



**METRANS CENTER
SEMI-ANNUAL REPORT**

**University of Southern California
California State University, Long Beach**

2003-2004 FISCAL YEAR

January 31, 2004

INTRODUCTION

This Semi-Annual report marks the beginning of the sixth and last year of funding under TEA-21. At this point METRANS is operating in “steady state,” continuing programs and activities of previous years, but also preparing for the next six years. This introduction provides a brief summary of major activities.

RESEARCH: Our 2002-2003 round of research projects was delayed due to delays in receiving State matching funds. Nine projects received funding in late June 2003, and work began in August and September. An additional 3 projects were authorized in September, when it became clear that sufficient funding would be available. Our 2003-2004 RFP was issued early in the fall semester, and the entire process was completed by early January. Fortunately these 9 new projects could be authorized to begin immediately. We also launched a new applied research program, aimed at conducting small-scale projects in support of METRANS goods movement outreach activities. Two new applied research projects are also underway.

EDUCATION: Our major educational effort is the development and launching of the GLS-Online program. It is based on the Global Logistics Specialist program offered through the Cal State Long Beach extension program and the Center for International Trade and Transportation (CITT). The online program is a response to demand; the GLS program has limited capacity and is offered in only one physical location, yet there is demand for such training throughout California and the US. We anticipate launching the new program in late spring 2004.

OUTREACH: METRANS continues to support the outreach activities of the CITT at Cal State Long Beach. A sixth Town Hall meeting is now in the planning stages. The METRANS Annual Conference will take place in February 2004, this time as a joint venture with the new USC Keston Institute of Infrastructure.

METRANS has made significant progress in research, information dissemination, and education in the first half of the fiscal year. As always, METRANS continues to expand activities, increase its visibility, and fulfill its three-part mission.

A. Success Stories:

Planning for METRANS Annual Conference to be held on February 10, 2004

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In November, 2003, METRANS began planning for its next annual conference to be held in early 2004. This year METRANS joined with the new USC Keston Institute for Infrastructure to develop a program focused on transportation infrastructure. In growing metropolitan areas such as Southern California, provision of transportation infrastructure has not kept pace with population and employment growth. The conference goal is to bring together key industry stakeholders from both the public and private sector to focus in depth on one of the largest recent infrastructure projects, the Alameda Corridor, and use it as a case study for discussion of more general issues of infrastructure provision.

Extending 20 miles from the ports of Long Beach and Los Angeles to the intercontinental rail yards near downtown Los Angeles, the Alameda Corridor required the coordination of numerous local governments and agencies as well as a complex multi-billion dollar package of financing. Initially hailed as innovative and a model for future large urban projects, the corridor has recently come under some criticism as not having fulfilled its objectives, and the Corridor's performance is now being questioned.

The objective of the conference is to examine both the Alameda Corridor's performance as well as its usefulness as a model for future projects. In particular, the conference will convene principals from the Alameda Corridor development and operation as well as from the groups that use the Corridor to address the success of its goods movement and financial objectives and the lessons it offers future large-scale infrastructure projects.

The title of the half-day conference is, "Alameda Corridor: Blueprint for the Future?" to be held on February 10, 2004 at UCS's Davidson Conference Center. A White Paper summarizing the history and operations of the Corridor has been prepared for distribution. In addition to a keynote speech, there will be two consecutive panel sessions. The first session explores how the Corridor is performing, and the panelists will address questions such as, does it do what it was supposed to do? Is it utilized as predicted? And, does it reduce truck traffic? The second panel will explore whether the Alameda Corridor project can be replicated for other infrastructure projects.

Save the Date cards were mailed to the master database in December, 2003. Invitations were mailed in early January and placed on the websites of METRANS and the Keston Institute. Key participants were identified and contacted.

**Planning for Sixth Annual CITT Sate of the Trade and Transportation Industry
Town Hall Meeting to be held March 24, 2004**

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We have traditionally used the Town Hall meetings to discuss topics directly related to the day-to-day operation of the ports, since the primary audience is longshore labor. For the 6th annual Town Hall, we have selected a topic of importance to the entire trade and transportation community in and surrounding the San Pedro Port Complex. The theme and title of the event is "Quality of Life and Port Operations: Challenges, Successes and the Future." The objective is to bring together stakeholders to jointly explore options that mitigate the environmental impacts while preserving the jobs and economic prosperity of Southern California. A major thrust of the meeting is to encourage involvement of the ILWU membership in a proactive way on issues affecting members as both workers and residents of the community.

The Sixth Annual Town Hall will be held on March 24, 2004 on the CSULB campus. Additionally, the proceedings will be web-cast and made available on the Internet, where it will be archived for at lease one year at www.uces.csulb.edu/citt. The focus of this year's event is to debate environmental concerns including air quality on the terminal and congestion in the surrounding communities. This year's panelists represent the community, port/marine terminals, trucking, and ILWU labor. They will discuss their concerns as well as efforts to mitigate negative impacts.

To begin the evening's discussion and set the framework for issues debated, a video will be produced by CSULB's Advanced Media Production unit. Included will be significant coverage of ongoing efforts, new technologies and new regulatory efforts to mitigate hazards to local communities. The video will have a shelf life after the meeting as an informational resource for governmental agencies and concerned community groups.

As with previous Town Hall meetings, the event is staged under the motto, "Global connectivity and collective responsibility for future growth, economic well-being and job security in the Ports of Los Angeles and Long Beach." We expect to attract more than 1000 industry and community stakeholders, based on the attendance of the five previous events. The Town Hall has been endorsed by more then 25 trade associations and public organizations.

Development of Global Logistics Specialist Online Training

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To meet the ever increasing demand for a well-trained workforce pool nationwide, the highly successful Global Logistics Specialist Professional Designation Program (GLS®) offered through the Center for International Trade and Transportation (CITT) at California State University, Long Beach, is currently being converted into an on-line, web-based version.

In five years, this rigorous, 118 hour program—taught by top practitioners from every facet of the industry—has trained about 700 students, and awarded the professional designation to more than 300 individuals in this group.

Facing unprecedented demand and nationwide interest, the CITT has been unable to expand the complex program beyond its home region. Scores of inquiring prospective students have contacted CITT requesting that the program to be offered in a format that would allow them to enroll without having to spend weeks in Southern California. An on-line version will allow us to offer the GLS throughout California and the United States.

A focus group consisting of industry leaders, instructors, various employers and GLS graduates has met twice to determine first what the ideal learning package might look like and second to test the course learning objectives, lesson format, and content outline.

An introduction piece has been produced. This video provides a brief description and overview of the GLS online program, including the goals and objectives; a sample of the technologies used; time commitment expected from the student; technical support available; etc. This video will be posted on the METRANS and CITT websites where it will also serve a marketing purpose to solicit interest and assist in developing a database for interested individuals and potential students.

The major components of the first of five Modules have been developed. To ensure continuity, GLS-Online will be launched in late Spring 2004 after most of Module Two has been completed. Several tasks necessary for operating a successful online program have been completed: 1) procedures and guidelines for the online facilitators, 2) subject matter for online facilitators, 3) introduction and overview of the entire program, 4) most frequently asked questions, and 5) steps and activities to be followed by the student to successfully complete the course.

The online course developers at CSULB Integrated Distance Education for Adult Students (IDEAS) division work with the same highly-qualified course instructors and subject matter experts who have offered the traditional GLS program.

***Building Bridges* Newsletter**

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The *Building Bridges* newsletter, published four times a year, is distributed to the ILWU membership and broader maritime/logistics community. It began publication in January, 2001. The newsletter is a briefing document intended to inform and promote dialogue within the maritime/logistics industry community. 3000 copies of each issue are distributed to ILWU local members, industry leaders, and METRANS Advisory Board Members. In addition, the newsletters are made available at the Town Hall meetings, at trade association meetings, and via the METRANS and CITT websites.

The objectives of *Building Bridges* are:

- To provide a neutral communications channel on industry issues
- To lead to fruitful and open dialogue
- To encourage closer cooperation among all industry stakeholders

The newsletter is formulated, edited and distributed by an Editor-in-chief selected by the CITT Engagement Subcommittee. An Editorial Board, including members of the subcommittee and the METRANS Director, provides oversight. The August, 2003 issue featured articles on the I-710 Oversight Policy Committee and the Center for Commercial Deployment of Transportation Technologies' IMPACT 2003 event, and a question and answer interview with Joel Anderson of the California Trucking Association. The November, 2003 issue's feature article was on the environment with a question and answer interview with NRDC's Chief Environmental Attorney Gail Ruderman Feuer.

***METRANS NEWS* Newsletter**

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METRANS NEWS is a newsletter that summarizes METRANS research, education and information dissemination activities. The newsletter complements the METRANS

website and will broaden our exposure to the research community, government, and industry. The newsletter features METRANS researchers, conferences and other events, recent publications, and other newsworthy activities and events. The July, 2003 issue featured a research profile on CSULB's Dr. Daniel Barber, as well as articles on METRANS research grants, the Fifth Annual CITT Town Hall, new Master's level course offerings at USC, the MAGL (Master of Arts in Global Logistics) program at CSULB, and freight modeling research at USC. The November, 2003 issue's research profile was on USC's Dr. Randolph Hall. Other topics included CSULB's Global Logistics Specialist new on-line training, awards received by USC students, and the CSULB new applied research program. The newsletter is distributed to the national research community, federal, state and local leaders, industry leaders, and federal, state and local transportation agencies. The newsletter is also posted on the METRANS website.

METRANS Web Page: www.metrans.org

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The following reflects the additions and updates for METRANS websites from July 2003 through December 2003.

Items Added

- A) Final Report 00-8, Travel Patterns of the Elderly
- B) Final Report 00-13, Distributed Architecture for Real-Time Coordination in Transit Networks
- C) Draft Final Report 01-10, Smart Damping for Monitoring the Health of Bridge Structures
- D) Current Project 03-06, Robust Investment Decisions for Highway Capacity Expansions
- E) Current Project 03-07, Freight Routing and Containerization
- F) Current Project 03-13, Hydrogen Storage System For Transportation Applications
- G) Current Project 03-17, Innovative Bridge Structural Health Monitoring using Variable Stiffness and Damping Devices
- H) Current Project 03-18, Cooperative Optimum Time Window Generation for Cargo Delivery/Pick up with Application to Container Terminals
- I) Current Project 03-19, Measuring California's Role in Supporting Interstate Goods Movement: Comprehensive Assessment of Interstate Freight Flows
- J) Current Project 03-20, Neighborhood Attributes and Commuting Behavior: A Comparative Study of California's Major Metropolitan Areas
- K) Current Project 03-24, Increasing Bus Transit Ridership: Dynamics of Density, Land Use, and Population Growth

- L) Current Project 03-25, Development of An Artificial Intelligence Based Traffic Simulation Model Using The Discrete Element Method
- M) 2003 Request for Proposal
- N) 2003 Request for Proposal Addendum
- O) AASHTO Final Report
- P) Alameda Corridor February 10, 2004 Conference Information
- Q) Building Bridges Quarterly Newsletters
- R) METRANS News Quarterly Newsletters
- S) METRANS Annual Report Fiscal Year 2002/03 (Final Document)
- T) Fall 2003 GLS Schedule
- U) Current 2003 Year 5 Project Summaries
- V) Title Page for METRANS Publication Style Guide

Items Updated

- W) METRANS Semi-Annual Report of updates
- X) Advisory Committee
- Y) Moved old events to the “Past Events” page

UTC Search Engine

- Z) Update Page count / websites on a regular basis
- AA) Reindex UTC web sites to add new pages on a regular basis
- BB) Correct and add links for UTC web sites
- CC) Problem solved sites with low page counts
- DD) Support Foxpro program which calculates the total page counts
- EE) Raise page count for sites with large page counts
- FF) Create check request and forward invoice for payment

Domain Name (Network Solutions) and ISP Maintenance (Active Host)

- GG) Create check request and forward invoice for payment
- HH) Verify payments are submitted and received
- II) Problem solve issues (e.g. Billing and Connectivity)

As of January 2004, METRANS.ORG had about 36,000 hits on the home page.

METRANS Advisory Committee

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The METRANS Advisory Committee is made up of private industry leaders and federal, state and local public agency representatives. The purpose of the Committee is to provide general policy guidance on METRANS activities. The Spring 2003 Advisory Committee Meeting was held on April 17, 2003; eight members attended. The meeting

focused on updating the Committee on METRANS activities since September 2002, including research, technology and information transfer, and education. TEA-3 Reauthorization, and future planning were also topics of discussion. Another Advisory Committee meeting was held in July in order to provide updates on funding, new initiatives, and to begin planning for the next six years.

The Fall 2003 Advisory Committee meeting was deferred to February, so that it could be held in conjunction with the METRANS Annual Conference. It was felt that the Advisory Committee should have an opportunity to view a METRANS event first-hand, and since some Committee members reside outside Southern California, a joint meeting and conference would be most convenient.

Research

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By the end of the 2002-2003 Fiscal Year, METRANS had issued four research RFPs, and had funded a total of 40 research projects. As of July 1, 2003, 21 projects were completed (final reports approved and published), 8 projects had draft final reports submitted and under review, 11 projects were in progress, including the 9 new projects awarded for 2002-3. In September 2003, three additional 2002-3 projects were awarded when it became clear that sufficient funding would be available. By December 31, 2003, 22 projects were completed, 8 draft reports were under review or revision, and 13 projects were in progress.

The RFP for FY 2003-2004 was issued August 29, 2003. In response to the State of California's research priorities in goods movement, a RFP addendum, a Caltrans Preliminary Project list was issued September 22, 2003. Proposals were due October 15, 2003. METRANS received 18 proposals from 31 faculty representing 10 departments and requesting a total of \$1.44 million. Proposals were reviewed by academics, practitioners, and government agency representatives. The METRANS Executive Committee met in December 2003 to evaluate and prioritize proposals. Nine projects were selected and approved by Caltrans. Most projects began January 5, 2004.

Results from individual research projects for which draft final reports were submitted during the first half of this fiscal year are highlighted below.

00-11 Investigating the Role of Driver Decision Styles in Highway-Rail Crossing Accidents

Point of Contact: Najmedin Meshkati
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This research was designed to take a closer look at the ways by which driver decision-making styles affect highway-rail crossing (HRC) accidents. That is, a simplistic approach of portraying human error, as the cause of most HRC accidents, needs to be augmented with a more complex theory of human decision-making process while performing driving tasks before and during a highway-rail intersection. Video and still photos were taken to identify the intersections appropriate for this study. The intersections were among many in the Los Angeles metro area with crossings that demanded certain driver maneuvers with potential accident consequences. Based on these selections, both field and laboratory experimental sessions were designed to study three sets of variables: driver decision styles, conditions in the intersection environment that could influence these decisions (environmental complexity) and the driver maneuvers to cross the intersection. The variable of distraction inside the crossing intersection was also studied using recall versus recognition tests. The parametric tests (analysis of variance) showed significant differences in the drivers' scores for the decision style variable. However, other variables showed no significant results. The same results were shown using the chi-square nonparametric test. These results showed that driver decision style is an important factor in the way drivers perceive and behave in highway-rail crossings. Further research was recommended to study the effect of each intersection design feature on driver behavior.

B. Research Project Status

Completed

- Project Number:** 99-3
Research Project: A Task Decomposition Model for Dispatchers in Dynamic Scheduling of Demand Responsive Transit Systems
Principal Investigators: Mansour Rahimi
Department of Industrial and Systems Engineering
University of Southern California
Maged Dessouky
Department of Industrial and Systems Engineering
University of Southern California
- Project Number:** 99-5
Research Project: Improving fuel economy and emissions performance of commercial goods transportation and mass transit vehicles using throttleless engines
Principal Investigators: Paul D. Ronney
Aerospace and Mechanical Engineering
University of Southern California
- Project Number:** 99-7
Research Project: Modeling and Route Guidance of Trucks in Metropolitan Areas
Principal Investigators: Petros Ioannou
Electrical Engineering Systems
University of Southern California
Anastasios Chassiakos
College of Engineering
California State University, Long Beach
- Project Number:** 99-10
Research Project: Implementing a Statewide Goods Movement Strategy and Performance Measurement of Goods Movement in California
Principal Investigators: Daniel Barber
Graduate Center for Public Policy Administration
California State University, Long Beach
Lisa Grobar
Department of Economics
California State University, Long Beach

Project Number: 99-11
Research Project: The Role of Public Transit in the Mobility of Low Income Households
Principal Investigator: Genevieve Giuliano
 School of Policy, Planning, and Development
 University of Southern California

Project Number: 99-14
Research Project: 3D Virtual and Physical Simulation of Automated Container Terminal and Analysis of Impact on In Land Transportation
Principal Investigator: Behrokh Khoshnevis
 Industrial and Systems Engineering
 University of Southern California

Project Number: 99-18
Research Project: Identification and Analysis of Local Agency Transit Project Performance Criteria (Research Initiation Grant)
Principal Investigator: John A. Kuprenas
 Department of Civil Engineering
 University of Southern California

Project Number: 99-19
Research Project: Solid State Sorption Air Conditioner System for Containerships and Vehicles—Phase I
Principal Investigators: Reza Toossi
 College of Engineering
 California State University, Long Beach

Project Number: 99-22
Research Project: Highway Oriented Transit System: A Comprehensive Land Use/Transportation Strategy to Improve Transit Service Delivery
Principal Investigator: Tridib Banerjee
 School of Policy, Planning, and Development
 University of Southern California

Project Number: 99-23
Research Project: Non-invasive Means of Investigating Container Contents for Customs Agents at Port
Principal Investigator: K. A. James
 Electrical Engineering Department
 California State University, Long Beach

Project Number: 99-25
Research Project: Assembling and Processing Freight Shipment Data: Developing a GIS-Based Origin-Destination Matrix for Southern California Freight Flows
Principal Investigator: Peter Gordon
School of Policy, Planning, and Development
Department of Economics
University of Southern California

Project Number: 99-27
Research Project: Dynamic Coordination Framework for Resource Allocation in Trucking Operations
Principal Investigator: Satish Bukkapatnam
Industrial and Systems Engineering
University of Southern California

Project Number: 00-3
Research Project: Alternative Access and Locations for Air Cargo
Principal Investigator: Randolph W. Hall
Industrial and Systems Engineering
University of Southern California

Project Number: 00-5
Research Project: Risk Modeling for Commercial Goods Transport
Principal Investigator: Emelinda M. Parentela
Department of Civil Engineering
California State University, Long Beach

Project Number: 00-6
Research Project: Assessment of Hybrid Configuration and Control Strategies in Planning Future Metropolitan/Urban Transit Systems
Principal Investigator: Reza Toossi
Mechanical Engineering Department
California State University, Long Beach

Project Number: 00-8
Research Project: Travel Patterns of the Elderly
Principal Investigators: Genevieve Giulano
School and Policy, Planning and Development
University of Southern California

Project Number: 00-12
Research Project: Freeway Bus Station Development: Critical Evaluation and Design Guidelines
Principal Investigators: Tridib Banerjee
Policy, Planning and Development
University of Southern California

Project Number: 00-13
Research Project: Distributed Architecture for Real-time Coordination in Transit Networks
Principal Investigators: Satish Bukkapatnam and Maged Dessouky
Industrial and Systems Engineering
University of Southern California

Project Number: 00-15
Research Project: Dynamic Optimization of Cargo Movement by Trucks in Metropolitan Areas with Adjacent Ports
Principal Investigators: Petros Ioannou and Anastasios Chassiakos
Departments of Electrical Engineering
University of Southern California and
California State University, Long Beach

Project Number: 00-16
Research Project: Design and Optimization of a Conceptual Automated Yard Using Overhead Grill Rail System
Principal Investigators: Elias Kosmatopoulos
Department of Electrical Engineering
University of Southern California

Project Number: 00-17
Research Project: An Integrated Approach to Managing Local Container Traffic Growth in the Long Beach/Los Angeles Port Complex Phase II
Principal Investigators: Lisa Grobar and Daniel Barber
Departments of Economics and Public Administration
California State University, Long Beach

Project Number: 01-5
Research Project: The Logistics of Empty Cargo Containers in the Southern California Region: Are Current International Logistics Practices a Barrier to Rationalizing the Regional Movement of Empty Containers
Principal Investigators: Le Dam Hanh
Department of Civil and Environmental Engineering
University of Southern California

Ongoing

Draft Report Received (Under Review)

- Project Number:** 99-20
Research Project: Use of Robotics and Expert Systems in Improving the Handling of Containers at the Port Terminals
Principal Investigators: Timoth Jordanides
Electrical Engineering Department
California State University, Long Beach
- Project Number:** 00-7
Research Project: Solid State Sorption Air Conditioner System for Containerships and Vehicles—Phase II
Principal Investigators: Reza Toossi
College of Engineering
California State University, Long Beach
- Project Number:** 00-11
Research Project: Investigating the Role of Driver Decisions and Styles In Highway-Rail Crossing Accidents
Principal Investigators: Naj Meshkati, Mansour Rahimi & Michael Driver
School of Engineering and School of Business
University of Southern California
- Project Number:** 01-2
Research Project: Reducing Pollutants from Mobil Sources
Principal Investigators: Hamid R. Rahai
Mechanical Engineering Department
California State University, Long Beach
- Project Number:** 01-6
Research Project: Green Transit Scheduler: A Methodology for Jointly Optimizing Cost, Service, and Environmental Performance in Demand-Responsive Transit Scheduling
Principal Investigators: Mansour Rahimi
Department of Industrial and Systems Engineering
University of Southern California
Maged Dessouky
Department of Industrial and Systems Engineering
University of Southern California
- Project Number:** 01-10
Research Project: Smart Damping Devices for Monitoring the Health of Bridge Structures
Principal Investigators: Erik A. Johnson
Department of Civil and Environmental Engineering
University of Southern California

Project Number: 01-14
Research Project: Developing and Testing Methodologies for the Evaluation of Highway Widening Plans to Facilitate Freight Flows Throughout a Major Metropolitan Area
Principal Investigators: Peter Gordon
School of Policy, Planning, and Development
University of Southern California

Project Number: 01-16
Research Project: Automated Trucks on Dedicated Lanes for Cargo Movement
Principal Investigators: Petros Ioannou
Department of Electrical Engineering – Systems
University of Southern California
Anastasios Chassiakos
Department of Electrical Engineering
California State University, Long Beach

Projects In Progress

Project Number: 01-3
Research Project: Analysis of Vibrations and Infrastructure Deterioration Caused by High-Speed Rail Transit
Principal Investigators: Hung Leung Wong
Department of Civil Engineering
University of Southern California

Project Number: 03-01
Research Project: A Novel Approach to Routing and Dispatching Trucks Based on Partial Information in a Dynamic Environment
Principal Investigators: Maged Dessouky
Epstein Department of Industrial and Systems Engineering
University of Southern California
Petros Ioannou
Department of Electrical Engineering – Systems
University of Southern California

Project Number: 03-06
Research Project: Robust Investment Decisions for Highway Capacity Expansion
Principal Investigator: Fernando Ordonez
Epstein Department of Industrial and Systems Engineering
University of Southern California

Project Number: 03-07
Research Project: Freight Routing and Containerization
Principal Investigator: Randolph Hall
 Epstein Department of Industrial and Systems Engineering
 University of Southern California

Project Number: 03-13
Research Project: Hydrogen Storage System for Transportation Applications
Principal Investigator: Reza Toossi
 Mechanical and Aerospace Engineering Department
 California State University, Long Beach

Project Number: 03-17
Research Project: Innovative Bridge Structural Health Monitoring using
 Variable Stiffness and Damping Devices
Principal Investigator: Erik Johnson
 Department of Civil and Environmental Engineering
 University of Southern California

Project Number: 03-18
Research Project: Cooperative Optimum Time Window Generation for Cargo
 Delivery/Pick up with Application to Container Terminals
Principal Investigators: Petros Ioannou
 Department of Electrical Engineering – Systems
 University of Southern California
 Anastasios Chassiakos
 Department of Electrical Engineering
 California State University, Long Beach

Project Number: 03-19
Research Project: Measuring California’s Role in Supporting Interstate Goods
 Movement: Comprehensive Assessment of Interstate
 Freight Flows
Principal Investigators: Harry Richardson
 School of Policy, Planning, and Development
 University of Southern California
 Peter Gordon
 School of Policy, Planning, and Development
 University of Southern California
 James E. Moore
 Epstein Department of Industrial and Systems Engineering
 University of Southern California

Project Number: 03-20
Research Project: Neighborhood Attributes and Commuting Behavior: A Comparative Study of California's Major Metropolitan Areas
Principal Investigator: Peter Gordon
School of Policy, Planning, and Development
University of Southern California

Project Number: 03-23
Research Project: Improved Modeling of Network Transportation Flows, Including Land Use-Transportation Interactions: A Research Collaboration Between USC (METTRANS) and Caltrans District 7 (Office of Advance Planning)
Principal Investigator: James E. Moore
Epstein Department of Industrial and Systems Engineering
University of Southern California

Project Number: 03-24
Research Project: Increasing Bus Transit Ridership: Dynamics of Density, Land Use, and Population Growth
Principal Investigators: Tridib Banerjee
School of Policy, Planning, and Development
University of Southern California
Dowell Myers
School of Policy, Planning, and Development
University of Southern California
Clara Irazabal
School of Policy, Planning, and Development
University of Southern California

Project Number: 03-25
Research Project: Development of an Artificial Intelligence Based Traffic Simulation Model using the Discrete Element Method
Principal Investigators: Emelinda Parentela
Department of Civil Engineering
California State University, Long Beach
Andrew Ronnau
Department of Civil Engineering
California State University, Long Beach

Project Number: 03-27
Research Project: Methodology for Probabilistic Assessment of Permanent Ground Displacement Across Earthquake Faults for the Transportation System
Principal Investigators: Mihailo Trifunac
Department of Civil and Environmental Engineering
University of Southern California
Maria Todorovska
Department of Civil and Environmental Engineering
University of Southern California

C. Financial Status:

Fiscal reporting for years 2002-3 and 2003-4 are provided in Tables 1 and 2. All prior year's funding has been fully committed. Funds for 2003-4 are 33% committed. Commitment of remaining funds will take place as additional technology transfer activities are approved.

Funds for 2003-4 have been committed for core administration, *Building Bridges* newsletter, *METRANS NEWS*, and website maintenance. Specific technology transfer activities (e.g. conferences, workshops) are approved on a case by case basis. Technology transfer activities approved for this year include the METRANS Annual Conference, and the Sixth Town Hall Meeting. A portion of funds from 2003-4 are being held in reserve for 2004-5, given current uncertainties regarding reauthorization of the federal transportation bill.

For the 2002-03 year, expenditures are allocated as follows: research 57%, education 2%, technology transfer 19%, and administration 22%. The increased share of research expenditures reflects the 2001 round of research projects that began 9/1/01. The 2002-3 research share should remain stable as these projects conclude and the 02-03 projects begin the latter half of the fiscal year. Included in research are student salaries. As noted in previous reports, administrative costs include a portion of technology transfer. These activities will also remain stable as no significant changes are being made in our profile of activities.

For the past five years, Caltrans has provided dollar-for-dollar matching for all DOT funds. USC continues to provide matching funds for the Director's salary and associated expenses. In 2003-4 the USC match is \$124,200, which includes the salary of the Director and associated costs as well as USC overhead contribution. Fiscal year 2002-3 was the first in which Cal State Long Beach provided matching funds; these were contributed in support of development of the GLS Online program. METRANS faculty also received research funding on related projects; these funds were for 2002-3 and 2003-4. Additional donations have been provided to support our outreach activities.

TABLE 1

Actual vs. Budgeted Expenditures: 2002/03 Fiscal Year METTRANS Center July 1, 2002 Thru June 30, 2003

<u>Categories</u>	<u>Funds Encumbered</u>	<u>Balance</u>	<u>Revised Budget</u>
Center Director Salary	46,078	0	46,078
Faculty Salaries	231,591	-4,228	227,363
Administrative Staff	75,281	52,719	128,000
Other Staff Salaries	0	0	0
Student Support (Subject to Fringe)	0	0	0
Fringe Benefits	107,412	105,964	213,376
Student Support (Not Subject to Fringe)	200,188	114,212	314,400
<u>Total Salary & Benefits</u>	<u>660,550</u>	<u>268,667</u>	<u>929,217</u>
Scholarships	2,000	49,000	51,000
Permanent Equipment	0	0	0
Expendable Property and Supplies	171,488	49,940	221,428
Domestic Travel	34,954	8,114	43,068
Foreign Travel	0	0	0
Other Direct Costs	33,482	8,318	41,800
<u>Total Direct Costs</u>	<u>902,474</u>	<u>384,039</u>	<u>1,286,513</u>
Indirect Costs	445,618	208,445	654,063
<u>Total</u>	<u>1,348,092</u>	<u>592,484</u>	<u>1,940,576</u>

Federal Share 916,300

Matching Share 1,024,277

Match Sources

USC Match: 107,977

USC Director Academic Salary: \$31,702 (includes associated fringe and OH)

Caltrans: 916,300

Other Match Sources Not Included Above

CSULB UCES – GLS Online: \$90,000

LAMTA Research Projects: \$323,000 (2002-2004)

Los Angeles/Long Beach Ports: \$25,000

TABLE 2

Actual vs. Budgeted Expenditures: 2002/03 Fiscal Year METRANS Center July 1, 2003 Thru June 30, 2004

	Approved Budget	Committed To Date	Funding Balance
Center Director Salary	70,317	0	70,317
Faculty Salaries	165,000	132,612	32,388
Administrative Staff	175,296	27,559	147,737
Students Salaries (Subject to Fringe)	0	60,730	-60,730
Students Salaries (Not Subject to Fringe)	274,841	90,083	184,758
Fringe Benefits	137,192	48,606	88,586
TOTAL SALARIES & BENEFITS	822,645	359,590	463,056
Scholarships	71,000	0	71,000
Permanent Equipment	0	0	0
Expendable Property and Supplies	243,634	35,269	208,365
Domestic Travel	63,429	15,610	47,819
Foreign Travel	0	0	0
Technology Transfer Projects	90,217	0	90,217
TOTAL DIRECT COSTS	1,290,924	410,469	880,456
Indirect Costs	645,276	175,177	470,099
TOTAL COSTS	1,936,200	585,646	1,350,555

FEDERAL SHARE 906,000

MATCHING SHARE 1,030,200

Match Sources:

USC Match: \$72,400

USC Director Academic Salary: \$51,800 (includes associated fringe and OH)

Caltrans: \$906,000