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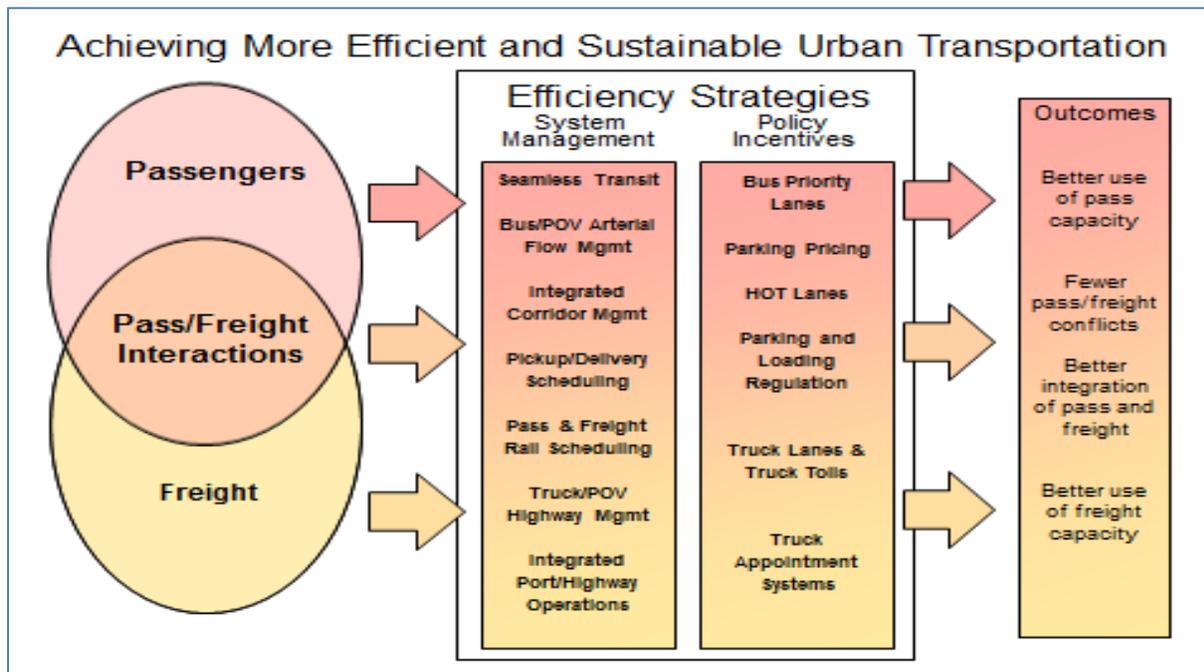
1. Accomplishments

METRANS UTC is a partnership of the University of Southern California (USC) and California State University, Long Beach (CSULB). Its purpose is to conduct a multidisciplinary program of research, education, and technology transfer aimed at increasing the economic competitiveness of large metropolitan areas (population of 1 million plus) through improved transportation system performance across all surface transportation modes and across passengers and freight. Passengers and freight often share the same infrastructure and compete for the same capacity. The research challenge is how all urban functions can best be managed together. By developing strategies that promote productivity and better integrate modes and users, METRANS will contribute to more efficient, sustainable metropolitan transportation.

1.1 RESEARCH

The goal of the METRANS research program is to generate a body of knowledge that makes a significant contribution to solving urban transportation problems. Our research approach is uniquely integrative: we address passengers and freight across all surface transportation modes. Our approach is illustrated with the conceptual model in Figure 1. On the left are the passenger and freight markets. In parts of the system there is little overlap between passengers and freight, as for example on major arterials that carry little truck traffic, or on exclusive right-of-way urban transit such as subway or elevated train. In other parts of the system there is substantial overlap, which means competition for the same capacity. The main – but not exclusive – focus of our research is the middle band of Figure 1, freight and passenger interactions. Within the Efficiency Strategies box in Figure 1, we show a series of system management strategies that range from passenger only to freight only. By designing policy incentives to implement these strategies, system efficiency outcomes are achieved.

Figure 1: Conceptual Model



1.1.1 Research Program Themes

Our research program is organized around two themes and a set of associated topics.

Theme 1: Understanding Passenger-Freight Interactions. Theme 1 examines the basic forces underlying supply and demand, developing more comprehensive data for analysis and better methods for monitoring the performance of the urban transportation system. Theme 1 has three topic areas: *Topic 1-1: Relationships between spatial patterns and transportation*, *Topic 1-2: Characteristics of freight and passenger demand*, and *Topic 1-3: Better data for analysis of passenger-freight interactions*.

Theme 2: Achieving System Efficiencies. Theme 2 develops efficiency strategies by exploring the potential for efficiencies within and across modes and user classes and identifying policy strategies that facilitate and promote these efficiencies. It includes two topic areas: *Topic 2-1: Integrated management across users and modes* and *Topic 2-2: Policies for more efficient urban transportation*.

1.1.2 Research Program Selection and Management

For Year 1 of this grant our research program has two parts. The first is a set of pre-selected Launch Projects, selected from short proposals submitted and reviewed during the proposal preparation process.

Table 1: Year 1 Launch Projects		
Theme 1	Understanding Passenger-Freight Interactions	Status/ Funding
Topic 1-1	Spatial Patterns and Transportation	
1-1a	<i>Urban Spatial Structure, Employment Sub-Centers, and Passenger and Freight Travel</i> (Boarnet, USC) Identification of employment centers and estimation of passenger and freight flows using secondary data sources	In progress./ Caltrans
1-1b	<i>The Freight Landscape: Using Secondary Data Sources to Describe Metropolitan Freight Flows</i> (Giuliano, USC) Analysis of relationships between population, employment, transport systems, freight supply and demand	In progress./ USDOT
Topic 1-2	Characteristics of Freight and Passenger Demand	
	<i>Value of Travel Time & Reliability in Commercial & Passenger Transport</i> (Steimetz, California State University Long Beach (CSULB) & Giuliano, USC)	Cancelled
Topic 1-3	Better Data for Analysis of Passenger-Freight Interactions	
1-3a	<i>Tracking Truck Flows with Programmable Mobile Devices</i> (Lam, CSULB) Demo of using tablet computers for truck tracking/development of database	In progress/ Caltrans
	<i>Using ADMS for Regional System Monitoring</i> (Giuliano and Shahabi USC)	Cancelled
Theme 2	Achieving System Efficiencies	Status/ Funding
Topic 2-1	Integrated Management Across Users and Modes	
2-1a	<i>Efficiencies in Freight and Passenger Routing and Scheduling to Reduce VMT</i> (Dessouky, USC) Use of simulation model for examining integrated routing and scheduling strategies	In progress./ USDOT
2-1b	<i>Freight-Passenger Transportation Simulation Testbed</i> (Ioannou, USC) Expansion of existing simulation testbed to include rail and road networks for metro Los Angeles in order to incorporate passenger flows	In progress./ USDOT
Topic 2-2	Policies for More Efficient Urban Transportation	
2-2	<i>Mitigating Urban Freight Through Effective Management of Truck Chassis</i> (O'Brien, CSULB) Analysis of impacts of changing chassis ownership models on chassis management and operations, truck travel, and communities	In progress./ Caltrans

As noted in PPPR 1, two projects were cancelled and one new project was added (1-1b) due to availability of researchers. Thus there are a total of 6 launch projects (see Table 1), all in progress. Caltrans has established new policies for its match funding which require review and approval of every research project as a “task order.” These additional reviews add 3 to 6 months to the contracting process. Projects funded by Caltrans were delayed to August 2014. Funds from the deferred projects were moved into the funds for open solicitation research projects, described in Section 1.1.2, Table 2.

Year 1 Launch Project Progress Reports

USC 1-1b: The Freight Landscape: Using Secondary Data Sources to Describe Metropolitan Freight Flows (Giuliano, USC) (Project start/end dates: 1/1/2014 – 12/31/2014)

The purpose of this research is to develop a method for describing the spatial variation in freight supply and demand within metropolitan areas using data that is widely available. The main hypothesis is that the spatial distribution of freight activity is related to the spatial organization of economic activities. We will estimate models of freight activity as a function of local and regional spatial characteristics.

We have completed task 1, a review of the literature on freight trip generation, flow modeling, activity measurement, and land use and freight relationships. We have completed the data collection for Los Angeles (task 2). For San Francisco and San Diego, we have population, employment, establishment, and network data, and are currently seeking sources for freight flow data (task 3). We have conducted an analysis of the Los Angeles region (task 4). We have developed the concept of a “freight landscape”, conducted a descriptive analysis of freight flows and spatial characteristics, developed a conceptual model of freight and land use relationships, and estimated models to test these relationships. We expect to complete the project within the next reporting period. This includes completing the data collection and extending our models to San Francisco and San Diego, and conducting a comparative analysis of the results.

USC 2-1a: Efficiencies in Freight and Passenger Routing and Scheduling (Dessouky, USC) (Project start/end dates: 1/1/2014 – 12/31/2014)

For static systems, where the network parameters are known a priori, the well-established routing and scheduling algorithms lead to optimum solutions. On the other hand, in a highly uncertain and dynamic system, heuristic dispatching techniques work reasonably well. Hence, on one end of the spectrum are the route planning techniques when it is reasonable to assume the system is deterministic, and on the other end are the dispatching heuristics when the system is highly dynamic and uncertain. Therefore, there exists a gap in the literature for situations that are in between the two ends of the spectrum. To address this gap, there is a need to study the relationship between the uncertainties in the networks and the level of route planning in the freight transportation techniques. In these situations a technique that involves partial routing and has capabilities for dynamic adjustments in real-time may be the most suitable approach. The objective of this study is to find the relation between the uncertainties in the networks and the level of route planning in the freight transportation techniques.

Two tasks have been completed. We have reviewed the literature on dynamic and stochastic vehicle routing problems and developed the model formulation for partial routing. Inputs to the model include, for each request, the historical probability distribution of the call-in time, the desired delivery time, and the delivery amount (demand). The output of the model includes whether or not to accept the order for today and a quote of delivery time. Then, based on the accepted orders and those orders that are likely to be placed, the model generates a partial route for the fleet of vehicles.

We have started the next step in the research, developing a solution procedure to solve the developed model (task 3). The solution procedure consists of solving a series of vehicle routing problems and is being coded in C++. The primary parameters of the solution procedure are the frequency of updating the vehicle routes and the length of the horizon of the model. High uncertainty levels favor frequent updates with short horizons and the opposite for low uncertainty levels. Once the solution algorithms are developed, the plan is to test the sensitivity of the results to changes in the parameters on randomly generated problem instances.

USC 2-1b: Design and Evaluation of Impact of Traffic Light Priority for Trucks on Traffic Flow
(Ioannou, USC) (Project start/end dates: 1/1/2014 – 12/31/2014)

We have completed task 2, “Traffic Light Control with Priority: Single Intersection” and developed an adaptive control system for truck priority at signalized intersections. The concept is to give passing priority to trucks without causing additional delays to traffic in other directions and to integrate passive priority management strategy and active priority request-response strategy. Passive priority strategy provides an optimized baseline signal to the active priority module with a simulation-based search algorithm based on detected intersection traffic flow information such as volumes and compositions. The active priority strategy responds to the real time priority requests from approaching trucks, classifies required priority actions, and decides to give or refuse the requests by considering other traffic. We use traffic simulations to evaluate this system at intersections under different scenarios. The results show that intersection performance is improved and that giving priority to trucks at traffic lights reduces the travel time of trucks as well as the travel time of passenger vehicles. We published the proposed algorithm and the results in a paper (“Adaptive Truck Signal Priority System”) submitted to the ITSC14 conference. We have started the third phase of the project, “Traffic Light Priority: Multiple Intersections in a network”. Traffic signal control strategies for multiple intersections and single intersections have different complexity and dynamics, mainly because intersections are not independent and act as inputs to other intersections in the network. Therefore, a distributed control scheme needs to be implemented to optimize the traffic delays in the whole network. We considered several traffic control strategies proposed in the literature including model-based methods, simulation-based models, and multi-agent reinforcement learning methods and are currently developing a Neural Network (NN) to model the average travel times of the vehicles based on the location and speed of the vehicles in the network. We will finalize the project by evaluating the proposed optimization and NN based techniques for truck traffic light priority using extensive microscopic simulations of a traffic network in the vicinity of Long Beach/Los Angeles ports.

USC 1-1a Urban Spatial Structure, Employment Sub-Centers, and Passenger and Freight Travel
(Boarnet, USC) (Project start/end dates: 8/25/2014 - 8/24/2015)

The impact of polycentric metropolitan development patterns on passenger traffic and freight flows is poorly understood. In major metropolitan areas nationwide, employment sub-centers are transforming from “business only” districts into multi-use locales that often have residential, office, retail, light industrial, and warehousing uses in close proximity competing for space on the same road network. In this research, we will first identify sub-centers in metropolitan Los Angeles using the National Employment Time Series (NETS), which has the location and industry code of all business establishments in the region.

We will characterize passenger travel associated with major sub-centers using the National Household Travel Survey or the California Household Travel Survey and/or available regional travel diaries. Freight vehicle miles traveled will be estimated for sub-centers, possibly based on data from the 2007 Commodity Flow Survey (which reports shipment distances by North American Industry Classification System code) or other methods and disaggregated data on the location of business establishments in the greater Los

Angeles region from the NETS. This research will allow estimates of both passenger and freight travel associated with different employment centers, providing insights into relationships between land use, industrial structure, and the use of the road and highway system by both passengers and freight.

CSULB 2-2 Mitigating Urban Freight through Effective Management of Truck Chassis
(O'Brien, CSULB) (Project start/end dates: 8/25/2014 - 8/24/2015)

This research project assesses the potential benefits of shared chassis management at the Ports of Los Angeles and Long Beach as well as the jurisdictional and institutional issues surrounding coordinated equipment management. Chassis facilitate the movement of intermodal cargo from the ocean vessel to truck and freight rail. Chassis storage has typically occurred at maritime terminals and rail yards. Ocean carriers operating in the US have traditionally owned the chassis and provided it to truckers for their use in transferring containers between the ports and distribution and intermodal facilities as part of local trips (drays). Truckers are then required to reposition the chassis back to the terminal.

Carriers are realizing that the current model is not sustainable and are establishing different equipment management procedures that may involve transferring chassis ownership to a subsidiary, which rents the chassis to motor carriers on a daily basis, or requiring motor carriers to provide their own rented/leased chassis. A number of carriers are also pooling their chassis, permitting truckers to use the equipment for multiple trips without repositioning it first. Ocean shippers at the Ports of Los Angeles and Long Beach currently operate terminal-wide chassis pools, i.e. pools of chassis belonging to different ocean carriers calling at the same terminal. While these changes are being driven by the industry, the responsibility for providing facilities to manage pooled or gray equipment falls into a jurisdictional "no man's land." This research project assesses the impacts of changing equipment management practices at the national level and the unique challenges in implementing similar changes in Southern California. The project builds upon METRANS-funded research done on in-terminal chassis management practices at Southern California ports. The model for institutional analysis of port-related policy is similar to work done by the PI on off-peak operations at the ports and on environmental policy.

CSULB 1-3a Tracking Truck Flows with Programmable Mobile Devices for Drayage Efficiency Analysis
(Lam, CSULB) (Project start/end dates: 8/25/2014 - 8/24/2015)

Inefficient use of drayage trucks results in negative externalities of pollution and congestion. A full measure of the current state of drayage efficiency and future changes as trade volume grows can only be obtained through detailed tracking of drayage activities. Recent emergence of tablet computers provides an ideal platform for the design of an Electronic On-Board Recorder (EOBR) for such tracking. CSULB researchers have built a prototype of an EOBR that would perform GPS tracking of the truck locations periodically as well as during certain activities, with all logs time stamped. It would also provide easy entry by driver of their work activities where appropriate. The data collected on the device can then be transmitted to a server and maintained in a database.

This project is to adopt and enhance this prototype, conduct a large-scale deployment of this technology, build a database of the collected data, and develop a user interface and graphical display tools for the access and analysis of the collected data. A thorough understanding of truck flow inefficiencies and their cause, and the freight flows pattern in a given area will not only provide useful data for the truck industry to devise strategies for productivity improvement, but also help stake holders in supply chain management, including the ports and terminal operators, to identify the sources of inefficiency in drayage, quantify the impacts of these inefficiencies and develop solutions.

Year 1 Open Solicitation Research Program

The second part of our Year 1 research program is the open solicitation. About half of the research funding available (USDOT and Caltrans match) was reserved for the open solicitation, which was issued in March with proposals due in April. All tenure track and research faculty at USC and CSULB were eligible to submit proposals. The RFP process described in the Tier 1 proposal was followed, and we received 15 valid proposals. The RFP is available at <http://www.metrans.org/research-projects/metrans-utc>. The Associate Director for Research (Ioannou) managed the proposal review process. The METRANS Executive Committee met in July 2014 and selected projects for funding. In accordance with new Caltrans policy, the Director met with Caltrans in August 2014 to review the proposals and evaluations. Caltrans selected the same set of projects, and five projects were approved for funding. The projects are listed in Table 2. These projects must now be processed as Caltrans task orders. We are planning that the task order approvals will be in place by the end of 2014 so that the new projects can start in the spring 2015 semester. Not all available Year 1 funds have been allocated to projects; the remaining funds will be rolled over and made available for the Year 2 research solicitation.

Table 2: Year 1 Open Solicitation Projects		
Theme 1	Understanding Passenger-Freight Interactions	Status/ Funding
Topic 1-3	Better Data for Analysis of Passenger-Freight Interactions	
14-06	<i>Development of Micro Wireless Sensor Platforms for Collecting Data of Passenger-Freight Interactions</i> (Mohammad Mozumdar, CSULB) A solution to build smart highways by implanting wireless Micro-Electro-Mechanical System (MEMS) sensors which will act like <i>Neurons</i> to collect traffic data for freights and passenger vehicles movements.	Pending/ Caltrans
14-13	<i>Smart Truck Driver Assistant: A Cost Effective Solution for Real Time Management of Container Delivery to Trucks</i> (Burkhard Englert, CSULB) Measure and study truck turn times at the Los Angeles and Long Beach Port terminals.	Pending/ Caltrans
Theme 2	Achieving System Efficiencies	Status/ Funding
Topic 2-1	Integrated Management Across Users and Modes	
14-09	<i>A Dynamical Framework for Integrated Corridor Management</i> (Ketan Savla, USC) Develop dynamic traffic signal control and ramp metering strategies for Integrated Corridor Management (ICM) with provable performance guarantees.	Pending/ Caltrans
14-11	<i>Vehicle-to-Vehicle Communications in Mixed Passenger – Freight Convoys</i> (Andreas Molisch, USC) Measure the propagation channel (path loss and dispersion) between cars and trucks, and between cars whose connection is blocked by trucks to determine the probability of successful communication between vehicles and analyze robust methods to resolve the situations where direct communications are not successful.	Pending/ Caltrans
Topic 2-2	Policies for More Efficient Urban Transportation	
14-04	<i>Analysis and Prediction of Spatiotemporal Impact of Traffic Incidents for Better Mobility and Safety in Transportation Systems</i> (Cyrus Shahabi, USC) A machine learning approach to predict the spatiotemporal impact of traffic accidents on the upstream traffic and the surrounding region.	Pending/ Caltrans

1.1.3 Dissemination

Research reports are published to the METRANS website and presented at METRANS research seminars, which are open to the public. Preliminary results are often presented at conferences. During this reporting period, the following were presented:

“The Freight Landscape: Los Angeles Case Study” preliminary results were presented at the Transport Research Arena (TRA), Paris, April 2014, and the Pan-American Advanced Studies Institute on Sustainable Urban Freight Systems (PASI-SUFS), Bogota, Colombia (G. Giuliano).

“A Classification and Review of the Stochastic Vehicle Routing Problem” was presented at 2014 Industrial and Systems Engineering Research Conference, Montreal, Canada (H. Zou, M. M. Dessouky and F. Ordonez)

“An Intelligent Look-ahead Framework for the Dynamic Vehicle Routing Problem” was presented at the 2014 National Meeting of INFORMS, San Francisco, CA (H. Zou and M. M. Dessouky)

1.1.4 Plans for Next Reporting Period

Plans for the next reporting period are to: 1) continue Year 1 projects in progress; 2) begin remaining Year 1 open solicitation research projects (by January 2015); 2) issue the Year 2 open solicitation for new projects (during the fall 2014 semester); 3) complete the first three launch projects (by end of calendar year 2014); and 4) continue dissemination of research results via our website, other publications, papers, conference presentations, and our METRANS seminar series.

Year 2 Open Solicitation Research: All research projects to be awarded from Year 2 funding will be selected via peer review process. We will issue an RFP soliciting proposals within the designated topic areas, conduct an external peer review of the proposals, and make the final selections based on the results of the peer review. External reviewers will include faculty outside of the METRANS universities, public and private practitioners, and representatives of match funding sources. As noted above, Caltrans has established a new process for generating research proposals and selecting them for funding. Thus the RFP will be discussed with Caltrans, and specific topics of interest to Caltrans that fall within the themes of the UTC will be part of the RFP. As with the Year 1 funding, a consultative meeting with Caltrans will be held to finalize project selection, after which the task order process will be conducted for those projects funded by Caltrans. Because of the length of this process, we plan to start Year 2 projects in the summer of 2015.

1.2 EDUCATION AND WORKFORCE DEVELOPMENT

METRANS’ education goal is to foster education and training to contribute to the development of the transportation workforce. Traditional discipline-based education and training is not sufficient for current and future workforce demands; our approach is multi-disciplinary, multimodal, and incorporates both passenger and freight. Under this grant we are developing a series of education activities, from K-12 to PhD. These programs build on the education and training programs available at both universities.

1.2.1 New and Continuing Activities Associated with Degree Programs

Graduate research assistantships: We reserved Year 1 funds for graduate research assistantships to support dissertation research not tied to a specific research grant and to attract new PhD students. We were able to support our PhD students on other grants, and recruit new students for 2014-15 without offering separate assistantships. These funds were included in the research project funds.

New graduate courses: We developed two new courses during the reporting period.

PPD 599, Seaport Policy and Management, was introduced at USC this fall. Taught by Dr. Geraldine Knatz, former CEO of the Port of Los Angeles, the purpose of this course is to provide the student with

an introduction to the vital role that seaports play in accommodating world trade. After reviewing the historical development of seaports and the public trust doctrine, this course examines various patterns of port governance found around the world and how those governance patterns can affect port operations, management and business success. Students learn about U.S. trade policies and the role of various international maritime bodies.

CE 584, Intelligent Transportation Systems, was also introduced at USC this fall. Taught by Professional Engineer Dr. Shahed Rowshan, this course presents the fundamental concepts of Intelligent Transportation Systems (ITS) to students with interest in engineering, transportation systems, communication systems, vehicle technologies, transportation planning, transportation policy, and urban planning. Field trips are scheduled during the semester to allow students to observe the operation of a transportation management center and field applications of ITS technologies in the Greater Los Angeles area. A guest lecturer presents expert ITS discussions. Students also conduct a comprehensive independent research project, on topics related to ITS, to enhance their understanding of a specific topic of their interest.

New undergraduate minor and coursework under development: CSULB Department of Civil Engineering and Construction Engineering Management (CECEM) and CITT, as part of their proposed transportation virtual academy, are developing an undergraduate minor degree in transportation in the College of Engineering. This 15 unit minor allows students to become familiar with major components of transportations including traffic studies, maintenance and control; highway design, operation and maintenance; railroads; transit operation, safety and security; port operations, systems, and logistics; economic impacts of transportation and transportation policy; and environmental impacts of transportation and environmental justice. The programs starts with *Introduction to Transportation*, a module-based introductory class to transportation that includes several modules covering the fundamentals and introductory concepts and lays the foundation for advanced topics covered in the progressive classes. This will be an introductory, online class which will allow both CSULB freshman and qualified senior high school students to enroll for college credit. The plan is to test various course modules with high school and engineering students in summer 2015, refine the modules, and develop the rest of the modules in the academic year 2015-2016, and offer the degree officially in fall 2016.

Degree related internships: Internships are part of the Masters of Planning and of Public Policy at USC . Internships have been required for completion of the Masters of Arts in Global Logistics (MAGL) degree program at CSULB. CSULB is in the process of seeking approval from the CSU Chancellor's Office to transition the MAGL program to a Master's of Science in Supply Chain Management (MS-SCM) offered by the College of Business Administration. This change will better reflect course content and facilitate outreach to potential students. We expect that a larger percentage of students in the MS program will be working professionals. As a result, an internship will no longer be required for degree completion, but CSULB will continue to facilitate internships for students seeking additional work-based experience.

1.2.3 Facilitating Connections between Students and Employers

Professional development: METRANS partnered again with WTS-LA to promote student participation in the WTS-LA resume book. METRANS Assistant Director Victoria Deguzman serves on the Resume Book Committee. She is also mentoring two graduate level transportation students as part of the USC Price Mentor Program and one early-career professional as part of the WTS-LA Mentor Program. METRANS also offers career services such as application, resume, and cover letter assistance and on-campus opportunities for professional photographs in addition to the mentor program and internship/employment assistance described below.

METRANS Mentor Program: The METRANS Mentor Program guides graduate students who plan to pursue a professional, nonacademic career in transportation or a transportation related field in making informed career decisions and to develop into well-rounded professionals. Mentors provide a unique opportunity to broaden the students' educational experience through one-on-one interface with industry professionals, an opportunity often missing in the students' formal education.

The purpose of the mentor/mentee relationship is to provide practical career guidance. Mentors are not expected to find jobs for the students. Rather, the program is meant to offer students the opportunity to gain perspective on the transportation profession, and receive advice and counsel from a professional. While the relationship is defined as lasting through the end of the academic year, many students and mentors remain in contact throughout the student's studies, and often following graduation. Mentors and mentees are selected based on common career and academic interests. Mentors come from both the public and private sectors, and mentees are students at all levels from USC and CSULB. The METRANS mentor program is in its fourth year, and has averaged 20 matches each year for the past three years.

METRANS Internship Database: Internships provide professional experience and often lead to jobs. All transportation students are encouraged to secure internships. To assist, METRANS collects and disseminates information regarding transportation internship opportunities to transportation students. METRANS internship efforts are designed for students at both the undergraduate and graduate levels who intend to pursue a transportation related career. Internships are not provided through METRANS, but rather METRANS seeks out information regarding relevant internship opportunities, and provides this information, along with guidance and support, to interested students via information boards, our website and social media, announcements at events, and email. Internships are both paid and unpaid, and typically last for an academic year. During the reporting period, twenty-one USC students were successfully placed in transportation related internships, and four of these students secured employment as a result. Internship providers include Los Angeles County Metropolitan Transportation Authority (LA Metro), the Los Angeles Department of Transportation, the Port of Los Angeles, the Port of Long Beach, Southern California Association of Governments, and Foothill Transit.

METRANS Employment Database. In addition to internships, METRANS collects and similarly disseminates information regarding transportation employment opportunities both to students of transportation and transportation professionals.

CITT Job and Internship Post. To facilitate placements the Center for International Trade and Transportation (CITT, a partner organization to METRANS at CSULB) has also established a job and internship post, at the CITT Manifest website: <http://www.cipe.csulb.edu/TheManifest/calendar.aspx>

1.2.4 Non-degree Programs

Metropolitan Transportation Management Certificate: The MTMC expands non-degree offerings beyond freight and trade, consistent with our research themes. It builds on work funded by a FHWA TEDPP grant that developed a pilot training course in leadership for senior transportation professionals. The MTMC will be targeted at transportation and city planners, elected officials and their staff, planning commissioners, and others engaged in transportation planning within metropolitan areas. With the fundamentals covered, the course will examine the increasingly complex business environment that ports operate in and the sometimes conflicting requirements, responsibilities and expectations that they face.

We conducted preliminary outreach to determine the problems encountered by transportation planners working within complex and multi-jurisdictional environments. We are developing a survey for a related research project looking at the impact of environmental mandates on the workforce capacity of regional

planning organizations and transit operator. We are adding questions to that survey to gauge the need for specific skills tied to metropolitan wide planning to help develop the class. We also piloted materials related to corridor-wide and multi-agency freight planning as part of a recent class on goods movement and logistics designed and implemented for Caltrans. The materials looked at institutional impediments to coordination, including formal and informal arrangements, financing, and development of shared goals.

Certificate in Transportation Systems. The Certificate in Transportation Systems is an interdisciplinary program administered by the Department of Civil Engineering at USC, and is open to interested graduate students campus wide. The certificate program allows students to specialize in transportation applications, while simultaneously receiving a degree in their home department. The certificate combines elements of transportation engineering with transportation policy, planning and project management. The program is especially appropriate for students intending to pursue careers as developers of transportation technologies or as implementers of technologies within government agencies. A minimum of 17 units is required to earn the Graduate Certificate in Transportation Systems. See more at:

<http://gapp.usc.edu/graduate-programs/masters/civil-environmental-engineering/transportation-systems-grad-cert#sthash.usXRZSCP.dpuf>.

1.2.5 Research Seminars

METRANS Transportation Research Seminar Series. This seminar series serves as a forum for faculty, guest presenters, and advanced graduate students to present their research. The seminars take place during both the fall and spring semesters and are open to the public. They help to increase the visibility of transportation research not only on our own campuses, but with industry and government agencies as well. Many of the seminars are recorded and made available through iTunesU. Approximately five seminars are offered per semester. Table 3 lists seminars held during this reporting period.

DATE	SPEAKER(s)	TITLE
April 9	Heather Stephens	Business Location and Environmental Disamenties
April 23	Andy Hong and Yuting Hou	Student Transportation Research Showcase
September 16	Marlon Boarnet	Measuring Rail Transit’s Sustainability Goal: An Experimental Evaluation of the Expo Line ^a
September 26	Marco Dean	Improving Decision-Making for Mega Infrastructure Projects ^b

^a Jointly sponsored by Price Urban Growth Seminar Series

^b An Educational Exchange funded by the Volvo Research and Education Foundations

1.2.6 Educational Enrichment

METRANS provides promotional, administrative, and financial support to transportation related student and professional groups at USC, CSULB, and in the community. These groups include WTS LA, WTS OC, USC Student Chapter of the Institute for Transportation Engineers (ITE), USC Student Chapter of the American Planning Association (APA), Sol Global (graduate level students of planning policy), Association of Black Students in Policy, Planning and Development (ABS), Women Leading Policy, Planning, and Development (WLPPD), USC Price Asian Pacific Islander Caucus (APIC), USC Price Latino Association of Policy, Planning, and Development (LAPPD), Young Professionals in Transportation (YPT), and the Graduate Policy and Administration Community (GPAC). METRANS also provides opportunities for students to experience transportation outside the classroom, such as field

trips to local transportation facilities, agencies, and infrastructure, as well as resource and guest speaker referrals and opportunities for publication on our various media.

1.2.7 Attracting New Entrants to Transportation

Virtual Transportation Academy: METRANS is developing high school courses as part of a Virtual Transportation Academy (VTA). The courses will be piloted with partner high schools in Long Beach Unified School District (LBUSD). We will pursue accelerated approval through the CSULB College of Engineering to allow students to receive course credit for the new offerings during the grant period. By making the course materials available online, we will reach an audience beyond Southern California. Class recruitment efforts will begin with our existing partners at LBUSD, a highly urban and diverse school district. We will work with partners on both campuses and in the community to ensure a diverse student body. We have modified the list of modules based on feedback from our high school partners and the first course is now focused on port operations and systems.

The major topics within the course are: transportation systems; port infrastructure and maintenance; labor and management; cargo operation, transport and logistics; economic impacts; environmental impacts and environmental justice. Modules related to transportation systems and environmental impacts are currently being developed by faculty from the Department of Engineering at CSULB in conjunction with CITT. Development of these will be completed by the end of January and the rest by June. We have hired student assistants to develop apps to increase the likelihood of success with both students and teachers.

WTS Career Day. METRANS Assistant Director Victoria Deguzman is an active participant in WTS-LA Transportation Career Day, an annual, full day event for several hundred female students from underserved high schools in Los Angeles who are considering a career in a transportation related field.

USC Price Research Fairs. METRANS faculty, staff, and student assistants regularly present information regarding transportation education, research, careers, employment and internships opportunities, and transportation related resources at USC Price Research Fairs held for graduate level students admitted to and considering enrolling at the USC Price School.

1.2.8 Dissemination

Dissemination of education and workforce development is accomplished through student research assistantships, degree and non-degree courses and certificate programs, information and assistance regarding internships, employment opportunities, and professional development, METRANS seminar and educational series, the METRANS website, student research opportunities, support and outreach to student groups, research fair presentations, and student engagement in the mentor program and internships.

We also use the METRANS Facebook page, LinkedIn account and Twitter account to disseminate information on past and future events, and on educational opportunities. Subscribers and followers are given regular updates on seminars, workshops, and conferences; new job and internship postings and publications featuring METRANS-related work. We also continue to use our podcast series to highlight education programs of the Center.

1.2.9 Plans for Next Reporting Period

Plans for the next reporting period include to: 1) continue our professional development, student recruitment and support, and educational enrichment programs; 2) complete curriculum design on the

Metropolitan Transportation Management Certificate and pilot test with partner agencies in the Southern California region (continued from previous reporting period; 3) continue the METRANS seminar series; and 4) schedule tests of the first two modules with faculty and students as part of the Virtual Transportation Academy.

1.3 TECHNOLOGY TRANSFER

The goal of the METRANS UTC technology transfer program is to broaden our reach and effectively disseminate research results.

1.3.1 Continuation of Signature Events

Annual State of the Trade and Transportation Industry Town Hall Meeting: The Town Hall is a practitioner-oriented educational forum that explores transportation and trade issues. Participants include the goods movement industry, longshore union, research community, and elected officials and their constituencies. A video introduces the topic and sets the context for the discussion. Speaker presentations are followed by open Q&A. The next Town Hall, *Global Trends, Local Impacts, Big Decisions*, will be held on October 15, 2014 at CSULB and will address the impact of trends such as e-commerce, 3-D manufacturing, rising energy costs, and emerging markets on regional and national competitiveness. The newly appointed–Port of Long Beach Chief Executive–Jon Slangerup will be a featured speaker.

International Urban Freight Conference: METRANS' 2013 International Urban Freight Conference (I-NUF) was held October 8-10, 2013 at The Westin Long Beach Hotel in Long Beach, California. The purpose of I-NUF is to provide a forum for sharing emerging, multi-disciplinary research on all aspects of freight in metropolitan areas. The 6th METRANS I-NUF is scheduled for October 21-23, 2015 and will again be at The Westin Long Beach. During the reporting period, we negotiated a final contract with the conference hotel, distributed Save the Date cards, and began coordinating special activities for the event including site visits and special sessions with partners including the TRB Urban Freight Committee.

1.3.2 New Outreach Events

METRANS Industry Outlook: METRANS has launched a new event, METRANS Industry Outlook. Its purpose is to present an in-depth look at topics of relevance to the transportation industry. The first Industry Outlook event, “Making Hay: The Future of U.S. Competitiveness in the Age of Globalization,” took place in April at USC and served as a prelude to the 2014 Town Hall. A capacity audience of over 120 attended. Presenter Dan Gardner, Trade Facilitators Inc. traced the history of U.S. trade policy and discussed its relationships to changes in the U.S. economy. He then discussed how these changes affect U.S. competitiveness and concluded with suggestions for how the U.S. can compete more effectively. The event can be accessed at: <https://www.youtube.com/watch?v=H-w-vpeaLOW>. Our next Industry Outlook event is scheduled for December 4, 2014 and will feature speaker Patrick Burgoyne, CEO of NYK Ports LLC, who will discuss global shipping trends and their implications. A webinar series based on the questions raised by both the Industry Outlook and the Town Hall events will be released in the spring of 2015.

Working and Living in a Port City Series: The Working and Living in a Port series is designed to introduce local decision makers and community residents to what happens at a maritime port, its position in the global supply chain, and the career pathways available in international trade and transportation. The three-part series is offered twice a year and is taught by industry professionals and a transportation careers advisor. Because of industry sponsorships, the course is offered free of charge. Particular efforts are made

to include students at CSULB in order to make them aware of educational and employment opportunities in transportation and goods movement.

Secondary Education Instructors Course: The Center for International Trade and Transportation will offer a one week short course for teachers at Long Beach Unified School District in the spring of 2015. The course is sponsored by the Port of Long Beach and will provide instruction to high school teachers on how to incorporate maritime and trade related issues into the high school curriculum. The course will be taught by university instructors, industry professionals and pedagogical experts with experience in balancing testing mandates and curriculum development. Course participants will be matched with an industry mentor as part of the process.

1.3.3 Media and Communications

Scholarly venues: METRANS is committed to conducting research that both contributes to knowledge and addresses current and near-term transportation problems. We therefore expect researchers to publish in scholarly journals, and require them to present at scholarly conferences. We seek out opportunities to feature METRANS research. The best papers from the INUF 2013 conference were published in Volume 11 of *Research in Transportation Business and Management*, July 2014. This volume can be accessed online at <http://www.sciencedirect.com/science/journal/22105395>.

The Manifest: The Manifest began as a CITT-sponsored industry event wiki-calendar for trade and transportation related activities. It is now an industry-sponsored portal where companies can share information with the broader community on events, internships, and employment opportunities and where CITT can reach an industry-focused audience via social media. As an example, CITT's podcasts can be accessed via the Manifest.

Research Briefs: We have established a new requirement for research funding, the production of a "Research Brief" that provides a short summary of research results suitable for a non-technical audience. The Research Briefs will be widely circulated through both traditional and social media.

METRANS News: METRANS News is a tri-annual newsletter that features research, student awards and activities, new program initiatives, and summaries of events. A new editor was selected in the spring, and his first issue was published in summer, 2014. Three issues of METRANS News were published over the past year, two during the time period covered by this report. *METRANS News* will be published on a regular schedule of spring, summer, and fall issues, coinciding with the semester schedule of USC and CSULB. It is also posted on the METRANS website and on the TRB e-newsletter and is distributed to over 1500 members of the national research community, federal, state and local leaders, industry leaders, and federal, state and local transportation agencies, and at conferences, events, and meetings.

METRANS Website: We have constructed a new website for the entire METRANS Transportation Center, and the Tier 1 UTC website is part of the new website. The new website was launched this summer, new content continues to be added, and news articles and opportunities are generated and posted on a weekly basis. The Tier 1 UTC may be accessed at www.metrans.org/metrans-utc. We are also now active on Facebook, Twitter, and LinkedIn.

METRANSInfo: METRANSInfo is a queryable database under development. It will include definitions, basic information on urban transportation systems and data (e.g., how many truck trips are generated by retail, how many passengers are carried on rail). A research assistant has been hired to coordinate development and research is underway. METRANSInfo will be integrated into the new website.

ContainerCasts: CITT provides ContainerCasts, webcasts focused on topics of interest to the international trade community and feature discussions based on O'Brien's Long Beach Business Journal articles. Three ContainerCasts were issued during the reporting period, Creating a Border Environment, Inland Connections, and Big Ship Ready. All ContainerCast episodes are available at www.ccpe.csulb.edu/citt.

YouTube: Four METRANS Seminars are available on YouTube. The full METRANS Playlist URL is http://www.youtube.com/results?search_query=mtrans+transportation+center.

Trade and Transportation Perspective: METRANS Associate Director, Thomas O'Brien, writes the Trade and Transportation Perspective monthly column for the *Long Beach Business Journal*, highlighting important issues in goods movement and international trade and featuring CITT activities and research findings. Five articles were produced during this reporting period and can be found at <http://www.ccpe.csulb.edu/CITT/IndustryArticles.aspx>.

1.3.4 Dissemination

Dissemination of research results are achieved through the events, media, and communication channels described in sections 1.3.1 through 1.3.3.

1.3.5 Plans for Next Reporting Period

Plans for the next reporting period include the following: 1) publish completed METRANS research reports and briefs to the METRANS website; 2) hold the Town Hall event in October; 3) continue planning for INUF 2015; 4) continue to publish METRANS News and METRANS website news; 5) expand the new website; 6) continue social media programs and grow our subscriber database for LinkedIn and the followers of Twitter; 7) hold the second annual Industry Outlook; 8) offer the seminar series on Working and Living in a Port City; 9) design a new course for high school teachers in conjunction with the Port of Long Beach focused on incorporating supply chain related issues into the high school curriculum; and 10) release the new webinar series based on the Town Hall and Industry Outlook events.

2. Products

2.1 PUBLICATIONS

No refereed publications from the Tier 1 research program have been generated as yet, because no research project is sufficiently far along to have publishable research results.

2.2 WEBSITES

The new website was launched this summer. It is described in section 1.3.3. The url is <http://www.metrans.org>.

2.3 TECHNOLOGIES

Nothing to report.

2.4 INVENTIONS

Nothing to report

2.5 EDUCATIONAL PRODUCTS

We have launched two new courses as described in section 1.2.1 above.

2.6 OTHER PRODUCTS

The following other products have resulted from this grant: 1) freight landscape database created under project 1-1b and jointly with MetroFreight; 2) podcasts of METRANS Seminars; 3) the internship opportunities database; 4) the employment opportunities database; 5) O'Brien Long Beach Business Journal column publications; 6) Podcast of Industry Outlook; 7) spring, summer and fall issues of METRANS news; and 8) expansion of the Monitoring the Ports database.

3. Participants and Collaborating Organizations

In this section we describe participant and collaborating organizations associated with the METRANS UTC. Participants are those organizations that directly contribute to the work of the Center through financial or other support, or that participate directly in the research. Organizations that participate in Center activities, provide advisement, or generally support the center are collaborating organizations.

3.1 PARTICIPANTS

METRANS is a partnership between the University of Southern California (USC) and California State University, Long Beach (CSULB). At USC, the Price School of Public Policy and the Viterbi School of Engineering are the main partners. At CSULB, participants are CITT, the School of Engineering, and the Department of Economics. METRANS is a multi-disciplinary research center, and researchers routinely collaborate across department and school boundaries. Caltrans is the major funding partner, providing the entire required match for the Center. Additional financial support is provided by members of the METRANS Associates. Participant roles are summarized in Table 3.

3.2 COLLABORATING ORGANIZATIONS

METRANS has extensive relationships with other universities, public agencies, and private industry. The METRANS UTC has access to these relationships.

3.2.1 Advisory Organizations

METRANS Advisory Board: The Advisory Board provides overall policy guidance for the Center; it suggests research priorities, identifies funding opportunities, assists in student job placements, and participates in outreach activities. Members are leaders from sponsor agencies, other agencies, and private industry. They serve as liaisons to their agencies and industries, and also contribute funding support. Advisory Board members are appointed by the Director with the advice of the Executive Committee. Gold level METRANS Associates are members of the Board; others are appointed to represent the broad constituency of METRANS stakeholders. The Board meets annually. A list of Advisory Board members is available at <http://www.metrans.org/advisory-board>. We are currently in the process of updating and expanding the Advisory Board to better reflect the broader activities of METRANS.

CITT Policy and Steering Committee: The CITT Policy and Steering Committee (PSC) consists of representatives from modal transportation sectors, units of government, organized labor, and other individuals in international trade and transportation. Nominated representatives are drawn from permanent or sponsoring organizations subject to confirmation by a majority of the Committee. Faculty representatives are appointed by the Dean, College of Continuing and Professional Education at CSULB, Long Beach. The PSC helps direct the outreach activities of CITT, including those sponsored by METRANS. The PSC also serves as the advisory body on the development of the structure and content of the Annual State of the Trade and Transportation Industry Town Hall Meeting. The PSC meets on a monthly basis. A list of members is at <http://www.ccpe.csulb.edu/CITT/IndustryArticles.aspx?PID=37>.

METRANS has extensive informal relationships with industry and government. The Southern California Association of Governments (SCAG) provides regional planning and transportation modeling data. LA County Metro (Metro) has funded a major research project to develop a data archive from real-time transportation system monitoring data and develop applications for planning and system management. Several trade organizations offer scholarships and other assistance, including the LA Transportation Club (LATC), Harbor Transportation Club (HTC), Harbor Association for Industry and Commerce (HAIC) and Council of Supply Chain Management Professionals. The HAIC and LATC have endowed scholarship funds for GLS students. The HTC contributes 100% of its scholarship fundraising to students in CITT programs. The table which follows lists METRANS UTC’s major partners and their contributions.

Name	Location	Contribution
Sol Price School of Public Policy	USC	Home of the Center, participating faculty, education programs, students; financial contribution for center administration; indirect cost share; METRANS offices and labs
Viterbi School of Engineering	USC	Participating faculty, education programs, students; indirect cost and tuition cost share, METRANS labs
CITT	CSULB	Home of CSULB METRANS, participating faculty, training and professional education programs, students; METRANS offices
College of Engineering	CSULB	Participating faculty, education programs, students
Department of Economics	CSULB	Participating faculty, education programs, students
Caltrans	Sacramento, CA	Match fund sponsor, financial contribution of full required match, data sharing, other research funding
Port of Los Angeles	Los Angeles	METRANS Associate, financial contribution, internships, student scholarships
Port of Long Beach	Long Beach	METRANS Associate, financial contribution, internships, student scholarships
Majestic Realty	Industry, CA	METRANS Associate, financial contribution
Gateway Cities	Paramount, CA	METRANS Associate, financial contribution
SCAG	Los Angeles	METRANS Associate, financial contribution, internships, data sharing
Metro	Los Angeles	METRANS Associate, financial contribution, internships, research funding
ILWU	Los Angeles	METRANS Associate, financial contribution

3.2.2 Relationships with Other Universities

Council of University Transportation Centers: METRANS is a long-time member of the Council of University Transportation Centers. The center director (Giuliano) is a past president and executive

committee member. Currently Dr. O'Brien is serving on the executive committee. Dr. O'Brien serves as METRANS lead for the CUTC workforce development efforts.

MetroFreight Center of Excellence: METRANS is the home of the Volvo Foundation for Education and Research (VREF) Center of Excellence on urban freight. MetroFreight seeks to improve the sustainability of goods movement in metropolitan areas around the world. It is an international consortium that includes the University Transportation Research Center (Region 2 UTC) in New York, the Institute of Science and Technology for Transport (IFSTTAR) located in Paris, France, and the Korean Transport Institute (KOTI) based in Seoul, Korea. MetroFreight has greatly expanded our international linkages, and offers many opportunities for collaboration and partnerships. Two projects have been started: Integrating Management of Truck and Rail Systems in Los Angeles, Maged Dessouky (PI), and Modeling for Local Impact Analysis, Petro Ioannou (PI).

During this reporting period, METRANS faculty collaborated with the MetroFreight partners on the development of Freight Landscape research. On MetroFreight Day in April 2014, Giuliano presented Year 1 data collection at the Transport Research Arena (TRA) 2014 conference in Paris, France. Dessouky and O'Brien also gave research papers at that event. Giuliano and O'Brien participated in the 2014 Pan American Studies Institute on Sustainable Urban Freight Systems (PASI-SUFS) conference in Bogota and Cartagena, Colombia during August. One of the METRANS affiliated PhD students, Sanggyun Kang, was chosen to present his research paper on urban freight at the workshop, organized and supported by VREF. METRANS hosted two VREF educational exchanges: Laetitia Dablanc, IFSTTAR (August); and Marco Dean, OMEGA Centre/London (September). O'Brien is currently developing a course on "Urban Freight Best Practices" with MetroFreight partners.

National Center for Sustainable Transportation: METRANS is a partner in the NCST consortium, led by University of California, Davis, and including University of California, Riverside, Georgia Tech, and University of Vermont. METRANS' role is sustainable freight transport, which links well with MetroFreight. Three projects have been started: Reducing Truck Emissions and Improving Truck Fuel Economy via ITS Technologies, Petros Ioannou (PI), Routing Strategies for Efficient Deployment of Alternative Fuel Vehicles for Freight Delivery, Maged Dessouky (PI), and Impacts of Legislative Mandates on Transportation Workforce Capacity, Thomas O'Brien (PI).

Other activities: With various university partners, METRANS submitted three major proposals during this reporting period. METRANS continues to work with a consortium led by University of Antwerp on port innovation research.

4. Impact

Impacts tend to be the result of a cumulative body of work, rather than specific projects or programs. Thus it is difficult to identify the particular impact of this UTC. We provide a summary of impacts below.

4.1 DEVELOPMENT OF THE PRINCIPAL AND OTHER DISCIPLINES

METRANS is a multi-disciplinary research center that includes engineering, social sciences, urban planning and public policy. METRANS' impact has been on developing interdisciplinary courses and degree programs, including two new courses during this reporting period and several programs under development. At USC, most graduate transportation courses are cross-listed between public policy and engineering. At CSULB, the masters level MAGL/MS-SCM is an interdisciplinary degree. With regard to fields of research, METRANS has contributed to: 1) development of routing and scheduling methods

to improve rail and truck efficiency; 2) development of simulation models for truck and passenger flows; and 3) establishing urban freight as a field of research within urban planning and public policy.

4.2 DEVELOPMENT OF HUMAN RESOURCES

Student support: METRANS UTC research is funding three engineering PhD students and two urban planning PhD students at USC. In addition, six masters students (urban planning, public policy, civil engineering) and one urban planning undergraduate student are working on METRANS outreach activities. At CSULB, two masters students (computer science, education) and one undergraduate student (business administration) are working on METRANSInfo and social media. CSULB is continuing to hire additional students to work on METRANS outreach and research projects. As the UTC research program becomes fully implemented, these numbers will increase. METRANS also provides financial and administrative support to allow students to travel to and participate in transportation related conferences and competitions, such as the California Transportation Foundation Annual Symposium, the Annual Town Hall meeting, the International Freight Conference, and WTS activities.

Support for underrepresented groups: Of the nine student administrative assistants directly supported by METRANS funding, six are female and two are both female and members of underrepresented groups. Of the eleven student and professional groups supported by METRANS, three are specifically devoted to women, and six are specifically devoted to underrepresented groups.

Scholarship opportunities: METRANS regularly disseminates information regarding opportunities for scholarships to students at both universities as well as the general public via our website, social media, announcements at courses and events, and our email distribution list of over 3,000 recipients. During the past reporting period, twelve USC and nine CSULB transportation students received scholarship from various sponsors including: WTS LA, WTS Orange County, the California Transportation Foundation, the Southern California Roundtable for the Council of Supply Chain Management Professionals, the Richard Hollingsworth Professional Development Scholarship, the Harbor Transportation Club, the Los Angeles Transportation Club, and the Container and Intermodal Institute. In addition, several transportation students received educational fellowships and assistantships from USC and CSULB.

Opportunities for research: METRANS funded six launch projects and selected five new projects for funding during the reporting period. Fourteen faculty researchers and 15 student researchers will be participating in these projects.

New educational materials and programs, and opportunities for teaching: During the reporting period, METRANS developed two new transportation courses, and has several additional courses and programs under development, including the Virtual Academy, the Long Beach Unified School District Teacher Training Course, and the undergraduate minor in transportation. These programs alone will offer new teaching opportunities for more than ten instructors.

4.3 RESOURCES AT UNIVERSITY AND PARTNER INSTITUTIONS

METRANS continues support of university facilities and laboratories, transportation student and professional organizations, and continues to support and improve its Goods Movement Database. New resources introduced during the reporting period include the internship database, the employment database, the Manifest transportation opportunity postings, and enhanced and more broadly reaching support of transportation related groups for both students and professionals. METRANS continues to develop the METRANS InfoShop.

4.4 TECHNOLOGY TRANSFER

Technology transfer tends to occur after research results have been disseminated, and none of the research funded by this grant has been completed. Preliminary results, however, have been presented at several conferences and seminars.

4.5 SOCIETY BEYOND SCIENCE AND TECHNOLOGY

METRANS' impact on society takes place through its affiliated faculty and researchers. Giuliano is a member of the National Freight Advisory Committee and in that role has contributed to a set of recommendations for a national freight strategic plan, as well as recommendations on specific policies, such as the proposed Designated Highway Primary Freight Network. She also contributed to California state legislation; AB 2008 promotes dedicated loading space for new developments within transit villages. As a member of the Council of University Transportation Centers Workforce Development Committee, National Transportation Workforce Development Summit coordinating committee, O'Brien has helped to raise the profile of transportation workforce development issues within both the region and at the national level. He has also brought together key stakeholders from the public sector and private industry to identify needs, propose solutions and help to develop a research agenda in the area of transportation workforce development. In addition to serving as editors and on editorial boards of several scholarly journals, METRANS faculty are members of state or local committees and task forces, providing advice on various aspects of transport policy and practices.

5. Changes

There are no changes in the scope or objectives of this grant. We have encountered some schedule delays as a result of a lengthy process of contracting for match funding. The Caltrans contract was not fully executed until June 29, 2014. Since funds cannot be spent until a project task order is processed and approved by Caltrans, additional time is required. The first task orders were approved in August, and the projects began at the end of August. The remaining Year 1 projects will likely begin in January 2015, and Year 2 projects will likely begin summer 2015. Education projects have experienced delay due to unanticipated staff losses and illnesses, which are now resolved. Outreach projects are on schedule.

6. Special Reporting Requirements

No special reporting requirements. Nothing to report.