities: Publications will be posted on UCTC's Website and distributed in hard copy, in most instances free of charge. .

Relationship to Other UCTC Research: new project

Potential Benefits: more realistic models and estimates of the effects of pricing policies

Work Completed to Date: A review of the current literature and emergent theory has been completed, as has data assembly. Data analysis is underway.

Papers to Date:

None to date

Conferences Attended:

None to date

Other Accomplishments:

None to date

Percent Complete: 75%

Direct Cost: \$51,409

Family Caregivers, the Elderly, and Land-Use: An Evaluation of Transportation Consequences in Two California Communities

Principal Investigator:

Martin Wachs

UC Berkeley

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External Project Contact : All UCTC projects are co-sponsored by Caltrans, Contact Sallybeth Scott, Caltrans, 1120 N St., Sacramento, CA 94305, tel. 916 324-2440

Abstract: The transportation research literature has noted the importance of informal caregiving networks for maintaining the mobility of senior citizens who have lost the ability to drive. Still, significant gaps exist in the identification of the travel patterns and needs of both the seniors who are reliant upon caregivers and those providing the caregiving services. We will conduct a transportation needs assessment of caregivers and seniors in two communities in the suburban California county of Contra Costa using quantitative and qualitative measures. Our study population of caregivers will comprise individuals in low-income brackets who provide care to an elderly family member. Finally, only seniors who have gone through driving cessation (and their associated caregivers), but who are not entirely homebound (making at least one trip per week) will be in the study population. Of the two study communities to be chosen for this research, one will have relatively high-density development and be composed of mixed land uses and the other will be characterized by lower density and with more segregated land uses. Our second goal is to identify whether, controlling for other variables, these land-use differences affect the travel behavior and experiences of seniors and caregivers in our two communities. The relationship between land-use characteristics and travel remains an important question in the literature and practice.

Key Words: informal networks, mobility, senior citizens, Contra Costa, low-income, driving cessation, land-use

Objective: identify travel needs of caregivers and the elderly adults they attend

Tasks: Review previous work on the topic, assemble data, analyze data, and prepare reports.

Milestones, Dates: Official start date Aug. 1, 2003, end July 31, 2005

Student Involvement: Graduate Student Researcher

Technology Transfer Activities: Publications will be posted on UCTC's Website and distributed in hard copy, in most instances free of charge. .

Relationship to Other UCTC Research: new project

Potential Benefits: more effective transportation policies and services for elderly adults

Work Completed to Date: Literature review, survey design, and survey administration are completed. Analysis is 80% complete.

Papers to Date:

None to date

Conferences Attended:

Lake Arrowhead Conf, 2003, Transportation Research Board Annual Mtg. ,2003, 2004, ACSP Conf. 2003, 2004

Other Accomplishments:

None to date

Percent Complete: 75%

Direct Cost: \$33,075

Transportation Policy Development: Labor as a Missing Stakeholder

Principal Investigator:

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External Project Contact : All UCTC projects are co-sponsored by Caltrans, Contact Sallybeth Scott, Caltrans, 1120 N St., Sacramento, CA 94305, tel. 916 324-2440

Abstract: For over a decade, federal transportation policy has sought to open regional transportation decision-making to new voices and to facilitate the use of transportation funds on an expanded array of transportation modes. Much of the impetus for these changes in federal legislation came from environmentalists and advocates for low-income communities, who believed that existing decision-making processes advantaged developers and highway interests. However, these processes have rarely engaged labor unions. This research project seeks to understand the role of labor in the development of transportation policy. The research takes a two-pronged approach: first, it examines the processes of coalition building in which labor has engaged as it seeks to participate in transportation policymaking. Second, the research analyzes the problems of consensus building around transportation policy within the labor movement, where institutional complexity, the potentially divergent interests of different unions, and a culture organized around the immediate goals of collective bargaining make it difficult for labor to engage effectively. The research will be conducted in two states: Illinois, where transit unions have launched a statewide coalition to increase state spending on public transit; and California, (both Los Angeles and the Bay Area), where central labor councils have taken the lead in bringing labor into transportation policymaking.

Key Words: transit labor, coalition-building

Objective: document and analyze coalition-building strategies used by labor to influence transportation policy

Tasks: Review previous work on the topic, assemble data, analyze data, and prepare reports.

Student Involvement: Graduate Student Researcher

Technology Transfer Activities: Publications will be posted on UCTC's Website and distributed in hard copy, in most instances free of charge. .

Relationship to Other UCTC Research: new project

Potential Benefits: improved understanding of labor issues and concerns; more effective policies

Work Completed to Date: The literature review and first round of site visits are completed.

Papers to Date:

None to date

Conferences Attended:

None to date

Other Accomplishments:

None to date

Percent Complete: 75%

Direct Cost: \$41,698

C. Project Financial Status

It is the UCTC’s longstanding policy to commit all funds authorized by our sponsors, the US Department of Transportation and the California Department of Transportation, in the year that they are authorized. Occasionally funds are not fully expended in the year they are allocated, and in such cases the funds may be carried over into the next fiscal year with the permission of the UCTC Director. Carry-over funds remain committed to the categories to which they were initially allotted, except for Headquarters funds, which differ in some cases from amounts initially budgeted because of changes in salaries or expense items, or reallocations of administrative budget amounts to research and technology transfer accounts.

Our 2003-2004 program allotments commit all funds approved by USDOT and Caltrans at the start of the Year 16 (2003-2004) grant cycle. Table 5 shows these allocations.

Table 5. University of California Transportation Center 2003-2004 (Year 16) Allocations

Grant Year: Aug. 1, 2003 - July 31, 2004

ITEM	BUDGET
Center Director Salary	65,000
Faculty Salaries	75,847
Administrative Staff Salaries	68,500
Other Staff Salaries	96,000
Student Salaries	272,867
Staff Benefits	66,950
Total Salaries and Benefits	645,164
Scholarships	901,900
Permanent Equipment	5,000
Expendable Property & Supplies	23,523
Domestic Travel	43,013
Foreign Travel	0
Other Direct Costs (Specify)	170,000
Total Direct Costs	1,788,600
Facilities & Admin. (Indirect) Costs	23,400
TOTAL COSTS	1,812,000
Federal Share	906,000
Matching Share	906,000
TOTAL AVAILABLE FUNDS YR. 16	1,812,000

C. FUNDING SOURCES AND EXPENDITURES

Approximately 43 percent of total revenues was spent on scholarships and fellowships, including graduate student researcher tuition and fees, and about 28 percent was spent on research. Access magazine and other tech transfer expenses account for 14% of the total, and support for education (new courses) for 4%. About 10 percent of UCTC revenues were spent on administration including the Director's salary, and 1% was spent on indirect costs, for a total of 11% direct and indirect administrative costs. University overhead is waived on scholarships as well as on the Caltrans portion of the grant.

Figure 1 illustrates revenues and Figure 2 illustrates direct expenditures for UCTC in 2003-2004 (Year 16).

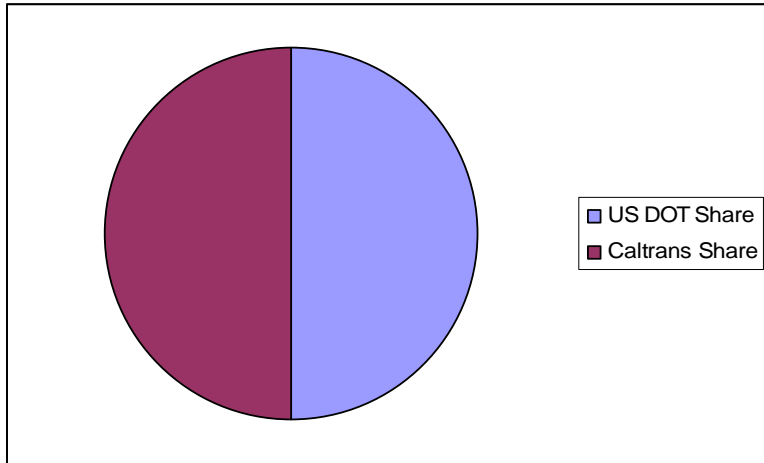


Figure 1. UCTC Revenues, Year 16 (2003-2004)

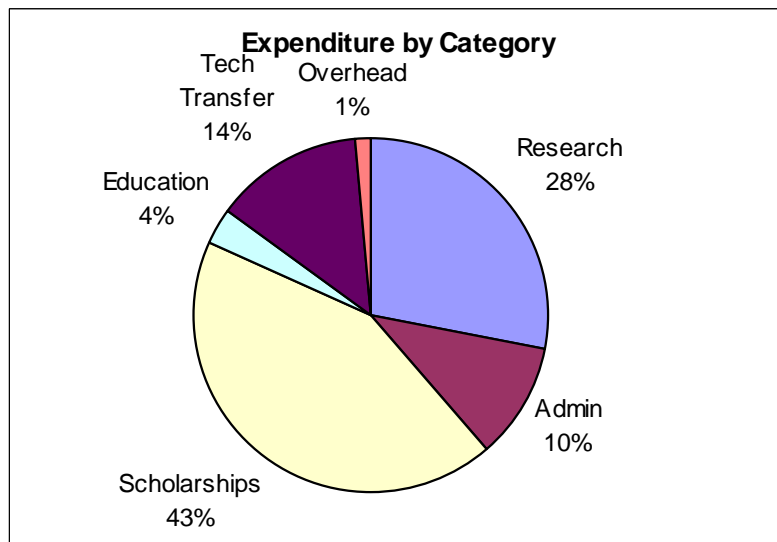


Figure 2. UCTC Expenditures, Year 16 (2003-2004)

Appendix 1. Glossary

ACCESS - the research magazine published by the University of California
CAD- computer-aided design
CALTRANS- the California Department of Transportation
CMA- Congestion Management Agency, special-purpose county-level organizations in California
CUTC - Council of University Transportation Centers
EPA- the Environmental Protection Agency
FHWA- the Federal Highway Administration of the US Department of Transportation
FTA- the Federal Transit Administration of the US Department of Transportation
FTE- full-time equivalent (a measure of staffing levels)
GIS- geographic information science / geographic information systems
GSR- graduate student researcher
IGS- the Institute of Governmental Studies at UC Berkeley
IITPS- the Norman Y. Mineta International Institute for Transportation Policy Studies at San Jose State University
ISTEA- the Intermodal Surface Transportation Efficiency Act
ITS - the Institute of Transportation Studies at the UC Berkeley, UC Davis, UC Irvine, and UCLA
IURD - the Institute of Urban and Regional Development at UC Berkeley
METTRANS- the Center for Metropolitan Transportation Studies at the University of Southern California
MPO- Metropolitan Planning Organization
NSF- National Science Foundation
OECD- the Organization for Economic Cooperation and Development
PATH- Program for Advanced Transit and Highways
PI- Principal Investigator
TEA 21- the Transportation Efficiency Act for the 21st Century
TRB- the Transportation Research Board
UC- the University of California, a nine-campus public institution
UC BERKELEY- the Berkeley campus of the University of California
UC DAVIS- the Davis campus of the University of California
UC IRVINE- the Irvine campus of the University of California
UCLA- the Los Angeles campus of the University of California
UCTC- the University of California Transportation Center
USC - the University of Southern California, a private university
US DOT- the US Department of Transportation
UTC Program- the University Transportation Centers Program

Appendix 2. Projects Completed Since Start of Federal Grant and Reported Previously

(UCTC Years 12, 13, 14, and Part of 15 – 54 Projects)

YEAR 12 (1999-2000) PROJECTS (20 PROJECTS)

Induced Travel Demand: A Systems Analysis of Longer Term Impacts of Road Expansion

Robert Cervero, City and Regional Planning, Berkeley

Measuring the Impact of the Internet on the Trucking Industry

Carlos Daganzo, Civil & Environmental Engineering, Berkeley

Roadway Tunnel Measurements of Carbon and Nitrogen-Containing Air Pollutants

Robert Harley, Civil & Environmental Engineering, Berkeley

Estimation of Latent Pavement Properties Using Condition Survey Data

Samer M. Madanat, Civil and Environmental Engineering, Berkeley

Online Versus Rolling Horizon Algorithms for Dynamic Service Fleet Operations

Amelia Regan and Sandra Irani, Civil & Environmental Engineering

Regional Transportation Infrastructure Finance in the U.S.

Martin Wachs, Institute of Transportation Studies, Berkeley

Estimating Freeway Traffic Stream Modal Activities for Air Quality Modeling

H. Michael Zhang, Civil and Environmental Engineering, Davis

The Transportation Behavior and Needs of Welfare Recipients

Evelyn Blumenberg, Public Policy and Social Research, Los Angeles

New Highways and Urban Growth Patterns: Using Locally Weighted Regression to Measure the Development Impacts of the Orange County Toll Roads

Marlon Boarnet, Urban & Regional Planning, Irvine

GPS-Based Data Handling for Activity Based Modeling

Reginald G. Golledge, Department of Geography, Santa Barbara

Impacts of Shipping Changes on the Efficiency of the Freight Transportation Network

Tom Golob and Amelia Regan, Institute of Transportation Studies, Irvine

The Effects of Urban Land Use Patterns on Household Trip-Making Behavior: An Empirical Analysis

John D. Landis, City & Regional Planning, Berkeley

Putting Behavior in Household Travel Behavior Data: An Interactive GIS-based Survey Via the Internet

Michael G. McNally, Institute of Transportation Studies, Berkeley

Measuring the Role of Transportation in Facilitating the Welfare-to-Work Transition

Paul M. Ong, Public Policy and Social Research, Los Angeles

Development of Estimation Procedures for Activity-Based Model Forecasting

Will Recker, Institute of Transportation Studies, Irvine

Evaluating a University Transit Pass Program

Donald Shoup, Institute of Transportation Studies, Los Angeles

Journeys to Crime: Documentation and Evaluation of Crime Incidence on and around Railway Stations in Los Angeles

Anastasia Loukaitou-Sideris, Urban Planning, Los Angeles

The Viability of Value Pricing Demonstrations

Kenneth Small, Institute of Transportation Studies, Irvine

Greenhouse Gas Emissions Trading and the Transport Sector

Daniel Sperling, Institute of Transportation Studies, Davis

Driving for Dollars: How the Politics of Finance Has Shaped the California Highway System

Brian D. Taylor, Urban Planning, Los Angeles

YEAR 13 (2000-2001) RESEARCH PROJECTS (15 PROJECTS)

Does Commuting Distance Matter? Commuting Tolerance and Residential Change

William A.V. Clark, Geography, UCLA

An Evaluation of Local Option Transportation Taxes in California

Professor Martin Wachs, Institute of Transportation Studies, UC Berkeley

Stationary Traffic Models and Freeway Geometry

Michael Cassidy, Civil and Environmental Engineering, UC Berkeley

E-Commerce and the Efficiency of the California Freight Network: Perspectives of Shippers, Carriers and Third Party Logistics and Information Services Providers

Thomas F. Golob and Amelia C. Regan

Assessing the Influence of Residential Location Changes on Travel Behavior

Michael G. McNally, Civil and Environmental Engineering, UC Irvine

The Impact of Attitudes toward Mobility, Adoption of Previous Strategies, and Demographic Characteristics on Responses to Congestion

Patricia L. Mokhtarian, Civil and Environmental Engineering, UC Davis

Measuring the Role of Transportation in Facilitating the Welfare-to-Work Transition (Third Year)

Paul Ong, Urban Planning, UCLA

Systematic Transport Access and Policies for Low Wage Labor Markets

John M. Quigley, Public Policy, UC Berkeley

Activity-Based Forecasting Model for Planning Applications

Will Recker, Institute of Transportation Studies, UC Irvine

Inventory Theoretic Models of Freight Demand: Revisiting the Past in Light of the New Economy

Amelia Regan, Civil Engineering, and Charles Lave and Amihai Glazer, Economics, UC Irvine

The Environment - Transit Crime Connection: Continuing Study of the Metro Green Line and its Vicinity
Anastasia Loukaitou-Sideris, Urban Planning, UCLA

Has Parking Cashout Failed in California?
Don Shoup, Public Policy and Social Research, UCLA

Reconsidering the Effects of Fare Reductions on Transit Ridership
Brian D. Taylor, Urban Planning, UCLA

Planes, Trains, or Camionetas (little buses)? A Baseline Study of an Informal Travel Mode
Abel Valenzuela Jr., Public Policy and Social Research, UCLA

Understanding and Modeling Driver Behavior in Dense Traffic Flow
H. Michael Zhang, Civil and Environmental Engineering, UC Davis

YEAR 14 (2001- 2002) RESEARCH PROJECTS (15 PROJECTS)

How Does Travel Behavior Change When Households Change Jobs?
William Clark, UCLA

Design of Vehicle Routes and Driver Shifts for Systems with Uncertain Demand
Carlos Daganzo, UC Berkeley

Effect of Driving Mode on Light-Duty Vehicle Emissions Measured On-Road
Robert Harley, UC Berkeley

Using the Spatial Configuration of Cities to Estimate The Impact of Commuting Time on Hours of Work
Antonio Bento, UC Santa Barbara

Evaluation of the California Safe Routes to School Program
Marlon Boarnet and Kristen Day, UC Irvine

**Forecasting Demand and Values of Travel Time Savings for Freeway HOV, Toll and HOT Facilities:
Incorporating Attitudes and Perceptions into Commuter Choice Models**
David Brownstone and Thomas Golob, UC Irvine

Transit-Based Housing: Residential Sorting and Its Influence on Mode Choice
Robert Cervero, UC Berkeley

Real-time Travel Data Collection System Augmented with Speech Interface
Reginald Golledge, UC Santa Barbara

Life -Cycle Environmental and Economic Assessment of Using Recycled Materials for Asphalt Pavements
Arpad Horvath, UC Berkeley

Reinforcement Learning in Transportation Infrastructure Management
Samer Madanat, UC Berkeley

Dissonance between Desired and Current Residential Neighborhood Type: Relationships to Travel-Related Attitudes and Behavior
Patricia Mokhtarian and Ilan Salomon, UC Davis

Optimal Control Policies for Urban Corridor Management

Wilfred Recker, UC Irvine

The Impact of Motor Vehicle Transportation on Water Quality

Jean Daniel Saphores, UC Irvine

Putting Back the Pleasure in the Drive: Reclaiming Urban Parkways for the 21st Century

Anastasia Loukaitou-Sideris, UCLA

Equity and Environmental Justice in Transportation

Martin Wachs, UC Berkeley

YEAR 15 (2002-2003) RESEARCH PROJECTS REPORTED EARLIER (4)

Judging the Speed of Pedestrians and Bicycles at Night

Karen K. De Valois, UC Berkeley

Policies for Safer and More Efficient Truck Operations on Urban Freeways

Thomas Golob and Amelia Regan, UC Irvine

Incorporating Seismic Risk Considerations in Transportation Infrastructure Management

Samer Madanat, UC Berkeley

Car Ownership, Insurance Premiums and Employment Outcomes

Paul Ong

(SEE THIS REPORT FOR OTHER YEAR 15 PROJECTS)