



Year 19 (2006-2007)
Annual Report
For the
University of California Transportation Center

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TABLE OF CONTENTS

DISCLAIMER	1
ABOUT UCTC: OUR NINETEENTH YEAR	3
UCTC VISION AND THEME	5
OVERVIEW OF UCTC ACTIVITIES	6
MANAGEMENT STRUCTURE AND CENTER STAFF	13
INSTITUTIONAL SUPPORT	18
ACCOMPLISHMENTS IN 2006-7	21
RESEARCH PROJECT STATUS	26
FUNDING SOURCES AND EXPENDITURES	58

LIST OF TABLES

TABLE 1. UCTC FACULTY AFFILIATES	15
TABLE 2. UCTC YEAR 19 (2006-7) PUBLICATIONS	23
TABLE 3. YEAR 18 (2005-6) RESEARCH PROJECTS CONTINUING IN YEAR 19	26
TABLE 4. NEW RESEARCH PROJECTS AWARDED IN YEAR 19	27
TABLE 5. ALLOCATED AMOUNTS FOR YEAR 19 (2006-2007)	58

LIST OF FIGURES

FIGURE 1. UCTC REVENUES, YEAR 19 (2006-2007)	59
FIGURE 2. UCTC EXPENDITURES, YEAR 19 (2006-2007)	59

APPENDIX 1. GLOSSARY	60
APPENDIX 2. COMPLETED RESEARCH PROJECTS	61
APPENDIX 3. CONTINUING PROJECTS	68

ABOUT UCTC: OUR NINETEENTH YEAR

The University of California Transportation Center (UCTC) is a multi-campus organization headquartered on the UC Berkeley campus. We carry out basic and applied research, publish it in journals and on the web, organize conferences and workshops to discuss our findings, work with international, national, state, regional and local agencies and private organizations to put our research into practice, offer fellowships to entice the best students into careers in transportation, support education programs of UC academic departments offering transportation degrees, and publish a magazine designed to communicate our work to a broad nontechnical audience. We are funded by the US Department of Transportation and the California Department of Transportation.

2006-7 was UCTC's 19th year as the Federal Region 9 University Transportation Center (UTC). The year was at once difficult for us, and successful.

We are greatly saddened to report that our founding director, Melvin Webber, passed away in December 2006. Though Mel had formally retired from UCTC a decade earlier, he remained active as founding editor of Access magazine, and was working on the spring edition until a few days before his passing. UCTC faculty and friends of Mel prepared a special edition of Access in honor of his memory.

Mel would have liked to attend the World Conference on Transport Research, held for the first time in the US in June 2007 with UCTC as host. Nearly 1000 participants from all over the world gave papers at the four day conference. Attendance by students and participants from low income countries was made possible by gifts, grants, and donated services from the World Bank Institute, the Metropolitan Transportation Commission, the Federal Highway Administration, Caltrans, BART, AC Transit, the San Francisco County Transportation Authority, Dowling Associates, and the University of California.

While the conference was the major event of the year for UCTC, our usual activities continued energetically, with UCTC supporting the Lake Arrowhead conference, the UCTC student conference, and activities at TRB. And of course faculty and students continued their ongoing work on research, education, and tech transfer.

Contract and grant negotiations also continued through 2006-7. At the end of the previous grant year, UCTC had received approval of our proposal to the US Department of Transportation's Research and Innovative Technology Administration, requesting that UCTC again be designated the Region 9 UTC. In support of our application, the UC Office of the President had pledged to continue the overhead waiver on Caltrans funds, and Caltrans had agreed to renew our grant that matching our federal funding dollar for dollar. Thus in the fall of 2006 UC and Caltrans began the paperwork to put into place both the overhead waiver and the new Caltrans agreement matching the higher amount of funding authorized by Congress. The Caltrans agreement took longer than any of us had anticipated, because Caltrans had to negotiate the expenditure of planning funds with FHWA; but in mid- April 2007 the amendment finally arrived on campus.

The lengthy negotiations period for the Caltrans grant led to delays in funding 2006-7 research projects and also led us to postpone the faculty RFP for the 2007-8 year until the funds were secured. We also delayed the submission of our strategic plan until the new Caltrans grant was in hand. (We currently are awaiting comments on the strategic plan from federal reviewers.) With the new Caltrans grant in place, UCTC moved ahead with a renewed round of research, awarding grants on a peer reviewed, competitive basis. The faculty of UC joins me in thanking USDOT and Caltrans for their continued support of our work.

UCTC is committed to help develop improved transportation services, more cost-effective and efficient project delivery, better transportation - environmental performance, and 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. Equally importantly, UCTC's funding attracts the best and the brightest into transportation, helping us produce the leaders of the future.

-- Elizabeth Deakin

IN MEMORIAM

Melvin M. Webber, Professor Emeritus of City and Regional Planning at the University of California, Berkeley, died of multiple myeloma at his Berkeley home on Saturday, Nov. 25, 2006. He was 86.

During more than half a century as a planner and educator in the Bay Area, Webber headed UC Berkeley's Institute of Urban and Regional Development and the University of California Transportation Center. He also was instrumental in the establishment of a Ph.D. program in planning at UC Berkeley.

Webber was an international authority on city planning and transportation who helped plan Bay Area Rapid Transit (BART) in the 1950s. In 1970, Webber initiated the first large-scale, systematic study of the BART's impact on travel behavior and land use. The study was new in its policy focus and it helped to develop analysis methods still employed today. Webber's conclusions that BART had fallen far short of expectations led him to argue for a more cost-effective and flexible mix of transportation modes, including automobiles and express buses, as well as pricing strategies to reduce infrastructure investment. The issues and arguments that he raised continue to frame transportation debates in the US and abroad.

Webber's contributions to urban planning theory centered on two sets of ideas that he developed beginning in the early 1960s. With UC Berkeley Professor Horst Rittel, Webber defined a new class of "wicked problems" in public policy, which by their nature defied solution by conventional, rational approaches. Webber also challenged the physical place-based focus of planning up to that period, arguing that more attention should be given to the physical and informational linkages and connections that bind together what he called "non-place realms." His work anticipated by decades the currently fashionable views of the network society.

Webber served as editor to the Journal of the American Institute of Planners and was founding editor of ACCESS, the UCTC journal that aims to make complex transportation research and policy issues comprehensible. He was ACCESS editor-in-chief until his death.

In 2000, Webber won the Distinguished Planning Educator award from the Association of Collegiate Schools of Planning, the highest annual prize in United States planning education.

--adapted from UC Berkeley News press release 01 December 2006

UCTC VISION AND THEME

Vision

UCTC's vision is excellence in transportation education, excellence in transportation research, and a vibrant network of transportation professionals who will put their education and research findings into practice. We recognize that the State of California, Region 9, and the nation face important transportation challenges, among them:

- adjusting transportation services to respond to changes in demographics and activity patterns and changing resource costs and prices
- introducing and accommodating new technologies
- managing our extensive transportation systems more efficiently
- improving the safety and security of transportation systems
- improving intermodal connections
- providing high quality freight transportation in the face of shifting patterns of production, consumption, and costs
- more effectively assessing, communicating, and managing the social, economic, and environmental consequences of transportation programs and projects
- reducing unwanted effects of transportation including congestion, pollution, and global warming
- improving the equity of transportation programs and projects
- assuring that the public health effects of transportation are positive
- moving toward sustainable transportation and land use
- designing better processes for the involvement of diverse public and private interests in transportation planning, decision making and deployment
- developing efficient and equitable mechanisms for transportation finance
- identifying more flexible, innovative, and responsive organizational frameworks for transportation planning and implementation.

We believe that the challenges confronting the transportation sector must be addressed through creative research, development, and deployment, education and tech transfer, all under a broadly scoped but strategically organized research agenda, or theme, that can make our vision a reality.

Theme

UTCs are asked to identify a "theme", and the UCTC theme is *transportation systems analysis and policy*. This theme is at once broadly scoped and strategically focused, allowing us to conduct research that addresses the variety of challenges facing our nation, region and state and find ways to promote effective implementation, while complementing rather than duplicating other technology-oriented programs at UC such as PATH and the UC Pavement Center.

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.

OVERVIEW OF UCTC ACTIVITIES

In accordance with federal UTC program requirements, UCTC carries out an active program of research, educational support, and tech transfer – all made possible by strong institutional support from Caltrans and the University of California as well as USDOT.

Research

Research is a major focus of UCTC's activities. All UCTC research grants are awarded through a process that is framed by our theme of systems analysis and policy and guided by specific research priorities called out from time to time by the Executive Committee, our sponsors, and our advisory board. Project selection relies on outside peer review. Project selection is highly competitive, as we usually can fund less than half the research proposals that we receive. To handle the difficult process of choosing new projects, we conduct a double-blind review of all proposals, and then appoint a panel of outside experts who serve much the same function as an editorial board, evaluating the reviews and advising the Director on the projects that appear most worthy of funding. The Director makes the final choices of projects. This process is a major undertaking, but we believe that it produces the best quality research possible.

Our usual procedure is to provide one year research grants with a report due at the end of the year. Multi-year projects can be proposed but must be structured to produce a publishable report every year, and a proposal must be submitted and evaluated for each additional year. For the last several years, however, delays in receipt of federal funds and incremental federal authorizations have required up to likewise fund projects incrementally. One result is that most projects have had to be extended for a second year. As a result, we have an unusually large number of ongoing projects at present. We hope to get back to projects designed to be funded and completed in about a year as soon as the new funding from USDOT and Caltrans is in place.

The UCTC's success in research relies upon a carefully managed solicitation and project selection process. For faculty research, the 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.

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 recent 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. Proposals are submitted by email and reviews also are completed electronically.

Due to high demand for UCTC funding, budget restrictions were put in place in 1999-2000 and are applied in any year when funds actually received (after RABA or any other adjustments) fall short of authorization levels by more than ten percent. Under the restriction policies, summer salary for faculty is limited to one month and most projects are limited to one graduate student researcher or undergraduate intern per faculty member 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.

Proposal Review Process

All faculty research proposals undergo confidential external review by transportation experts - university researchers and practicing professionals. The UCTC Director selects three or four persons to review each proposal; a minimum of two, and preferably 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. Faculty members, advisors and sponsors are asked to provide additional names of reviewers from time to time, so that the list is regularly updated.

External reviewers are asked to rate the proposals excellent, very good, good, fair, or poor and 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 the proposals are 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. UCTC staff members also review 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 Executive Committee is also asked to comment. The UCTC Director then uses the reviews, the outside experts' recommendations, and the staff reviews in making the final selection of projects for funding. In making the final choices, the Director also 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.

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.

The academic value of UCTC-supported research is evidenced by:

- publication in peer-reviewed journals
- academic awards
- citations in the literature
- invitations to organize and participate in important conferences and meetings
- requests for guest lectures
- requests for collaborative research and exchanges.

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 (Congress, the state legislature, city councils, county boards of supervisors, transit boards)
- 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.

Education and Student Support

UCTC not only carries out research but also contributes to transportation education through fellowship programs, funding for course and curriculum development, our competitive PhD dissertation grant program, and the research assistantships offered as part of faculty research projects. Our objective is to help produce a vibrant network of transportation professionals who will put their education and research findings into practice.

Fellowships are offered only to students enrolled in formal transportation programs, but 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.

Course support is provided by application to the UCTC Director. Grants are typically under \$20,000. Eligible activities include (in order of priority) 1) the development of a new, permanent course or curriculum, 2) the major revamping of an existing course or course sequence to incorporate new materials or new teaching approaches, and 3) occasionally, special seminars taught by visiting scholars, leading practitioners, or other temporary appointees that offer especially valuable opportunities for students to be exposed to new ideas and approaches. Both graduate courses and undergraduate courses in transportation have received UCTC support.

Education Programs

Formal programs and concentrations in transportation are currently offered by UCTC-affiliated departments at Berkeley, Davis, Irvine, UCLA, and UC Santa Barbara. Additional courses with significant transportation content are offered at other campuses of the UC system, including UC San Diego. Most UC transportation degree programs are in civil engineering or city planning. However, other departments including architecture, chemical engineering, computer science, economics, electrical engineering, energy resources, environmental studies, geography, landscape architecture, law, management, mechanical engineering, operations research, political science, public policy, sociology, and urban design now include transportation topics in one or more courses. The growth in transportation offerings in part reflects 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. In addition, UCTC research appointments for graduate and undergraduate students are a form of education and training, and many students receive course credit for participation in UCTC-funded faculty projects.

--Graduate Programs

Formal degree graduate programs or concentrations in transportation are offered on several campuses in the UC system, including Berkeley, Irvine, UCLA, Santa Barbara and Riverside. The civil and environmental engineering departments at Berkeley and Irvine offer transportation engineering degrees. Programs in transportation planning and policy are offered at Berkeley, 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. 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 works on GIS applications and advanced modeling, and Riverside focuses on transportation and air pollution.

Each of the campuses continues to maintain and improve their transportation programs, and to add new course offerings and programmatic specialties as opportunities arise. UC Santa Barbara and UC Riverside's transportation programs are now formally approved and are offering UCTC fellowships. At Berkeley, a new, interdisciplinary Global Metropolitan Studies (GMS) program is underway and has hired its first of five new faculty members. In the latest review of transport planning programs, Berkeley and UCLA ranked first and third, and the relatively new Irvine program also ranked in the top 10. The CEE program at Berkeley continues to be tied for first place in national rankings.

--Undergraduate Programs

UCTC funding for undergraduate education at the various campuses has continued to be focused on the development of new transportation courses. We generally fund a new course for several years until it is approved as part of the regular curriculum. 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.

--Continuing Education

UCTC-sponsored conferences, symposia, and lecture series offer opportunities for both academics, practitioners, and elected and appointed officials to learn about, discuss and debate new ideas in transportation. Each year UCTC supports such events and also provides funding so that UCTC faculty and students can attend other conferences to present their work.

In addition, 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.

Student Support

UCTC provides student support in the form of fellowships, graduate student researcher appointments, doctoral dissertation grants, and an annual student of the year award.

--Fellowships

US graduate students at all UC campuses with formal transportation programs (except Davis, which funds its programs through its own UTC) are eligible for UCTC fellowships. UCTC fellowships 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. A student who is offered a transportation fellowship from another program (e.g., an Eisenhower Fellowship or a UC Chancellor's Fellowship) is generally not awarded full UCTC funding.

--Graduate Student Researcher (GSR) Appointments

Every faculty research project must include support for at least one graduate student at 49% (or 2 GSRs at 25%) during the academic year, with full-time summer salary if funds allow. Currently faculty members are limited to one GSR due to RABA reductions from authorized funding levels. The Executive Committee has concluded that this limitation will continue to be imposed unless actual funding allows a higher level of expenditure. Many faculty members would prefer to support more than one student and UCTC campuses have the students to fill the slots, so we hope that funds will eventually permit fuller funding.

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 up to 10 (occasionally, 11) doctoral dissertation grants of \$15,000 (plus indirect costs if applicable). 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. 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. The applicant must have advanced to candidacy for the Ph.D. degree prior to the application deadline and must submit a brief synopsis of the 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. The dissertation grant abstracts are listed on our website along with faculty research projects and completed dissertations are published on the website as well.

--Student of the Year Award

Each year UCTC Executive Committee members choose a Student of the Year, who is awarded \$1000 plus costs to attend the award ceremony held during the annual meeting of the Transportation Research Board (TRB) in Washington, DC each January. The award acknowledges superior academic performance, commitment to transportation research and/or practice, and prospects for contributing to the transportation profession in the future.

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; conferences and symposia; policy advising and public service; and outreach efforts to business and community groups and the general public. Continuing education, discussed earlier, is also a tech transfer activity. Our ultimate objectives are to increase public understanding of transportation problems and opportunities for improvement, and to help transportation professionals to address transportation problems using the latest research findings and innovations.

--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 UCTC website. In addition, we produce the twice-yearly ACCESS Magazine, which summarizes UCTC-sponsored work in a style designed for a general audience. We distribute hard copies of ACCESS and also post it on our website, where readers can download the entire magazine or individual articles.

Managing Editor Melanie Curry works closely with researchers to produce informative, readable articles, even on topics that are highly technical and specialized. With the death of Founding Editor Melvin Webber, Professor Emeritus Charles Lave of the UC Irvine Department of Economics City and Regional Planning has agreed to serve as Faculty Editor for ACCESS. In addition, guest editors will help produce issues of ACCESS from time to time, and a newly appointed Editorial Board will provide assistance.

Periodically we remind UCTC faculty affiliates to send us their papers produced in whole or in part with UCTC funding. We publish most of these papers or reprints on the UCTC website and provide links to others. UCTC publications and reprints of UCTC-funded journal articles are distributed free of charge. In addition, we post copies of the dissertations funded with UCTC's assistance (See www.uctc.net.)

--Conferences and Symposia

UCTC grant recipients are expected to participate in conferences and symposia to communicate their research findings to both academics and practitioners. 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.

The UCTC annually supports the Lake Arrowhead Conference on Transportation, Land Use and the Environment, designed to bring together researchers, practitioners, and elected officials to discuss and debate important policy issues, as well as the UCTC Student Conference, designed to give graduate students the experience of organizing a conference, presenting their work, and discussing the work of their peers. The UCTC also helps faculty members to organize special research conferences and events as opportunities arise. Lectures and symposia organized by the Institute of Urban and Regional Development at UC Berkeley and the Public Policy Extension at UCLA attract elected officials and public and private agency leaders as well as academics.

Travel to conferences is supported as part of research grants, and each campus is provided a travel fund so that faculty and students can participate in the Annual Transportation Research Board meeting. As funds allow and on a case by case basis, the UCTC also will fund travel to meetings of other learned societies and professional organizations such as the Institute of Transportation Engineers, the American Society of Civil Engineers, the American Planning Association, the Association of Academic Schools of Planning, the American Association of Geographers, the American Political Science Association, and the American Economic Association. In addition, faculty members are provided travel support when they serve on committees for federal, state and local agencies as well as independent organizations such as the National Academy of Sciences.

-- Policy Advising and Outreach

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.

Upon request, UCTC faculty members also work with the news media to provide research findings, data, and expert opinions for articles and reports on current transportation issues.

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 has served several times as 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. The Executive Committee consists of the UCTC Director, the directors of the various campuses' Institutes of Transportation Studies or their representatives, the director of the Institute of Urban and Regional Development or his 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 2006-2007 were:

- **Robert Cervero**, Prof. of City & Regional Planning, Institute of Urban and Regional Development representative, UC Berkeley
- **Randall Crane**, Prof. of Urban Planning, UC Los Angeles
- **Carlos Daganzo**, Prof. of Civil & Environmental Engineering, UC Berkeley
- **Elizabeth Deakin**, UCTC Director, Prof. of City & Regional Planning, UC Berkeley
- **Kostas Goulias**, Prof. of Geography, UC Santa Barbara
- **Charles Lave**, Prof. Emeritus of Economics, UC Irvine
- **Samer Madanat**, Director, Institute of Transportation Studies, Prof. of Civil and Environmental Engineering, Berkeley
- **Will Recker**, Director, Institute of Transportation Studies, Prof. of Civil and Environmental Engineering, UC Irvine
- **Amelia Regan**, Assoc. Prof. of Computer Science Systems, UC Irvine
- **Jean Daniel Saphores**, Asst. Prof. of Policy, Planning and Design, UC Irvine
- **Brian Taylor**, Assoc. Prof. of Urban Planning, UC Los Angeles

The Executive Committee is responsible for 1) establishing the theme for the Center as set forth in the UCTC strategic plan, 2) advising and assisting the director in the development of the strategic plan, which establishes the allocation of funds among research, education, and technology transfer programs, 3) working with the Director in consultation with USDOT, Caltrans, and transportation advisors to identify and designate specific subject matter priorities for research funding in a particular year, 4) setting rules for allowable expenditures on research projects, consistent with USDOT and Caltrans requirements, and 5) conducting an annual review of the Center's overall

performance and resources, and redirecting funds and activities as necessary. Finally, 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.

Members of the UCTC Executive Committee meet in person at least once a year and transact business in the interim through telephone conference calls and e-mail.

The Executive Committee's time is donated.

Center Faculty

Faculty affiliates of the UCTC are 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

UCTC maintains a small staff. Staff currently consists of the director (half time) plus one administrative staff member, a half-time staff editor, student assistants, plus contracted support staff. The staff members in 2006-7 were:

- **Elizabeth Deakin**, Professor of City and Regional Planning, Director (half time plus summer salary)
- **Eunice Park**, Administrator. Ms. Park handles day-to-day administration for the Center and helps organize conferences and workshops.
- **Melanie Curry**, Editor (60% time.) Ms. Curry is the managing editor responsible for ACCESS, UCTC's twice-yearly magazine.
- **Michael Harvey**, Webmaster and computer tech support including programming (consultant, variable up to 50% time as needed)
- **Student Assistants** – as needed for specific tasks.
- **Accounting and Personnel Staff** – UCTC Headquarters accounting is currently provided through an agreement with the Institute of Urban and Regional Development, UC Berkeley; campus-based research, education, fellowship and tech transfer accounting and personnel services are provided by participating research units and departments.

In addition, **Melvin Webber**, Professor Emeritus of City and Regional Planning, UC Berkeley and former Director of UCTC, served as editor in chief of ACCESS magazine until his death in December 2006.

Table 1. UCTC Faculty Affiliates			
First Name	Last Name	Address	City / Campus
Matthew J.	Barth	Ctr. for Environmental Research	Riverside
Evelyn	Blumenberg	Urban Planning	Los Angeles
Marlon G.	Boarnet	Urban and Regional Planning	Irvine
Peter C.	Bosselman	City & Regional Planning	Berkeley
David	Brownstone	Economics	Irvine
Michael J.	Cassidy	Civil & Environmental Engineering	Berkeley
Robert	Cervero	City & Regional Planning	Berkeley
Karen	Chapple	City & Regional Planning	Berkeley
Ted	Chira-Chavala	ITS Extension	Berkeley
Richard	Church	Geography	Santa Barbara
William A.V.	Clark	Geography	Los Angeles
Linda	Cohen	Economics	Irvine
Randall D.	Crane	Urban Planning	Los Angeles
Carlos	Daganzo	Civil & Environmental Engineering	Berkeley
Kristen	Day	Urban and Regional Planning	Irvine
Karen K.	De Valois	Psych., Vision Sci. & Optometry	Berkeley
Elizabeth A.	Deakin	City & Regional Planning	Berkeley
Joseph	DiMento	Urban and Regional Planning	Irvine
Michael	Disch	Psychology	Berkeley
Bryan	Ellickson	Economics	Los Angeles
J. Gordon	Fielding	Social Sciences	Irvine
William L.	Garrison	Civil & Environmental Engineering	Berkeley
David	Gillen	Institute of Transportation Studies	Berkeley
Amihai	Glazer	Economics	Irvine
Steven	Goldman	Economics	Berkeley
Reginald G.	Golledge	Geography	Santa Barbara
Thomas	Golob	Transportation Studies	Irvine
Kostas	Goulias	Geography	Santa Barbara
Michael	Hanemann	Agr. & Res. Econ.	Berkeley
Mark	Hansen	Civil & Environmental Engineering	Berkeley
Robert	Harley	Civil & Environmental Engineering	Berkeley
J. Karl	Hedrick	Mechanical Engineering	Berkeley
Wolfgang	Homburger	Institute of Transportation Studies	Berkeley
Arpad	Horvath	Civil & Environmental Engineering	Berkeley
Linda	Howe-Steiger	ITS Extension	Berkeley
Judith	Innes	City & Regional Planning	Berkeley

Table 1 cont.			
First Name	Last Name	Address	City / Campus
Allan B.	Jacobs	City & Regional Planning	Berkeley
R.	Jayakrishnan	Civil & Environ. Engineering	Irvine
Adib	Kanafani	Civil & Environmental Engineering	Berkeley
Daniel B.	Klein	Economics	Irvine
Jess	Kraus	Public Health-Epidemiology	Los Angeles
John	Landis	City & Regional Planning	Berkeley
Charles A.	Lave	Economics	Irvine
Robin	Liggett	Urban Planning	Los Angeles
Anastasia	Loukaitou-Sideris	Urban Planning	Los Angeles
John	Lysmer	Civil & Environmental Engineering	Berkeley
Elizabeth	Macdonald	City & Regional Planning	Berkeley
Samer	Madanat	Civil & Environmental Engineering	Berkeley
Michael G.	McNally	Civil & Environ. Engineering	Irvine
James A.	Misener	PATH	Berkeley
Raymond W.	Novaco	Social Ecology	Irvine
Paul	Ong	Urban Planning	Los Angeles
Christos	Papadimitriou	Computer Science	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 Architecture	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	Civil & Environ. Engineering	Irvine
Paul A.	Ruud	Economics	Berkeley
Jean Daniel	Saphores	Civil & Environ. Engineering	Irvine
Robert F.	Sawyer	Mechanical Engineering	Berkeley
Allen J.	Scott	Urban Planning	Los Angeles
Raja	Sengupta	Civil & Environmental Engineering	Berkeley
Steven	Shladover	PATH	Berkeley
Donald C.	Shoup	Urban Planning	Los Angeles
Alexander	Skabardonis	Civil & Environmental Engineering	Berkeley
Kenneth A.	Small	Economics	Irvine
Michael	Southworth	City & Regional Planning	Berkeley
Robert C.	Spear	Public Health	Berkeley
Aaron	Steinfeld	PATH	Berkeley

Table 1 cont.			
First Name	Last Name	Address	City / Campus
Michael A.	Stoll	Policy Studies	Los Angeles
Jayashankar	Swaminathan	Haas School of Business	Berkeley
Brian D.	Taylor	Urban Planning	Los Angeles
Karen	Valois	Psychology	Berkeley
Kurt	Van Dender	Economics	Irvine
Pravin	Varaiya	Electrical Eng. & Computer Science	Berkeley
Martin	Wachs	Institute of Transportation Studies	Berkeley
Melvin	Webber	UC Transportation Center	Berkeley
Margaret	Weir	Sociology	Berkeley
Arthur	Winer	Public Health	Los Angeles
Candace	Yano	IEOR	Berkeley
Carol	Zabin	Center for Labor Research and Education	Berkeley

INSTITUTIONAL SUPPORT

UCTC's success depends on our strong working partnership with the California Department of Transportation (Caltrans), as well as on the broad support we receive from the University of California. The UC Office of the President, the administrations of the various campuses, the research institutes and departments of those campuses that offer transportation degrees, and the faculty who participate in UCTC activities all contribute to UCTC's activities. Because the UCTC can rely on this substantial institutional support, we are able to devote most of our funding to the direct costs of research, education, and technology transfer.

Caltrans Support of UCTC

As it has done since the UCTC's inauguration, Caltrans matched US Department of Transportation (US DOT) funds dollar-for-dollar. The new agreement, signed in April 2007, provides for match through FY 2011.

UC Support

Since the creation of the Center, the UC Office of the President has waived overhead on the matching funds from Caltrans, recognizing the vital educational objectives of the UCTC program and noting that Caltrans funds UCTC's administration and participates in shaping, but does not control, the research agenda. The University again has waived overhead on Caltrans matching funds for the new grant signed earlier this year. In addition, the University provides administrative services, but does not charge overhead on the portion of USDOT funds used for fellowships.

The University has made an even larger commitment to transportation research and education programs through its permanent financial support for faculty positions in transportation. The US DOT now requires a \$400,000 commitment in regularly budgeted institutional funds for a university to be eligible for Center designation; salaries and benefits for the full-time faculty members who conduct transportation research at Berkeley alone greatly exceed that amount.

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. The Institutes of Transportation Studies at Berkeley and Irvine, the Lewis Center / ITS at UCLA, and the Institute of Urban and Regional Development at Berkeley have provided major administrative assistance each year. In addition, as faculty at Riverside and Santa Barbara are increasingly involved in the UCTC, the UCSB Dept. of Geography and the UC Riverside CE Center for Environmental Research and Technology (CE-CERT) are taking on administrative tasks for UCTC grants.

UCTC faculty and students also benefit from their access to University computer, data, and library resources. 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. Each year UCTC sponsors a visit to each of the UCTC campuses by Librarian John Galloway, as a way of introducing new students to library holdings and services.

Finally, faculty members' time commitments are a substantial source of support for 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. The UC-funded time on research multiplies the UCTC's salary support for research by a factor of three or four.

Participation in the governance of the UCTC is a second way that faculty time is donated. 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. All of this service is provided all free of charge to UCTC.

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. UCTC funding is amplified by the pairing with these other funding sources.

Research Partnerships

The UCTC coordinates its research with that of the ITS units on the various campuses and with IURD at Berkeley. In addition, the UCTC works closely with the following research centers headquartered or located at Berkeley, sometimes jointly funding research.

PATH

California Partners for Advanced Transit and Highways (PATH) is the nation's largest program for intelligent transportation research. PATH is a multi-disciplinary program headquartered at Berkeley with staff, faculty and students from universities statewide, and cooperative projects with private industry, state and local agencies, and non-profit institutions. PATH's mission is to develop solutions to surface transportation systems problems through cutting edge research and development in the fields of information technology, electrical engineering, mechanical engineering, economics, transportation policy and behavioral studies. Research is organized into program areas: Traffic Operations, Transit Operations, Transportation Safety, and Behavioral Studies.

CCIT

The California Center for Innovative Transportation (CCIT) was founded by the University of California and the California Department of Transportation to facilitate the development, commercialization and deployment of promising transportation technologies and systems. It is headquartered at UC Berkeley.

NEXTOR

The National Center of Excellence for Aviation Operations Research (NEXTOR) is a consortium sponsored by the Federal Aviation Administration (FAA), consisting of UC Berkeley, the Massachusetts Institute of Technology, the University of Maryland at College Park and Virginia Polytechnic and State University. Research areas addressed by NEXTOR include advanced air traffic management systems, air traffic safety and security, and the performance and productivity of the nation's aviation system.

Pavement Research Center

The Pavement Research Center (PRC) is an international authority on pavement structures, materials, and technologies. The PRC's core mission is to research questions for the California Department of Transportation pertaining to the design, construction, rehabilitation and maintenance of the state's 75,000-lane-kilometer network of roads. PRC has branches at both UC Berkeley and UC Davis.

Safety Center

The Traffic Safety Center (TSC) is a joint venture of the Institute of Transportation Studies and the School of Public Health at UC Berkeley. Its goals are to reduce traffic fatalities and injuries through multi-disciplinary collaboration in education, research, and outreach, and to make traffic safety information widely available. The Center's fields of

research include pedestrian safety, passenger safety, and safe mobility for older drivers, and cost-benefit analysis of traffic safety interventions.

Volvo Center

The UC Berkeley Volvo for Future Urban Transport was established in 2004 with funding from the Volvo Research and Educational Foundations after a competition involving a large field of international candidates. The Center's mission is to study the mutual interdependence of urban transportation policy and technology and use the understanding of that concept to devise sustainable transportation strategies for the world's cities. Faculty and students from engineering and City and Regional Planning are the core researchers.

Joint Center for Sustainable Transportation

The Joint Center for Sustainable Transportation is the newest transportation research initiative at Berkeley, jointly sponsored by UCTC, ITS, the Global Metropolitan Studies Center, the UC Energy Institute, and the UC Berkeley Energy and Resources Group. The joint center's mission is to find effective responses to the energy and environmental challenges facing transportation systems world-wide while also assuring that they are equitable, economic, and a significant contributor to the quality of life for all.

Other Partnerships

The UCTC benefits from additional partnerships with other UTCs located in California. Two other University Transportation Centers have successfully competed for UTC designation, 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. In addition, Congress designated two additional new centers in California, at UC Davis (as noted earlier) and at Cal State San Bernardino (the Leonard Center). Caltrans has agreed to provide matching funds to all five centers. 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. UCTC invites both faculty and students from the other centers to participate in the annual student transportation conference that we sponsor, to join us at conferences and symposia, and to exchange research results.

UCTC also benefits from the advice and participation of transportation professionals drawn from a variety of public and private organizations. Over 250 individuals outside the UC system are on our reviewer list and over one-third of them participated in reviews during the 2006-2007 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

UCTC researchers got off to a late start on their projects this year, but we nevertheless have many accomplishments to report:

- During 2006-7 UCTC researchers completed six projects. The final papers from these projects are published on the UCTC website or are under review for publication. Eight additional projects were underway but were not completed; they have been extended into 2007-8.
- Faculty members from five UC campuses and 8 academic departments submitted 18 proposals in response to the RFP for this grant cycle. 55 individuals served as reviewers, with 28 from universities, 8 from private firms, 2 from nonprofits, 12 from Caltrans, 3 from USDOT, and 2 from other government agencies. As in previous years, we received more highly rated proposals than available funds could support. Our outside reviewers rated all of the 2006-7 proposals as very good or excellent. However, we were able to fund or partly fund only 11 of the most highly ranked proposals – only those ranked “excellent”. The new projects selected for awards went to faculty at Berkeley (4), Irvine (3), Los Angeles (2), Riverside (1), and Santa Cruz (1) campuses.
- The UCTC awarded dissertation grants to ten UC students, selected from the 15 applications received on the basis of peer reviews. (Previous UCTC dissertation grant winners serve as the reviewers for these awards.) The grants went to PhD students at Berkeley (3), Irvine (3), Santa Barbara (2), and Riverside (2).
- The UCTC provided approximately \$1.5 million in graduate student fellowships, dissertation grants, and in-state fees for GSRs. This accounted for about 44% of the total UCTC budget.
- UCTC-affiliated transportation programs awarded 103 new Masters and PhD degrees, and increased undergraduate enrollments in transportation courses. The graduates of these transport programs have joined private transportation firms, universities, nonprofits, and federal, state, and local government agencies.
- The UCTC added 60 research papers to our website. Table 2 lists the publications added this year.
- The UCTC website received 72,983 web hits this year; 377,647 papers and reports were downloaded. This is a substantial increase from the previous year.
- We published two more editions of ACCESS, our transportation magazine, and distributed 20,000 copies to readers across the US and overseas. However, more readers obtained ACCESS electronically than in hard copy this year –ACCESS articles were downloaded from the web 78,521 times, up from 48,918 the previous year.
- The UCTC co-sponsored the annual Lake Arrowhead conference, organized by the UCLA Public Policy Extension. The October 2006 event explored the connections between transportation, energy and climate change.
- The First Annual Martin Wachs Distinguished Lecture in Transportation was held at UC Berkeley in October 2006. Prof. Bent Flyvbjerg of Aalborg University, Denmark, gave the inaugural address. The Wachs Lecture was established in honor of Emeritus Professor Marty Wachs, who taught for many years first at UCLA and then at Berkeley, by his former students.
- Faculty members and graduate students affiliated with UCTC presented over 100 papers at sessions of the annual meeting of the Transportation Research Board in January 2007.

- Kenny Kuhn was elected the University of California's Student of the Year for 2006-2007. Kuhn received his PhD from UC Berkeley, where Samer Madanat was his dissertation adviser. He is employed at NASA-Ames as a researcher.
- Graduate students from UCLA organized the February 2007 UCTC Student Conference, with Professor Michael Meyer of Georgia Tech serving as keynote speaker. Gloria Jeff of the Los Angeles DOT spoke at the conference luncheon.
- UCTC faculty and colleagues capped a successful year by hosting the 11th World Conference on Transport Research June 24-27, 2007 on the UC Berkeley campus. The conference, which attracted nearly 1000 participants, is held every three years and draws researchers and practitioners from all over the world. This was the first time the WCTRS held its conference in the US.

Table 2. Research Papers 2006-7

Wachs, Martin	Improving Efficiency and Equity in Transportation Finance	2006, Fall	757
Madanat, Samer, Sejung Park, and Kenneth Kuhn	Adaptive Optimization and Systemic Probing of Infrastructure System Maintenance Policies under Model Uncertainty	2006, Fall	758
Choo, Sangho, and Patricia L. Mokhtarian	Do Telecommunications Affect Passenger Travel or Vice Versa?	2006, Fall	759
Puentes, Robert, and Ryan Prince	Fueling Transportation Finance: A Primer on the Gas Tax	2006, Fall	760
Flyvbjerg, Bent, Mette Skamris Holm, and Søren Buhl	Underestimating Costs in Public Works Projects: Error or Lie?	2006, Fall	761
Robelin, Charles-Antoine, and Samer M. Madanat	Dynamic Programming based Maintenance and Replacement Optimization for Bridge Decks using History-Dependent Deterioration Models	2006, Fall	762
Cervero, Robert	Freeway Deconstruction and Urban Regeneration in the United States	2006, Fall	763
Robelin, Charles-Antoine, and Samer M. Madanat	Network-Level Reliability-Based Bridge Inspection, Maintenance and Replacement Optimization Model	2006, Fall	764
Cervero, Robert	Transit Oriented Development's Ridership Bonus: A Product of Self-Selection and Public Policies	2006, Fall	765
Cervero, Robert, and Michael Duncan	Balanced Growth, Travel Demand, and Physical Activity	2006, Fall	766
Zhou, Jianyu (Jack), and Reginald Golledge	A Three-step General Map Matching Method in the GIS Environment: Travel/Transportation Study Perspective	2006, Fall	767
Macdonald, Elizabeth, Alethea Harper, Jeff Williams, and Jason A. Hayter	Street Trees and Intersection Safety	2006, Fall	768
Cervero, Robert	Effects of Light and Commuter Rail Transit on Land Prices: Experiences in San Diego County	2006, Fall	769
Cervero, Robert	Balanced Transport and Sustainable Urbanism: Enhancing Mobility and Accessibility through Institutional, Demand Management, and Land-Use Initiatives	2006, Fall	770
Marshall, Julian D., Thomas E. McKone, Elizabeth Deakin, William W. Nazaroff	Inhalation of motor vehicle emissions: effects of urban population and land area	2006, Fall	771
Marshall, Julian D., Soon-Kay Teoh, William W. Nazaroff	Intake fraction of nonreactive vehicle emissions in US urban areas	2006, Fall	772
Boarnet, Marlon G., Kristen Day, Craig Anderson, Tracy McMillan, and Mariela Alfonzo	California's Safe Routes to School Program: Impacts on Walking, Bicycling, and Pedestrian Safety	2006, Fall	773
Burbidge, Shauna K., Kostas Goulias, Tae-Gyu Kim	Travel Behavior Comparisons of Active Living and Inactive Living Lifestyles	2006, Fall	774
Manville, Michael, and Donald Shoup	Parking, People, and Cities	2006, Fall	775
Boarnet, Marlon G., Craig L. Anderson, Kristen Day, Tracy McMillan, Mariela Alfonzo	Evaluation of the California Safe Routes to School Legislation: Urban Form Changes and Children's Active Transportation to School	2006, Fall	776

Table 2 cont.

Shoup, Donald C.	The Practice of Parking Requirements	2006, Fall	777
Goulias, Konstadinos G., Kriste M. Henson	On Altruists and Egoists in Activity Participation and Travel: Who are they and do they live together?	2006, Fall	778
Marshall, Julian D., Patrick W. Granvold, Abigail S. Hoats, Thomas E. McKone, Elizabeth Deakin, William W. Nazaroff	Inhalation intake of ambient air pollution in California's South Coast Air Basin	2006, Fall	779
Henson, Kriste M., Konstadinos G. Goulias	A Preliminary Assessment of Activity Analysis and Modeling for Homeland Security Applications	2006, Fall	780
McMillan, Tracy, Kristen Day, Marlon Boarnet, Mariela Alfonzo, Craig Anderson	Johnny Walks to School - Does Jane? Sex Differences in Children's Active Travel to School	2006, Fall	781
Alfonzo, Mariela, Marlon Boarnet, Kristen Day, Tracy McMillan, and Craig L. Anderson	The Relationship of Neighborhood Built Environment Features and Walking	2006, Fall	782
Mukhija, Vinit, and Donald Shoup	Quantity versus Quality in Off-Street Parking Requirements	2006, Fall	783
Shoup, Donald C.	Cruising for Parking	2006, Fall	784
Deakin, Elizabeth	Sustainable Transportation: Findings from an International Scanning Review	2006, Fall	785
Deakin, Elizabeth	Transportation in California: The Coming Challenges	2006, Fall	786
Deakin, Elizabeth, et al.	Policies and Practices For Cost-Effective Transit Investments: Recent Experiences in the United States	2006, Fall	787
Deakin, Elizabeth, et al. (committee members)	Surface Transportation Environmental Research: A Long Term Strategy	2006, Fall	788
Garrison, William L., and Elizabeth Deakin	Travel, work, and telecommunications: a view of the electronics revolution and its potential impacts	2006, Fall	789
Deakin, Elizabeth	Mainstreaming Intelligent Transportation Systems	2006, Fall	790
Deakin, Elizabeth	Mainstreaming Intelligent Transportation Systems	2006, Fall	791
Deakin, Elizabeth, et al.	Parking Management and Downtown Land Development: The Case of Downtown Berkeley, CA	2006, Fall	792
Deakin, Elizabeth, et al.	Development of the BART System Expansion Criteria and Process	2006, Fall	793
McDonald, Noreen, Sally Librera, and Elizabeth Deakin	Free transit for low-income youth: Experience in the San Francisco Bay Area	2006, Fall	794
Mejias, Luis, and Elizabeth Deakin	Redevelopment and Revitalization Along Urban Arterials: A Case Study of San Pablo Avenue from the Developer Perspective	2006, Fall	795
Shirgaokar, Manish, and Elizabeth Deakin	A Study of Park and Ride Facilities and Their Use in the San Francisco Bay Area	2006, Fall	796
Cherry, Christopher, Elizabeth Deakin, Nathan Higgins and B. Tuey	Systems Level Approach to Sustainable Urban Arterial Revitalization: A Case Study of San Pablo Avenue	2006, Fall	797
Deakin, Elizabeth	Transportation, Urban Form and Economic Growth: Environmental Issues	2006, Fall	798
Deakin, Elizabeth	Social Impacts of the Interstate Highway System	2006, Fall	799
Deakin, Elizabeth, et al.	A System Plan for a Bay Area Regional Express Bus Service	2006, Fall	800

Table 2 cont.

McAndrews, Carolyn, Elizabeth Deakin, and Josefina Flórez	Using Community Surveys and Focus Groups to Inform Context Sensitive Design	2006, Fall	801
Nuworsoo, Cornelius, Elizabeth Deakin and Aaron Golub	Analyzing the Equity Impacts of Transit Fare Changes: A Case Study of AC Transit	2006, Fall	802
Nuworsoo, Cornelius, Kamala Parks, and Elizabeth Deakin	Cost per-User as Key Factor in Project Prioritization: A Case Study of the San Francisco Bay Area	2006, Fall	803
Raphael, S., A. Berube, and Elizabeth Deakin	Socioeconomic Differences in Household Automobile Ownership Rates: Implications for Evacuation Policy	2006, Fall	804
Deakin, Elizabeth	Equity and Environmental Justice in Sustainable Transportation: Toward A Research Agenda	2007, Spring	805
Cervero, Robert	Public Transport and Sustainable Urbanism: Global Lesson	2007, Spring	806
Crane, Randall	Is There a Quiet Revolution in Women's Travel? Revisiting the Gender Gap in Commuting	2007, Spring	807
Cervero, Robert	Economic Growth in Urban Regions: Implications for Future Transportation	2007, Spring	808
Nixon, Hilary, and Jean-Daniel Saphores	Impacts of Motor Vehicle Operation on Water Quality in the United States - Clean-up Costs and Policies	2007, Spring	809
King, David, Michael Manville, and Donald Shoup	The political calculus of congestion pricing	2007, Spring	810
Goulias, Konstadinos G., Larry Blain, Neil Kilgren, Timothy Michalowski, and Elaine Murakami	Catching the Next Big Wave: Are the Observed Behavioral Dynamics of the Baby Boomers Forcing Us to Rethink Regional Travel Demand Models?	2007, Spring	811
Li, Yuwei, and Michael J. Cassidy	A generalized and efficient algorithm for estimating transit route ODs from passenger counts	2007, Spring	812
Shoup, Donald C.	Smart Parking on Campus	2007, Summer	813
Goulias, Konstadinos G.	Travel Behavior and Demand Analysis and Prediction	2007, Summer	814
Goulias, Konstadinos G.	Companionship and Altruism in Daily Activity Time Allocation and Travel by Men and Women in the Same Households	2007, Summer	815
Herrera, Juan C., and Alexandre M. Bayen	Traffic flow reconstruction using mobile sensors and loop detector data	2007, Summer	816

RESEARCH PROJECT STATUS

While UCTC projects are designed to be one year in duration, extensions may be granted for good cause. 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. That has been the case for the last several years because of late or two-phase receipt of funding.

Because of funding delays and late starts, the 14 projects initiated in Year 18 (2005-6) were granted extensions into 2006-7. Additional delays in contracting led to some of these projects still not being finished, and eight of the 14 projects will be completed in 2007-8. New projects were initiated late in 2006-7, so that we had projects underway this year and their status. Following the tables are project status reports covering performance through July 31, 2005.

Table 3. Year 18 (2005-6) Research Projects Continuing in Year 19 (2006-7)

(14 Projects)

Principal Investigator	Campus	Research Project Title
Bayen, Alexandre	Berkeley	Congestion Control for Highway Network Systems
Cassidy, Michael	Berkeley	An Empirical and Theoretical Study of Freeway Weave Analysis
Cervero, Robert	Berkeley	Freeway Deconstruction and Urban Renewal: Land Market and Transportation Impacts
Clark, William	Los Angeles	How Much Do Low Income And Foreign-Born Households Use Public Transportation?
Crane, Randall	Los Angeles	Is the Gender Gap History? Revisiting Sex Differences in Driving using a National Panel, 1985 to 2005
Goulias, Konstadinos	Santa Barbara	A Spatial Analysis of Self-serving and Altruistic Travel Behavior
Harley, Robert	Berkeley	Emission and Air Quality Impacts of New Diesel Engine Control Technologies
Horvath, Arpad	Berkeley	Life-Cycle Environmental Assessment of Passenger Air and Rail Transportation
Kanafani, Adib	Berkeley	The Effect of In-Transit WiFi Internet Access on The Value of Travel Time Implications for Mode-Choice Models
Loukaitou-Sideris, Anastasia	Los Angeles	How Safe Is the Ride? Evaluation of Design and Policy Responses to Women's Fear of Victimization in Transportation Settings
Madanat, Samer	Berkeley	Bottom-up Bridge Management System
Recker, Wilfred	Irvine	A Model of Activity/Travel Scheduling/Rescheduling Decisions in an Uncertain Environment
Shoup, Donald	Los Angeles	The Political Calculus of Congestion Pricing
Winer, Arthur	Los Angeles	Estimating Potential Exposure to Diesel Truck Freeway Emissions in Southern California: A Methodology for Assessing Air Pollution Impacts of Goods Movement

Table 4. New Research Projects Awarded in Year 19**(11 Projects)**

Principal Investigator	Campus	Research Project Title
Barth, Matthew	Riverside	An Energy and Emissions Impact Evaluation of Intelligent Speed Adaptation
Cassidy, Michael	Berkeley	Relieving Congestion by Real-time Monitoring of Traffic Conditions and Coordination of Traffic Signals across Zone Boundaries
El Ghaoui, Laurent	Berkeley	Robust Traffic Assignment via Convex Optimization
Hansen, Mark	Berkeley	Evaluation of the Information Needs of the Distributed Landside Port Planning in California
Leavitt, Jacqueline	Los Angeles	Drivers in Los Angeles: Profile of a Workforce Facing Change
Marion, Justin & Ricard Gil	Santa Cruz	Subcontracting Decisions in California Highway Procurement Contracts
Regan, Amelia	Irvine	Models for Evaluating General Truck Transportation Management Strategies
Ritchie, Stephen	Irvine	Approach to Real-Time Commercial Vehicle Monitoring
Shen, Zuo-Jun Max	Berkeley	Modeling Transportation Networks during Disruption and Emergency Evacuations
Taylor, Brian	Los Angeles	Congestion and Accessibility: What's the Relationship?
Van Dender, Kurt	Irvine	Mode Choice and Destination Choice: Estimations and Simulations for Airport Access in the San Francisco Bay Area, 2001/2002

RESEARCH STATUS REPORTS

During UCTC's Year 19, 2006-7, 14 projects carried over from 2005-6 were underway. Toward the end of the year another 11 projects were selected for funding. Of the total of 25 projects, six were completed and 19 carried forward.

Completed Projects

The six projects completed in 2006-7 were:

Congestion Control for Highway Network Systems

Alexandre Bayen, UC Berkeley

Final Report: UCTC No. 816

Is the Gender Gap History? Revisiting Sex Differences in Driving using a National Panel, 1985 to 2005

Randall Crane, UC Los Angeles

Final Report: UCTC No. 807

A Spatial Analysis of Self-Serving and Altruistic Travel Behavior

Konstadinos Goulias, UC Santa Barbara

Final Report: UCTC No. 778

Life-Cycle Environmental Assessment of Passenger Air and Rail Transportation

Arpad Horvath, UC Berkeley

Final Report: UCTC Paper in review

How Safe Is the Ride? Evaluation of Design and Policy Responses to Women's Fear of Victimization in Transportation Settings

Anastasia Loukaitou-Sideris, UC Los Angeles

Final Report: UCTC Paper in review

A Model of Activity/Travel Scheduling/Rescheduling Decisions in an Uncertain Environment

Wifred Recker, UC Irvine

Final Report: UCTC Paper in review

Continuing Projects Initiated in 2005-6

Eight projects were granted extensions:

An Empirical and Theoretical Study of Freeway Weave Analysis

Michael Cassidy, UC Berkeley

Freeway Deconstruction and Urban Renewal Land Market and Transportation Impacts

Robert Cervero, UC Berkeley

How Much Do Low Income and Foreign-Born Households Use Public Transportation?

William Clark, UC Los Angeles

Emission and Air Quality Impacts of New Diesel Engine Control Technologies

Robert Harley, UC Berkeley

The Effect of In-Transit WiFi Internet Access on The Value of Travel Time Implications for Mode-Choice Models

Adib Kanafani, UC Berkeley

Bottom-up Bridge Management System

Samer Madanat, UC Berkeley

The Political Calculus of Congestion Pricing

Donald Shoup, UC Los Angeles

Estimating Potential Exposure to Diesel Truck Freeway Emissions in Southern California A Methodology for Assessing Air Pollution Impacts of Goods Movement

Arthur Winer, UC Los Angeles

The 11 new projects initiated in 2007-8 were:

An Energy and Emissions Impact Evaluation of Intelligent Speed Adaptation

Alexandre Bayen, UC Berkeley

Relieving Congestion by Real-time Monitoring of Traffic Conditions and Coordination of Traffic Signals Across Zone Boundaries

Michael Cassidy and Carlos Daganzo, UC Berkeley

Robust Traffic Assignment via Convex Optimization

Laurent El Ghaoui, UC Berkeley

Evaluation of the Information Needs of the Distributed Landside Port Planning in California

Mark Hansen, UC Berkeley

Drivers in Los Angeles: Profile of a Workforce Facing Change

Jacqueline Leavitt, UCLA

Subcontracting Decisions in California Highway Procurement Contracts

Amelia Regan, UC Irvine

Models for Evaluating General Truck Transportation Management Strategies

Justin Marion and Ricard Gil, UC Santa Cruz

Approach to Real-Time Commercial Vehicle Monitoring

Stephen Ritchie, UC Irvine

Modeling Transportation Networks during Disruption and Emergency Evacuations

Zuo-Jun Max Shen, UC Berkeley

Congestion and Accessibility: What's the Relationship?

Brian Taylor, UCLA

Mode Choice and Destination Choice: Estimations and Simulations for Airport Access in the San Francisco Bay Area

Kurt Van Dender and David Brownstone, UC Irvine

All 11 of these projects have an end date of July 31, 2008 in recognition of their very late start.

Completed Projects

Congestion Control for Highway Network Systems

Principal Investigator:

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

Abstract: This project builds on available sensing technology used to monitor highway traffic, and on power computing for large scale simulations, in order to derive accurate congestion forecast strategies and efficient congestion control schemes for highway systems. It uses a mathematical formulation of the physical laws responsible for highway congestion. We build a mathematical analysis framework mapping the Lighthill-Whitham-Richards partial differential equation (traditionally used to model highway traffic) into a Hamilton-Jacobi equation, which is easier to analyze and control. Using the Hamilton-Jacobi equation, we identify traffic flow patterns leading to congested situations, and devise control strategies to apply at the on-ramps of the highway in order to alleviate congestion. We develop a simulation toolbox to validate our results against highway data available from the PeMS system, and run test scenarios to assess the accuracy of our forecasts and the efficiency of our control schemes.

Key Words: sensing technology, large scale simulations, traffic flow patterns, simulation toolbox, PeMS system.

Objective: The goal of this project is to establish a mathematical and a computational framework for the forecast and control of congestion propagation in highway network systems.

Tasks:

1. Mathematically pose the problem of congestion propagation.
2. Generate software to solve the problems posed.
3. Use previous work in order to tune the models for relevant scenarios, using the PeMS system.
4. Run the software on specific California highway scenarios, using the PeMS system.
5. Document software and generate library of test cases.

Milestones, Dates: Official start date Aug. 1, 2005, end July 31, 2007

Student Involvement: Graduate Student Researcher

Technology Transfer Activities: Publications are 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: This project provides new analysis and computational tools to forecast highway congestion and control the propagation of congestion fronts on the highway.

Work Completed to Date: Research completed

Papers to Date: Herrera, Juan C., and Alexandre M. Bayen, Traffic flow reconstruction using mobile sensors and loop detector data, UCTC Paper No. 816, Summer 2007

Conferences Attended:

TRB, WCTR Berkeley

Direct Cost: \$75,473

Is the Gender Gap History? Revisiting Sex Differences in Driving using a National Panel, 1985 to 2005

Principal Investigator:

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

Abstract: Dozens of studies indicate that while women as a group drive more each year, and tend to take more trips than men, men still drive more overall. Explanations include women's rising labor force participation and their enduring disproportionate share of domestic and child-oriented responsibilities. As these two trends continue to evolve, much remains unclear about how they and other changes in key demographic, family, and economic factors translate into changing driving patterns. In 1990 San Francisco, working men reported driving more than working women in all age groups but 23-39. In 2000, by contrast, travel times were the same by sex for all age groups but one. Additionally, women traveled less in single, childless adult families in 1990, but more by 2000. These trends have not been analyzed for individual-level, longitudinal national data containing rich detail on family structure. It is thus unknown whether the so-called gender gap is shrinking nationwide when using proper statistical controls. We will analyze the National sample from the American Housing Survey, comprising 11 waves from 1985 to 2005. The model specification conforms to urban form theory, the model estimation uses panel techniques, and the potential endogeneity of wages and land costs will be addressed statistically.

Key Words: Commute, Journey to Work, Sprawl, Decentralization, Suburbanization

Objective: An improved understanding of how sex influences travel outcomes.

Tasks:

1. Development of theoretical model of individual travel demand
2. Development of statistical model of household travel behavior and urban form, based on choice theories of home and job behaviors.
3. Report preparation.

Milestones, Dates: Official start date Aug. 1, 2005, end July 31, 2008

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: Inform public policies aimed at influencing the determinants & impacts of urban development.

Work Completed to Date: Research completed

Papers to Date:

Crane, R - Is There a Quiet Revolution in Women's Travel? Revisiting the Gender Gap in Commuting, UCTC Paper No. 807, Spring 2007

Conferences Attended:

TRB, ACSP, WCTR Berkeley

Direct Cost: \$44,565

A Spatial Analysis of Self-serving and Altruistic Travel Behavior

Principal Investigator:

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

Abstract: Formulation and specification of activity and travel analysis models require better understanding of time allocation behavior, especially when studying time allocation of persons in joint activities and travel. However, very little is known about selfish and altruistic behavior and how this relates to travel behavior in time and space. We offer a first analysis using structural equations models and data from a special type of activity participation diaries. The data from these diaries are detailed lists of activities pursued, times spent in each activity, and travel information from activity to activity (including travel time, mode used, and so forth) linked to individual and household characteristics. We also use detailed information about the persons that were served by the activity of each participant. The analysis will identify the correlation structure underlying behavioral indicators such as amount of time and frequency of activity and travel episodes for family and friends as well as for self-serving reasons. Then, the temporal and spatial relationships with activity participation and travel with others and alone as well as modal split will also be studied and correlated with altruistic and self-serving behaviors.

Key Words: activity and travel behavior, egoistic and altruistic behavior, modal split

Objective: Create a model system that explains modal split as a function of altruistic and self-serving behavior.

Tasks:

1. Develop First Model Set
2. Develop Second Model Set
3. Write report and papers for publication

Milestones, Dates: Official start date Aug. 1, 2005, end July 31, 2008

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 travel behavior to design better policies on environmentally friendly modes.

Work Completed to Date: Research completed

Papers to Date:

Konstadinos G., Kriste M. Henson - On Altruists and Egoists in Activity Participation and Travel: Who are they and do they live together? UCTC Paper No. 778, Fall 2006

Goulias, Konstadinos G. - Companionship and Altruism in Daily Activity Time Allocation and Travel by Men and Women in the Same Households, UCTC Paper No. 815, Summer 2007

Conferences Attended:

TRB, AAG, WCTR Berkeley

Direct Cost: \$64,447

Life-Cycle Environmental Assessment of Passenger Air and Rail Transportation

Principal Investigator:

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

Abstract: The heavy rail and air passenger transportation modes are critical systems relied upon for business and leisure. When considering their environmental effects, most studies focus on the fuel use of the vehicles, and ignore the energy and other resource inputs and environmental outputs from the life cycles of involved infrastructures, fuels, and vehicles. This project develops comprehensive life-cycle assessment (LCA) models to quantify the energy inputs and emissions from heavy rail and air transportation in the U.S. associated with the entire life cycle (design, raw materials extraction, manufacturing, construction, operation, maintenance, end-of-life) of the infrastructures, fuels, and vehicles in these systems. A computer-based decision-support tool is created to assist decision-makers in private and governmental organizations in making environmentally friendlier investment and other decisions. A case study analysis of the proposed high speed rail line connecting San Francisco and Los Angeles is presented.

Key Words: air transportation, rail transportation, energy, emissions, environment, life-cycle assessment

Objective: Develop life-cycle assessment (LCA) models to quantify the energy inputs and emissions from heavy rail and air transportation in the U.S. associated with the entire life cycle of the infrastructures, fuels, and vehicles

Tasks:

1. Literature research
2. Develop LCA
3. Collect data
4. Develop computer-based decision-support tool
5. Case study

Milestones, Dates: Official start date Aug. 1, 2005, end July 31, 2007

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 decision-making on intercity travel

Work Completed to Date: Research completed

Papers to Date:

Horvath, A., Environmental Life-cycle Assessment of Passenger Transportation: An Energy, Greenhouse Gas, and Criteria Pollutant Inventory of Rail and Air Transportation (UCTC Paper under review)

Conferences Attended:

TRB, WCTR Berkeley

Direct Cost: \$47,444

How Safe Is the Ride? Evaluation of Design and Policy Responses to Women's Fear of Victimization in Transportation Settings

Principal Investigator:

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

Abstract: Women's fear of transportation facilities – such as parking lots, buses, and bus stops – affects the way women engage in travel. Cities around the world have addressed this issue by implementing programs to assess and remedy safety gaps in the built environment, but there is little research evaluating these programs. This study will focus on the safety concerns and needs of women transit riders by reviewing the literature on women's fear in public settings, conducting interviews with representatives from women's advocacy groups, surveying U.S. transit operators to document the programs and activities they have implemented to make their systems safer for women riders as well as their assessments of the efficacy of these programs, and documenting model programs targeting women's safety issues regarding transit.

Key Words: Women, safety, transit travel

Objective: Identify women's needs regarding transit safety; assess if these needs are met by transit operators; identify model programs and best practices

Tasks:

1. Literature review
2. Interviews with representatives of women's groups in the U.S
3. Web-based survey of transportation agencies.
4. Case studies of model programs
5. Report writing

Milestones, Dates: Official start date Aug. 1, 2005, end July 31, 2008

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: Development of policies and design recommendations for making transit travel safer for women

Papers to Date:

Anastasia Loukaitou-Sideris (2006). "Women's Fear of Victimization and Crime: Fallacies, Paradoxes, Effects, and Responses," *Progressive Planning*, No 167, pp. 18-20, reprinted as UCTC paper (under review)

Papers to Date:

None yet

Conferences Attended:

ACSP

Direct Cost: \$43,095

A Model of Activity/Travel Scheduling/Rescheduling Decisions in an Uncertain Environment

Principal Investigator:

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

Abstract: The activity-based approach to analysis of human interaction with the social and physical environments dates back to the original time-space geography works of Hägerstrand and his colleagues at the Lund School in 1970. Despite their obvious theoretical attractiveness, activity-based approaches to understanding and predicting travel behavior have suffered from the absence of an analytical framework that unifies the complex interactions among the resource allocation decisions made by households in conducting their daily affairs outside the home, while preserving the utility-maximizing principles presumed to guide such decisions. The objective of this research is to develop a computationally-tractable system, based on an extension and modification of some rather well-known network-based formulations in operations research, to model human dynamics in uncertain environments. The research will build on the mathematical programming formulation of the Household Activity Pattern Problem (HAPP) by embedding in the household activity schedule decision process a means of capturing uncertainty and preferences, and by introducing the dynamics of rescheduling. The proposed model will be estimated and validated using data derived from an on-line survey/diary of household members, documenting the scheduling and dynamic rescheduling of all (in- and out of- home) activities over the course of a one- week period.

Key Words: activity-based, human dynamics, uncertain environments, household schedule

Objective: The objective of this research is to develop a computationally-tractable modeling system that incorporates uncertainty factors within the dynamics of activity/travel rescheduling/adaptation.

Tasks:

1. Formulate “fuzzified” version of household activity/travel decision model
2. Develop framework for producing skeleton activity plans
3. Incorporate dynamic rescheduling based on similarity measures
4. Estimate and verify model using existing REACT! Data.

Milestones, Dates: Official start date Aug. 1, 2005, end July 31, 2008

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: The resulting framework would greatly increase our ability to address the household activity scheduling problem.

Papers to Date:

W. Recker, J. Duan and H. Wang - Development of an estimation procedure for an activity-based travel demand model, UCTC paper under review

Conferences Attended to Date:

TRB

Direct Cost: \$46,435

Continuing Projects

An Empirical and Theoretical Study of Freeway Weave Analysis

Principal Investigator:

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

Abstract: A major source of freeway bottlenecks is driver lane-changing activity at freeway weaving sections formed when an on-ramp is followed rather closely by an off-ramp. Current methods for analyzing traffic conditions on these types of sections have shown poor ability to reproduce empirical observations and have produced inconsistent results. This research proposes an alternative approach to study weaving phenomena based on recent empirical and theoretical findings. Recent field experiments uncovered mechanisms of driver lane change behavior that cause the reduction in freeway system capacity. Further, we have developed a parsimonious extension to the kinematic wave theory (the multilane hybrid model) that reproduces this behavior by explicitly incorporating the effects of lane-changing maneuvers. A parsimonious method can be devised for predicting weaving section capacity based on the cause and effect mechanisms that govern this type of bottleneck. We collect high-fidelity observations at multiple (i.e., three or more) freeway sites to better understand the operations of weaving sections.

Key Words: freeway bottlenecks, lane-changing, freeway weaving sections, field experiments, kinematic wave theory

Objective: To test a new theory for better understanding the operation of freeway weaving sections and develop a new method for analysis.

Tasks:

1. Literature review: further review the state of the art in weaving analysis. Fully document limitations and inconsistencies reported in the literature.
2. Data collection: site selection, data collection and processing of at least 3 freeway sites.
3. New method: a new method will be developed based on the team's recent findings on the connection between lane changes and traffic congestion.
4. Final report.

Milestones, Dates: Official start date Aug. 1, 2005, end July 31, 2008

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: first theory/method able to replicate real-world observations on weaving section operations.

Papers to Date:

None yet

Conferences Attended to Date:

WCTR Berkeley

Direct Cost: \$73,966

Freeway Deconstruction and Urban Renewal: Land Market and Transportation Impacts

Principal Investigator:

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

Abstract: Freeway “deconstruction” marks an abrupt shift in urban priorities in places like San Francisco, Portland, and Milwaukee. Priorities are shifting away from designing cities to enhance mobility toward promoting economic and environmental sustainability, livability, and social equity. This project will investigate the economic trade-offs and distributional implications of freeway demolitions, drawing from case-study experiences and quantitative analyses. Case-study work will probe the institutional and planning contexts of freeway removals based on experiences with the Park East Freeway in Milwaukee and the Central Freeway in San Francisco. The quantitative analyses will focus on San Francisco’s two notable yet different freeway demolitions – the Embarcadero Freeway and Central Freeway. For the Embarcadero corridor, matched-pair methods will be used to investigate pre- and post-changes in commercial real-estate market conditions, including vacancy rates and average rents relative to downtown comparison areas (beyond the freeway impact zone). For the Central Freeway corridor, matched-pair methods will be used to study changes in residential sales values between nearby neighborhoods and otherwise similar ones off the freeway corridor, and also to study changes in roadway levels of service, delays, and pedestrian accident rates for major streets and intersections impacted by the Central Freeway demolition.

Key Words: Freeway; Economic Development; Land Market Impacts; Safety; Level-of-Service; Hedonic Price Modeling; Matched-Pair Comparisons; Case Studies.

Objective: Evaluate the impacts of freeway demolitions on the land markets and economic standing on affected neighborhoods as well as traffic and safety conditions to gain an understanding of efficiency and equity trade-offs.

Tasks: literature review; case studies ; data assembly, matched-pair comparisons on economic development and land markets; before-after analysis of level of service, mode and route shifts, and accident rates; synthesize the findings and prepare report.

Milestones, Dates: Official start date Aug. 1, 2005, end July 31, 2008

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: Gauge the impacts of freeway removals on economic development, land markets, traffic performance and safety levels, probing net efficiency versus distribution-equity implications.

Papers to Date:

None yet

Conferences Attended to Date:

WCTR Berkeley

Direct Cost: \$52,592

How Much Do Low Income and Foreign-Born Households Use Public Transportation?

Principal Investigator:

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

Abstract: At one level the answer to this question is an unqualified “a great deal” - of course low-income populations use public transportation. How else would many of these workers get to their jobs? And, there is an implicit, and often explicit, sense that cities need to provide increased public transit and access to that transportation for low-income populations. However, recent research and commentary has raised questions about the use of public transportation by low-income populations. Studies of mostly welfare population have suggested that while public transportation is not unimportant, the car is a much more critical factor in moving from welfare to work. This paper conducts research with a detailed geo-coded data set to examine the low-income population in general and the foreign born population in particular. How much do low-income households in the Los Angeles metropolitan area use public transportation in their journey to work, schools and other activities? Are the foreign-born population particularly intensive users of public transportation and can we determine the relative trade-off of public transit and car use by these households? The study will extend previous studies that were targeted to specific welfare populations, to the low-income population at large.

Key Words: journey to work, public transportation, low-income populations, foreign-born populations

Objective: To evaluate the relative role of transit and auto use by low-income populations.

Tasks: (1) Use logistic regression to estimate the probability of being employed or becoming employed as a function of car versus transit use for individual households, (2) evaluate the use of transit by residential location.

Milestones, Dates: Official start date Aug. 1, 2005, end July 31, 2008

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: The study will generalize and confirm, or question, earlier studies which have suggested that transit use does not significantly benefit welfare to work transitions.

Papers to Date:

None yet

Conferences Attended to Date:

WCTR Berkeley

Direct Cost: \$52,119

Emission and Air Quality Impacts of New Diesel Engine Control Technologies

Principal Investigator:

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

Abstract: Diesel engines are now responsible for half or more of the total nitrogen oxide (NO_x) and exhaust particulate matter (PM) emissions from on-road vehicles nationally. There has been recent progress in developing control technologies such as selective catalytic reduction, lean NO_x traps, NO_x storage catalysts, and diesel particulate filters. Although these technologies have not yet been widely deployed in on-road vehicles, their use will soon be required due to new heavy-duty engine emissions standards that will take effect in the U.S. starting with the 2007 model year. In this research, we will review control technologies available for future use, assess control efficiency, cost, durability and robustness in service, and the potential for undesirable side-effects on exhaust emissions. Emissions estimates will be developed for historical, current and future year scenarios that span a 20-year time period. We will use a 3-D photochemical model to predict the effects of changes in vehicle emissions on air pollution levels in the Los Angeles area.

Key Words: air pollution, diesel, emission controls, nitrogen oxides, particulate matter

Objective: Assess changes in emissions and air quality likely to occur in the next 10 years due to new emission control requirements for diesel engines.

Tasks:

1. Review of new diesel exhaust control techniques
2. Estimate emissions for historical, current, and future year scenarios
3. Assess air quality impacts of changing emissions in the Los Angeles area

Milestones, Dates: Official start date Aug. 1, 2005, end July 31, 2008

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: Quantify expected improvements in air quality over the next decade as a result of major investments in diesel emission control technologies.

Papers to Date:

None yet

Conferences Attended to Date:

WCTR Berkeley

Direct Cost: \$44,834

The Effect of In-Transit WiFi Internet Access on The Value of Travel Time Implications for Mode-Choice Models

Principal Investigator:

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

Abstract: This study explores the effect on valuation of passenger travel time (VOTT), of providing of wireless internet access (WiFi) on public transportation modes. Specifically, we aim to formulate a model of the effect of WiFi on trains on time value and eventually on market share. VOTT is the amount that a passenger would pay to reduce travel time by unit quantity. Amenities that enhance possibility of other activities during travel reduces the disutility of travel time, subsequently reducing VOTT. For most work and leisure activities, of internet access during the commute enhances the quality and productivity of work and leisure activities performed during travel. Utility maximizing mode choice models may be used for quantify the effect of WiFi on VOTT and on market share. In these models, the ratio of the Lagrangean multipliers of the travel time and income constraints results in the same value of VOTT as the ratio between marginal utilities of time & cost estimated as part of modal utility in a discrete travel choice model. Internet access can then be modeled as an attribute in attribute specific choice models. The extent of reduction of VOTT can be used as a guideline for pricing WiFi on trains.

Key Words: Information Technology, Value of Time, Mode Choice, WiFi on Trains

Objective: Evaluate the effect of internet access in public transportation modes on the value of travel time and on mode choice.

Tasks:

1. Theoretical Model Development
2. Data Assembly
3. Estimation of Time Values
4. Adapting Mode Choice Models for Internet Access Attributes

Milestones, Dates: Official start date Aug. 1, 2005, end July 31, 2008

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: Understanding feasible business models for the provision of WiFi services on public transportation systems, and estimating the effect of that on market share.

Papers to Date:

None yet

Conferences Attended to Date:

WCTR Berkeley

Direct Cost: \$52,969

Bottom-up Bridge Management System

Principal Investigator:

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

Abstract: Infrastructure Management Systems support agencies in developing efficient policies to monitor, maintain, and repair deteriorating facilities. In the case of bridges, two approaches exist: a top-down approach in which optimization is done at the network level, which does not provide bridge-specific recommendations and a bottom-up approach in which optimization is done first at the facility level. Current systems using a bottom-up approach present a major limitation: the optimization is done on a portion of the life cycle, which is equivalent to a short planning horizon. Finally, current state-of-the-art systems use time-independent deterioration models, which may not be appropriate. A Bridge Management System is proposed which would optimize lifecycle maintenance while using time-dependent deterioration models and preserving bridge-specific details. A bottom-up approach can be used. Moreover, robust optimization techniques can be applied at the facility-level, in order to mitigate the epistemic uncertainty in the deterioration process. Recommendations for each component can be aggregated and selected to meet network-level constraints. The proposed approach will provide long-term maintenance costs savings, and improve long-term performance and mainstreamed maintenance management.

Key Words: Infrastructure Management Systems, Maintenance, Resource Allocation, Deterioration Models, Robust Optimization.

Objective: a Bridge Management System that accounts for facility-specific attributes and system-level considerations

Tasks:

1. Literature review on bridge component deterioration models and M&R optimization models
2. Model formulation and solution: problem formulation, deterioration model synthesis, optimization model
3. Extensions: simultaneous optimization of inspection and maintenance decisions (to address inherent uncertainty) and robust optimization (to address epistemic uncertainty).
4. Application case-studies

Milestones, Dates: Official start date Aug. 1, 2005, end July 31, 2008

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: The product of the project will provide state DOTs a prototype for the next generation of Bridge Management Systems, which goes beyond the constraints of current systems.

Papers to Date:

None yet

Conferences Attended to Date:

WCTR Berkeley

Direct Cost: \$44,360

The Political Calculus of Congestion Pricing

Principal Investigator:

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

Abstract: Although traffic congestion has worsened and tolling technology has improved, motorists and elected officials continue to oppose congestion tolls on crowded roads. While transportation economists have long recommended tolls as the most promising way to reduce traffic congestion, economic efficiency alone has been insufficient to galvanize public policy. The political viability and public acceptance of congestion pricing depends on creating legitimate claimants who will fight for the revenue, and logical claimants for freeway toll revenue are the cities through which the freeways pass. Distributing toll revenue to freeway cities will compensate these cities for bearing the local external costs of a regional system, and will also create well-organized claimants who support for the tolls. This research will explore how distributing toll revenue to cities can work. There are three aspects to this proposal: First, we will estimate the distribution of toll revenues to cities in Los Angeles County, and interview city officials to explore their attitudes towards congestion pricing if the revenues are returned to cities. Second, we will replicate our estimates of revenue distribution in other metro areas. Third, we will conduct a review of the health implications of freeways on adjacent communities.

Key Words: congestion, congestion pricing, distribution of toll revenue

Objective: To explore how distributing toll revenue to cities can work.

Tasks:

1. Estimate the distribution of toll revenues to cities in Los Angeles County, and interview city officials to explore their attitudes towards congestion pricing if the revenues are returned to cities.
2. Replicate estimates of revenue distribution in other metro areas.
3. Conduct a review of the health implications of freeways on adjacent communities.

Milestones, Dates: Official start date Aug. 1, 2005, end July 31, 2008

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: The political viability and public acceptance of congestion pricing depends on creating legitimate claimants who will fight for the revenue, and logical claimants for freeway toll revenue are the cities through which the freeways pass. Distributing toll revenue to freeway cities will compensate these cities for bearing the local external costs of a regional system, and will also create well-organized claimants who support for the tolls.

Papers to Date:

None yet

Conferences Attended to Date:

WCTR Berkeley

Direct Cost: \$47,452

Estimating Potential Exposure to Diesel Truck Freeway Emissions in Southern California: A Methodology for Assessing Air Pollution Impacts of Goods Movement

Principal Investigator:

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

Abstract: It is now well documented that air pollution and health impacts of diesel vehicle emissions are highly concentrated near major roadways. This study will develop a methodology to disaggregate the potential impacts of diesel truck traffic from all other traffic in order to characterize the geographic extent and magnitude of diesel pollutant impacts along freeways in Los Angeles County, with an emphasis on those freeways with a relatively large fraction of diesel truck traffic. Recognizing the potential benefits of expanding the goods movement capacity of the freeway system, this project will provide transportation planners and policy makers with a more comprehensive understanding of local pollutant impacts, and enhance their ability to develop informed and defensible strategies to avoid and mitigate adverse impacts of heavy-duty freight vehicles.

Key Words: air pollution, diesel truck traffic, emissions, goods movement, heavy-duty freight, local pollutant impacts

Objective: Develop a methodology to characterize the geographic extent and magnitude of diesel pollutant impacts along freeways that will inform strategies to avoid and mitigate adverse impacts of heavy-duty freight vehicles.

Tasks:

1. Review Existing Studies
2. Collect, Assess and Compile Truck Count Data
3. Assign Truck Counts to a GIS Freeway Map System
4. Identify and Characterize Potential Air Pollution Impacts

Milestones, Dates: Official start date Aug. 1, 2005, end July 31, 2008

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: This project will aid transportation and air quality agencies in assessing and evaluating the potential local air quality impacts of heavy duty diesel truck emissions immediately adjacent to goods movement freeway corridors.

Papers to Date:

none yet

Conferences Attended to Date:

WCTR Berkeley

Direct Cost: \$37,094

New UCTC Research Projects, Year 19 (Awarded 2006-7)

An Energy and Emissions Impact Evaluation of Intelligent Speed Adaptation

Principal Investigator:

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

Abstract: Excessive vehicle speed on today's roadways often results in accidents, high fuel consumption rates, and excessive pollutant emissions. Traditional methods of limiting speed have only been moderately effective. Using the latest intelligent transportation technology, speed enforcement can be enhanced through vehicle speed management programs, often referred to as Intelligent Speed Adaptation (ISA). An ISA system monitors the location and speed of the vehicle, compares it to a defined set speed, and takes corrective action such as advising the driver and/or governing the top speed of the vehicle. ISA also has the potential to smooth traffic flow during congested conditions leading to lower fuel consumption and emissions. In order to better understand the impacts of ISA on energy and emissions, use microscopic transportation/emissions modeling tools and other telematic system hardware previously developed by the principal investigator to examine different speed management algorithms under varying traffic scenarios and congestion conditions. For each evaluation, quantitative energy/emission impacts will be determined. To complement the simulation analysis, experiments will be performed using real-time traffic information provided to an ISA-equipped vehicle driving in traffic. Results will be compared to another non-equipped-ISA vehicle acting as a control, representing the general traffic flow.

Key Words: dynamic speed control, intelligent transportation systems, energy and vehicle emissions analysis

Objective: Evaluate the impacts that intelligent speed adaptation techniques have on vehicle fuel consumption and emissions using both simulation modeling tools and real-world experimentation.

Tasks:

Task 1: Literature/data review

Task 2: Simulation Setup and Analysis

Task 3: Conduct Real-World Experimentation

Task 4: Report

Milestones, Dates: Official start date Aug. 1, 2006, end July 31, 2008

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: The results from this project will allow us to quantify the potential benefits that intelligent speed adaptation will have on energy consumption and pollutant emissions.

Papers to Date:

None

Conferences Attended to Date:

None

Direct Cost: \$47,389

Relieving Congestion by Real-time Monitoring of Traffic Conditions and Coordination of Traffic Signals across Zone Boundaries

Principal Investigator:

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

Abstract: The current paradigm for traffic control relies heavily on forecasting models. Yet the models and data used to produce the outputs are unreliable. A robust strategy has recently been developed to avoid urban gridlock (queue spillovers that cause traffic to devolve to jammed state). The idea behind this strategy consists of dividing a metropolitan area into neighborhood-sized zones; monitoring macroscopic traffic conditions such as aggregate vehicular accumulations within each zone in real time; and controlling flow between zones. We propose to adopt this strategy in the settings of centralized traffic signal control and to develop algorithms that complement those already deployed in systems such as Los Angeles Department of Transportation (LADOT)'s Adaptive Traffic Control System (ATCS). We will develop plans to demonstrate the effectiveness of the strategy through a field test.

Key Words: traffic control, signal control.

Objective: Relieve congestion by real-time monitoring of traffic conditions and coordination of traffic signals across zone boundaries.

Tasks:

- Task 1: Obtain and analyze information about ATCS.
- Task 2: Develop new guidelines for partitioning.
- Task 3: Develop aggregation technique to monitor neighborhood level traffic state.
- Task 4: Develop algorithms for implementing proposed strategy in ATCS.
- Task 5: Plan for a field test in ATCS.
- Task 6: Develop policies for coordination and synchronization of traffic signals across jurisdictional boundaries

Milestones, Dates: Official start date Aug. 1, 2006, end July 31, 2008

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: Congestion relief and better utilization of transportation system capacities.

Papers to Date:

None

Conferences Attended to Date:

None

Direct Cost: \$58,658

Robust Traffic Assignment via Convex Optimization

Principal Investigator:

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

Abstract: The static traffic assignment problem with deterministic demand is often formulated as a linear, or, more generally, convex optimization problem. It has long been recognized that various uncertainties may affect the input data, such as origin-destination demands, or network topology. In turn, these uncertainties may greatly deteriorate the optimality of solutions to the traffic assignment problem. Thus, it is desirable to obtain a traffic assignment that is robust with respect to uncertainties affecting the model. Recently, new approaches to decision-making under uncertainty have been proposed, under the name of robust optimization. The methodology has been successful in many areas of engineering, such as communications, filter design, control systems, and also in machine learning and statistics. The goal of this project is to evaluate the potential benefits of using a robust optimization approach in the context of traffic assignment, both for static and dynamic problems. It is expected that the approach will provide a traffic assignment methodology that provides solutions that are far more robust than the original ones, yet give up relatively little in terms of performance.

Key Words: traffic assignment, convex optimization, uncertainties, robust optimization, performance

Objective: Development of a traffic assignment methodology that combines the efficiency of convex optimization algorithms and versatility of robust optimization models, offering robust solutions at little extra cost in performance.

Tasks:

Task 1: Literature review and impact assessment

Task 2: Static assignment, bounded uncertainty: development of models for extreme situations which catastrophically disrupt the network.

Task 3: Static assignment, stochastic uncertainty: uncertainty modelled via random variables, with imperfectly known distributions.

Task 4: Dynamic assignment: formulate efficient robust optimization algorithms for the dynamic case, with focus on so-called linear recourse strategies, in the context of highly disruptive perturbations.

Milestones, Dates: Official start date Aug. 1, 2006, end July 31, 2008

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: The product of the project will enable analysts to obtain solutions to traffic assignment problems that offer greater reliability, and behave better even in the case of large-scale, catastrophic perturbations.

Papers to Date:

None

Conferences Attended to Date:

None

Direct Cost: \$70,240

Evaluation of the Information Needs of the Distributed Landside Port Planning in California

Principal Investigator:

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

Abstract: Trucks are a vital and rapidly growing component of the California economy. This growth provides large statewide benefits, yet also strains the transportation system serving California's ports. Despite the importance of truck travel in California and their relationship to port operations, current landside port transportation plans do not accurately account for movements of truck traffic due to a lack of deep understanding of demand. A sound transportation plan based on the planning decisions of truck operators and public agencies will allow California's ports to grow without degrading the region's transportation system. This research proposes to understand the informational needs of public agencies and private truck operators in planning for landside port operations and to define a demand analysis toolkit to provide this information efficiently. A prototype methodology for the demand analysis deemed most important to model truck traffic serving ports will be developed. It is expected that improved Origin and Destination tables to assist in the Trip Distribution stage of transportation modeling would provide the most benefit to both the public and private sector.

Key Words: freight, truck travel, California, landside port, transportation plan, truck operator, public agency, demand analysis

Objective: Investigate the distributed processes by which truck operators and port agencies plan for trucking activity in port areas, and initiate development of an analytical toolkit to facilitate and improve such planning.

Tasks:

Task 1: Evaluate current transportation system service from the perspective of trucks at California container ports.

Task 2: Analyze landside port planning and identify analytical needs related to accommodating trucking activity.

Task 3: Initiate development a prototype methodology for the analysis toolkit identified.

Milestones, Dates: Official start date Aug. 1, 2006, end July 31, 2008

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: A sound transportation plan based on information produced by the toolkit contemplated in this research will facilitate the planning decisions of truck operators and public agencies and allow California's ports to grow without undue congestion or environmental degradation.

Papers to Date:

None

Conferences Attended to Date:

None

Direct Cost: \$50,933

Taxi Drivers in Los Angeles: Profile of a Workforce Facing Change

Principal Investigator:

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

Abstract: Little is known about taxi drivers in the City of Los Angeles. In general, taxi drivers work long hours, without health insurance, for low wages. Nine taxi operators with a total of 2,303 cars have franchises each of which is assigned to one or more service areas. The L.A. taxi workforce is increasingly immigrant. Data about drivers conflates taxi and limousine drivers. Diversity by ownership or lease is not clearly defined; drivers include owner-operators, who may own multiple cabs and lease drivers who pay rent to an owner or fleet. Highly regulated, relationships with government bureaucracies and franchises determine fees and expenses including weekly leases, car payments, insurance, maintenance, etc. This study focuses on characteristics of taxi drivers -- demographics, income, health coverage, stress levels, and impacts on households – and the structure of their relationships with taxi companies. Findings are based on a survey of 400 taxi drivers and in-depth interviews of 30 taxi drivers. The findings will help the L.A. City Council in considering a proposal by taxi operators to shift to medallions and as franchises expire in 2010. Study findings can be used to clarify consequences for change in an industry whose workforce profile is changing.

Key Words: taxi drivers, City of Los Angeles, health insurance, low wages, immigrant, owner-operators, lease drivers, survey, in-depth interview, medallions

Objective: Develop a socio-economic profile of taxi drivers in Los Angeles, including working conditions, income, years of driving, health coverage, national origin and impact on economic support of households.

Tasks:

Task 1: Administer 400 surveys to taxi drivers in the City of Los Angeles.

Task 2: Conduct 30 in-depth interviews.

Task 3: Data entry and analysis.

Task 4: Review secondary literature.

Task 5: Draw from current research studies on network and sectoral analyses of taxi industry in LA

Milestones, Dates: Official start date Aug. 1, 2006, end July 31, 2008

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: Provide a needs assessment about taxi drivers and information at a time when the City Council will face expiring taxi operator franchises and taxi industry is circulating a proposal to adopt a medallion system.

Papers to Date:

None

Conferences Attended to Date:

None

Direct Cost: \$35,029

Subcontracting Decisions in California Highway Procurement Contracts

Principal Investigator:

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

Abstract: Theories of the firm suggest that problems such as contractual incompleteness and hold-up lead firms to produce more inputs in-house rather than purchasing them from potentially more efficient suppliers. Repeated interactions between firms and their suppliers are often thought to relieve such problems, as the risk of putting in jeopardy future business opportunities often outweighs the short-run gains from providing suboptimal levels of non-contractible output or holding up production to capture more rents. The research described in this proposal will empirically examine the role of relationships, in the form of repeat interactions, between contractors and subcontractors in the California state highway procurement market. Data from auctions awarding highway construction and repair contracts will be used to assess several questions. First, what determines relationship formation? Second, how do such relationships improve firm productivity? Third, how do these relationships lead to improved performance after the contract is awarded? These results will then be discussed in the context of California Department of Transportation policies, such as the affirmative action program for disadvantaged subcontractors.

Key Words: Highway procurement, subcontracting, relational contracting.

Objective: The goal of this research is to provide insight into relationships between contractors and subcontractors, including factors influencing their formation, and how they affect firm efficiency and performance.

Tasks:

Task 1: Additional data collection of prices charged for items within contracts, and the actual value of payments to subcontractors by the general subcontractor.

Task 2: Data management including creating tracking variable for subcontractors across projects, generating contractor-subcontractor relationship measures, and generating geocoded firm locations and distance measures.

Task 3: Statistical and economic analysis, including estimating determinants of relationship formation, how relationships impact firm costs, and how relationships affect project performance.

Task 4: Write final report.

Milestones, Dates: Official start date Aug. 1, 2006, end July 31, 2008

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 impact of current and future policies relating to subcontracting, an important component of the production decision of highway construction firms.

Papers to Date:

None

Conferences Attended to Date:

None

Direct Cost: \$58,641

Models for Evaluating General Truck Transportation Management Strategies

Principal Investigator:

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

Abstract: Increased truck traffic resulting from growth of national and international trade has negative side effects including congestion, safety hazards, air pollution, and rapid pavement deterioration on highways and streets. This research develops an effective and efficient general truck management strategies (GTMS) evaluation model that can concurrently reflect public and private sector standpoints. Microscopic traffic simulation models are employed in this analysis to examine systems performance measures that can be used to evaluate the impacts of various GTMS. GTMS strategies have included improving highway characteristics, intelligent transportation systems, operational strategies and enforcement/compliance, but have mainly addressed operational and safety aspects of truck operations. These aspects are important but insufficient because they do not accurately describe the full effects of the implementation of GTMS. The evaluation models will be developed to analyze major challenges of truck traffic as well as to simultaneously reflect the standpoints of the public and private sector.

Key Words: Intermodal Freight Transportation System, Capacity Modeling, Truck Management Strategies

Objective: To develop an effective and efficient general truck management strategies (GTMS) evaluation model that can concurrently reflect public and private sector standpoints.

Tasks:

Task 1: Comprehensive Literature Surveys for the Prevalent GTMS in the U.S.

Task 2: Develop a Model For GTMS Evaluation.

Task 3: Analysis and Evaluation of the GTMS using Micro Simulation.

Task 4: Write final report.

Milestones, Dates: Official start date Aug. 1, 2006, end July 31, 2008

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: This research will develop useful planning tools and also provide insight into freight bottlenecks in the case study region.

Papers to Date:

None

Conferences Attended to Date:

None

Direct Cost: \$63,060

Approach to Real-Time Commercial Vehicle Monitoring

Principal Investigator:

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

Abstract: Vehicle classification algorithms allocate vehicles to predefined classes based on selected vehicle characteristics. Such algorithms have many important applications in transportation systems analysis and policy development, including travel forecasting, goods movement studies, road design and maintenance, setting user fees, safety studies, traffic flow modeling, environmental impact analysis, traffic management and automated toll collection. This research will collect a large and unique dataset of commercial vehicle (CV) signatures using conventional inductive loops and a new wireless sensor with potential for cost-effective and widespread use. The data will be used to develop detailed and accurate vehicle classification algorithms for CVs, and will provide important insights into the strengths and limitations of a new wireless traffic sensor.

Key Words: vehicle classification, algorithms, commercial vehicles, inductive loops, wireless traffic sensor,

Objective: Collect a dataset of commercial vehicle signatures and development accurate and detailed commercial vehicle classification algorithms, utilizing a new traffic sensor

Tasks:

Task 1: Design of data collection setup, and assemble equipment.

Task 2: Collect signature data and video data at both locations.

Task 3: Investigate signature preprocessing requirements for Sensys data.

Task 4: Ground truth vehicle signature data.

Task 5: Investigate feature correlation and error analysis for vehicles belonging to similar classes for both loop and Sensys data.

Task 6: Develop vehicle classification algorithm for Sensys data.

Task 7: Develop improved vehicle classification algorithm for loop data.

Task 8: Recommendations for potential of loop and Sensys sensors for vehicle classification applications.

Task 9: Develop commercial vehicle re-identification model for Sensys to Sensys and loop to Sensys sensors.

Task 10: Final Summary Report.

Milestones, Dates: Official start date Aug. 1, 2006, end July 31, 2008

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: The expected benefits include new insights into the structure and formulation of improved vehicle classification algorithms for commercial vehicles, and development of more accurate and detailed vehicle classification algorithms

Papers to Date:

None

Conferences Attended to Date:

None

Direct Cost: \$57,349

Modeling Transportation Networks during Disruption and Emergency Evacuations

Principal Investigator:

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

Abstract: Emergency management has attracted a lot of research attention because of the importance as well as the complexity of the problem. Well-prepared transportation systems should be able to respond to natural and human-caused disasters in a timely and effective manner, and ensure the ability to move people and goods in times of crisis. We propose to model the highly uncertain and time-dependent transportation networks during disruptions and emergency evacuations, and propose efficient optimization algorithms to solve the resulting models. Specifically, two types of optimization models will be proposed and studied. The first one focuses on scenario analysis using risk management tools, and the second model deals with dynamic real-time decision making during actual evacuations. Possible results from this project can help the planners make quick and good decisions during evacuations.

Key Words: evacuations, optimization, risk management.

Objective: To provide optimization tools for the modeling of transportation networks during disruptions and emergency evacuations.

Tasks:

Task 1: Build optimizations models for scenarios analysis and dynamic decision making.

Task 2: Write final report.

Milestones, Dates: Official start date Aug. 1, 2006, end July 31, 2008

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: The results from this research can help the planners making quick and good decisions during evacuations to save more lives and reduce the negative impacts of the disasters.

Papers to Date:

None

Conferences Attended to Date:

None

Direct Cost: \$70,526

Congestion and Accessibility: What's the Relationship?

Principal Investigator:

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

Abstract: This research examines how measures of transportation accessibility and congestion vary and relate in metropolitan areas. While congestion has been a perennial concern for transportation policymakers, planners, and researchers, traditional measures of congestion say little about the range and extent of opportunities that individuals are either gaining access to or missing out on because of the regional transportation system's functionality. Using GIS-based methods, empirical measures of accessibility will be developed that account both for mobility constraints at a given location and the potential destinations accessible within those constraints. These measures of accessibility will be compared to common measures of congestion at the local and regional scales. We hypothesize that within a region, the effects of congestion on accessibility are likely to vary considerably across a single region. Because of these differences, empirical measures of accessibility may provide researchers, engineers, planners, and policymakers with different insights into the transportation system's performance by emphasizing potential benefits for travelers rather than the mechanistic functioning of the infrastructure as do measures of congestion. This research, in other words, seeks to shift the unit of analysis in congestion measurement from the transportation network to travelers by focusing on accessibility instead of system performance.

Key Words: congestion, accessibility, GIS.

Objective: Determine how measures of transportation accessibility and congestion vary and relate in metropolitan areas.

Tasks:

Task 1: Literature review.

Task 2: Develop congestion measures.

Task 3: Develop accessibility measures.

Task 4: Congestion / accessibility comparative analysis.

Task 5: Final report.

Milestones, Dates: Official start date Aug. 1, 2006, end July 31, 2008

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: This research will contribute to our understanding of how congestion relates to individuals' access to destinations (or the inverse, spatial isolation).

Papers to Date:

None

Conferences Attended to Date:

None

Direct Cost: \$22,730

Mode Choice and Destination Choice: Estimations and Simulations for Airport Access in the San Francisco Bay Area, 2001/2002

Principal Investigator:

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

Abstract: We model and estimate how air passengers flying out of a San Francisco Bay Area airport choose a particular airport (as passengers often can travel to the same final destination from several Bay Area airports) and how they choose a transport mode for accessing the airport from their initial travel origin. The estimation uses data from the 2001/2002 Airline Passenger Survey and a range of auxiliary sources, which in combination provide a detailed picture of the choice alternatives that are available to consumers with different trip origins and trip destinations, and of the time and money costs of these alternatives. In addition, the survey contains a number of useful socio-demographic variables. The estimated model can be used to simulate the effects of changes in airport access costs on airport market shares and on access modes' shares.

Key Words: urban transport, mode choice, discrete choice, mixed logit, multiple imputations, airport choice.

Objective: To estimate a model of airport choice and mode choice for access to the airport using data on passengers departing from the San Francisco Bay area in 2001/02.

Tasks:

- Task 1: Construct a dataset for estimation of the choice model, by combining the air passenger survey of 2001/02 with three or four additional sources.
- Task 2: Econometric implementation of a mixed logit discrete choice model, with multiple imputation methods to account for measurement error.
- Task 3: Simulation of counterfactual scenarios (policy analysis).
- Task 4: Reporting.

Milestones, Dates: Official start date Aug. 1, 2006, end July 31, 2008

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: To show how airport and airline decisions affect passenger choices and the ensuing demand for ground transportation, in a region served by competing airports.

Papers to Date:

None

Conferences Attended to Date:

None

Direct Cost: \$74,489

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.

Table 5 shows the committed allocations of the budget for 2006-2007.

Table 5. University of California Transportation Center 2006-7 Allocations

ITEM	USDOT	Caltrans	SUM	PERCENT
Center Director Salary		77,250	77,250	2.3%
Faculty Salaries	60,000	200,000	260,000	7.6%
Administrative Staff Salaries		100,000	100,000	2.9%
Other Staff Salaries		100,000	100,000	2.9%
Student Salaries	120,541	600,000	720,541	21.2%
Staff Benefits	12,616	116,068	128,684	3.8%
A- SUBTOTAL SALARIES AND BENEFITS	193,157	\$1,193,318	1,386,475	40.8%
Scholarships, including student fees and tuition when applicable	1,300,000	200,000	1,500,000	44.1%
Permanent Equipment		5,000	5,000	0.1%
Expendable Property & Supplies	1	76,682	76,683	2.3%
Domestic Travel	30,000	75,000	105,000	3.1%
Foreign Travel	40,000	0	40,000	1.2%
Other Direct Costs (Specify)		150,000	150,000	4.4%
B- SUBTOTAL DIRECT COSTS NOT INCLUDING SCHOLARSHIPS ETC	70,001		70,001	2.1%
TOTAL COSTS	1,563,158	1,700,000	3,263,158	96.0%
C-TOTAL SUBJECT TO IND.COSTS	263,158	0	263,158	7.7%
Facilities & Admin. (Indirect) Costs	136,842	0	136,842	4.0%
TOTAL COSTS	1,700,000	1,700,000	3,400,000	100.0%
	50%	50%	100%	

C. FUNDING SOURCES AND EXPENDITURES

Revenues for UCTC came in equal amounts from US DOT and Caltrans. Expenditures were made in accordance with the submitted budget. All funds were allocated to budgeted categories during 2004-2005.

Figure 1 illustrates revenues and Figure 2 illustrates direct expenditures (committed amounts by allocation category) for UCTC.

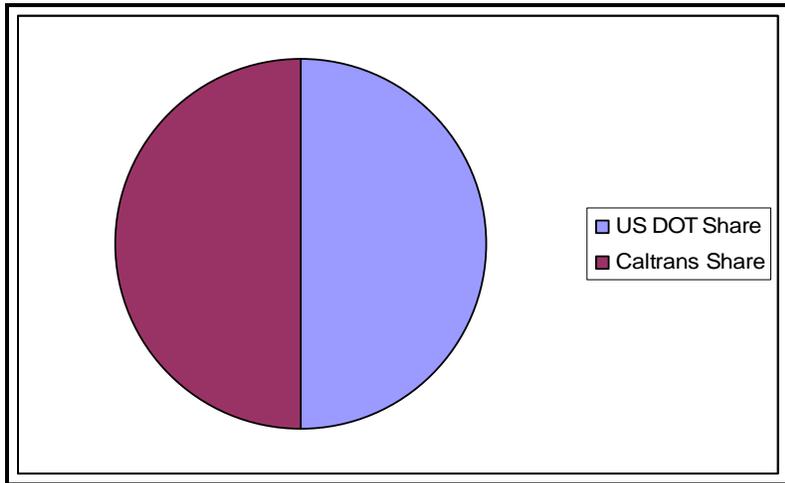


Figure 1. UCTC Revenues, Year 19 (2006-2007)

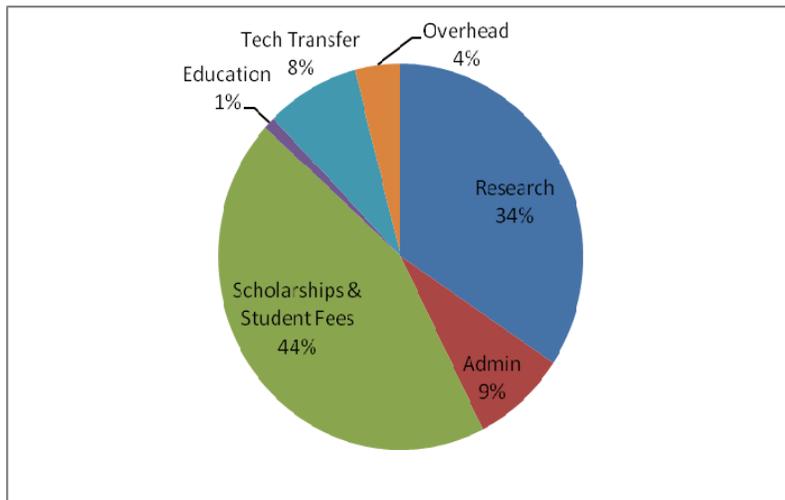


Figure 2. UCTC Expenditure Allocations, Year 19 (2006-2007)

APPENDIX 1. GLOSSARY

ACCESS - the research magazine published by the University of California
CAD- computer-aided design
CALTRANS- the California Department of Transportation
CE-CERT – the Civil Engineering Center for Engineering Research and Technology at UC Riverside
CCIT- California Center for Innovative Transportation located at UC Berkeley
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 (USDOT)
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
GMS – Global Metropolitan Studies, an interdisciplinary initiative at UC Berkeley
GSR- graduate student researcher
IGS- the Institute of Governmental Studies at UC Berkeley
ISTEA- the Intermodal Surface Transportation Efficiency Act
ITS - the Institute of Transportation Studies (branches at the Berkeley, Davis, Irvine, and UCLA campuses)
IURD - the Institute of Urban and Regional Development at UC Berkeley
Leonard Center – the Leonard Transportation Center at San Bernardino State University, a UT
METTRANS- the Center for Metropolitan Transportation Studies at the University of Southern California, a UTC
MPO- Metropolitan Planning Organization
MINETA - Mineta Transportation Institute at San Jose State University, a UTC
NEXTOR - National Center of Excellence for Aviation Operations Research headquartered at UC Berkeley
NRT – nonresident tuition
NSF- National Science Foundation
OECD- the Organization for Economic Cooperation and Development
PATH- Program for Advanced Transit and Highways headquartered at UC Berkeley
PI- Principal Investigator
RABA - Revenue Aligned Budget Authority
RITA – the Research, Innovations and Technology Administration of the USDOT
SAFETEA-LU - Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users
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
UCB - the Berkeley campus of the University of California
UCD - the Davis campus of the University of California
UCI - the Irvine campus of the University of California
UCLA- the Los Angeles campus of the University of California
UCM – the Merced campus of the University of California
UCR – the Riverside campus of the University of California
UCSB – the Santa Barbara campus of the University of California
UCSC – the Santa Cruz campus of the University of California
UCSD – the San Diego campus of the University of California
UCSF – the San Francisco 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
Volvo Center – the Center for Future Urban Transport, a Volvo Center of Excellence located at Berkeley

APPENDIX 2. COMPLETED RESEARCH PROJECTS

PERIOD COVERED: FALL 2000 – SUMMER 2007

TOTAL COMPLETED PROJECTS: 100

YEAR 12 (1999-2000) COMPLETED 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) COMPLETED 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, ITS, UC Irvine

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) COMPLETED RESEARCH PROJECTS (15 PROJECTS)

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

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

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

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

Evaluation of the California Safe Routes to School Program
Marlon Boarnet and Kristen Day, City and Regional Planning, 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, City and Regional Planning, UC Berkeley

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

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

Reinforcement Learning in Transportation Infrastructure Management
Samer Madanat, Civil and Environmental Engineering, UC Berkeley

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

Optimal Control Policies for Urban Corridor Management

Wilfred Recker, ITS, UC Irvine

The Impact of Motor Vehicle Transportation on Water Quality

Jean Daniel Saphores, ITS, UC Irvine

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

Anastasia Loukaitou-Sideris, Urban Planning, UCLA

Equity and Environmental Justice in Transportation

Martin Wachs, ITS, UC Berkeley

YEAR 15 (2002-2003) COMPLETED RESEARCH PROJECTS (17 PROJECTS)

Expanded Evaluation of the California Safe Routes to School Program

Marlon Boarnet, Kristen Day, and Craig Anderson, City and Regional Planning, UC Irvine

Verifying Regularities in Queued Freeway Traffic

Michael Cassidy, Civil and Environmental Engineering, UC Berkeley

Commuter Rail, Land Use and Travel Behavior

Robert Cervero, City and Regional Planning, UC Berkeley

Comparing White and Minority Household Commuter Behavior

William Clark, Geography, UC Berkeley

Storage System Dynamics and Management Policies

Carlos Daganzo, Civil and Environmental Engineering, UC Berkeley

Judging the Speed of Pedestrians and Bicycles at Night

Karen K. De Valois, Psychology, UC Berkeley

Policies for Safer and More Efficient Truck Operations on Urban Freeways

Thomas Golob and Amelia Regan, ITS, UC Irvine

High-Coverage Point-to-Point Transit

R. Jayakrishnan, ITS, UC Irvine

Incorporating Seismic Risk Considerations in Transportation Infrastructure Management

Samer Madanat, Civil and Environmental Engineering, UC Berkeley

Handheld Travel Survey Technology to Supplement Vehicle Tracking

Michael McNally, ITS, UC Irvine

I/O Analysis of Communications and Travel for Industry

Patricia Mokhtarian, Civil and Environmental Engineering, UC Davis

Car Ownership, Insurance Premiums and Employment Outcomes

Paul Ong, Urban Planning, UCLA

Public Transit and Residential Location Choices of Minorities and Transit Dependents

John Quigley and Stephen Rafael, Public Policy, UC Berkeley

An Evaluation of Employer-Based Transit Programs

Donald Shoup, Urban Planning, UCLA

Effects of Contracting on Fixed-Route Bus Cost-Efficiency

Brian Taylor, Urban Planning, UCLA, and Martin Wachs, ITS, UC Berkeley

Exploring the Marketability of Fuel-Cell Electric Vehicles

Thomas Turrentine, ITS, UC Davis

Theoretical and Empirical Investigations of Traffic Flow at Highway Merges

Michael Zhang, M., Civil and Environmental Engineering, UC Davis

YEAR 16 (2003-2004) COMPLETED RESEARCH PROJECTS (10 PROJECTS)

Experiments to Increase Freeway Merge Capacity

Michael Cassidy, Civil and Environmental Engineering, UC Berkeley

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

Anastasia Loukaitou-Sideris, Urban Planning, UCLA

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

Patricia Mokhtarian, ITS, UC Davis

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

Kurt Van Dender, ITS, UC Irvine

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

Martin Wachs and Annie Decker, ITS, UC Berkeley

Amber Alert Policy: Laboratory Experiments to Improve a Policy

Theodore Cohn, Optometry, UC Berkeley

Improved Developer Models for the Sacramento Region

Robert Johnston, Environmental Sciences, UC Davis

Auctions for the Procurement of Transportation Service Contracts

Amelia Regan, ITS, UC Irvine

Identification and Measurement of Freeway Congestion

Alexander Skabardonis, PATH, UC Berkeley

Transportation Policy Development: Labor as a Missing Stakeholder

Margaret Weir, Sociology, UC Berkeley

YEAR 17 (2004-2005) COMPLETED RESEARCH PROJECTS (17 PROJECTS)

Similarity Analysis for Estimation of an Activity-based Travel Demand Model

Will Recker, ITS, UC Irvine

Auto-mobility, Spatial Isolation, and the Poor

Evelyn Blumenberg, Urban Planning, UC Los Angeles

Housing-Retail Balance, Travel Demand, and Physical Activity

Robert Cervero, City and Regional Planning, UC Berkeley

Transaction-Cost Economic Analysis of Institutional Change toward Design-Build Contracts for Public Transportation

David Dowall, Institute of Urban and Regional Development, UC Berkeley

Activity-Oriented Scheduling/Activity Survey and Analysis Via a Unified Real-time Data Collection Framework

Reginald Golledge, Geography, UC Santa Barbara

Wet Pavement Accidents on California Highways: Causes, Concentrations, and Potential Means for Reduction

Thomas Golob, ITS, UC Irvine

The UC Davis Bicycle Studies

Susan Handy, Transportation Technology and Policy, UC Davis

Testing Spatial Mismatch: A Structural Equations Modeling Approach

Robert Johnston, Environmental Sciences, UC Davis

Street Trees and Intersection Safety

Elizabeth Macdonald, City and Regional Planning, UC Berkeley

Robust Optimal Maintenance and Rehabilitation Policies in Asset Management

Samer Madanat, ITS, UC Berkeley

Modeling the Adoption of Teleshopping

Patricia Mokhtarian, Civil and Environmental Engineering, UC Davis

Estimating Activity Rates and Emissions from Heavy-Duty Construction Equipment

Debbie Niemeier, Civil and Environmental Engineering, UC Davis

Modeling Car Ownership Rates, and Age and Value of Vehicles

Paul Ong, Urban Studies, UC Los Angeles

Capacity Modeling for Large Scale Urban Multimodal Freight Transportation Systems

Amelia Regan, ITS, UC Irvine

Cruising for Parking

Donald Shoup, Urban Studies, UC Los Angeles

Why Do Inner City Residents Pay Higher Premiums? Determinants of Automobile Insurance Premiums?

Michael Stoll, Urban Studies, UC Los Angeles

Motor Fuel Price and Expenditure Effects on Vehicle Use in California

Martin Wachs, ITS, UC Berkeley

YEAR 18 (2005-6) PROJECTS COMPLETED RESEARCH PROJECTS (6 PROJECTS)

Congestion Control for Highway Network Systems

Alexandre Bayen, UC Berkeley

Is the Gender Gap History? Revisiting Sex Differences in Driving using a National Panel, 1985 to 2005

Randall Crane, UC Los Angeles

A Spatial Analysis of Self-Serving and Altruistic Travel Behavior

Konstadinos Goulias, UC Santa Barbara

Life-Cycle Environmental Assessment of Passenger Air and Rail Transportation

Arpad Horvath, UC Berkeley

How Safe Is the Ride? Evaluation of Design and Policy Responses to Women's Fear of Victimization in Transportation Settings

Anastasia Loukaitou-Sideris, UC Los Angeles

A Model of Activity/Travel Scheduling/Rescheduling Decisions in an Uncertain Environment

Wifred Recker, UC Irvine

Appendix 3. CONTINUING PROJECTS

A -- Year 18 - 2005-6 Projects – Continued into 2007-8 (8 Projects)

An Empirical and Theoretical Study of Freeway Weave Analysis

Michael Cassidy, UC Berkeley

Freeway Deconstruction and Urban Renewal Land Market and Transportation Impacts

Robert Cervero, UC Berkeley

How Much Do Low Income and Foreign-Born Households Use Public Transportation?

William Clark, UC Los Angeles

Emission and Air Quality Impacts of New Diesel Engine Control Technologies

Robert Harley, UC Berkeley

The Effect of In-Transit WiFi Internet Access on The Value of Travel Time Implications for Mode-Choice Models

Adib Kanafani, UC Berkeley

Bottom-up Bridge Management System

Samer Madanat, UC Berkeley

The Political Calculus of Congestion Pricing

Donald Shoup, UC Los Angeles

Estimating Potential Exposure to Diesel Truck Freeway Emissions in Southern California A Methodology for Assessing Air Pollution Impacts of Goods Movement

Arthur Winer, UC Los Angeles

B -- Year 19 - 2006-7 Projects – Continued into 2007-8 (11 Projects)

An Energy and Emissions Impact Evaluation of Intelligent Speed Adaptation

Matthew Barth, UC Riverside

Relieving Congestion by Real-time Monitoring of Traffic Conditions and Coordination of Traffic Signals across Zone Boundaries

Michael Cassidy and Carlos Daganzo, UC Berkeley

Robust Traffic Assignment via Convex Optimization

Laurent El Ghaoui, UC Berkeley

Evaluation of the Information Needs of the Distributed Landside Port Planning in California

Mark Hansen, UC Berkeley

Taxi Drivers in Los Angeles: Profile of a Workforce Facing Change

Jacqueline Leavitt, UC Los Angeles

Subcontracting Decisions in California Highway Procurement Contracts

Justin Marion and Gil Ricard, UC Santa Cruz

Models for Evaluating General Truck Transportation Management Strategies

Amelia Regan, UC Irvine

Approach to Real-Time Commercial Vehicle Monitoring

Stephen Ritchie, UC Irvine

Modeling Transportation Networks during Disruption and Emergency Evacuations

Zuo-Jun Max Shen, UC Berkeley

Congestion and Accessibility: What's the Relationship?

Brian Taylor, UC Los Angeles

Mode Choice and Destination Choice: Estimations and Simulations for Airport Access in the San Francisco Bay Area, 2001/2002

Kurt Van Dender and David Brownstone, UC Irvine