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Signature of Submitting Official	

1. Accomplishments

The purpose of the METRANS University Transportation Center is to conduct an integrated, multidisciplinary program of research, education and technology transfer aimed at increasing the economic competitiveness of large metropolitan areas through improved transportation system performance. We address passengers and freight across all surface transportation modes. 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.

Our focus is large metropolitan areas – those with 1 million population or more. Large metropolitan areas are home to over half of the US population and nearly 2/3 of US GDP. They serve as international gateways and major hubs for the national transport system. Transportation problems – congestion, air pollution, noise – are particularly severe due to dense settlement patterns and limited transport capacity. More efficient metropolitan transportation will reduce congestion and air pollution, save energy, reduce greenhouse gases, and increase livability while allowing our metropolitan areas to economically thrive.

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. We take an integrative, systems approach, based on the premise that the modes and users within large metro areas are interdependent.

Our research approach is uniquely integrative: we address passengers and freight across all surface transportation modes. By developing strategies that promote productivity and better integrate modes and users, METRANS will contribute to more efficient, sustainable metropolitan transportation. 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.

1.1.1 Research Program Themes

Our research program is organized around two themes and a set of associated topics that will be pursued over the life of the two year grant.

Theme 1: Understanding Passenger-Freight Interactions

Research in Theme 1 will contribute to our understanding of passenger and freight interactions by examining 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 includes three topic areas:

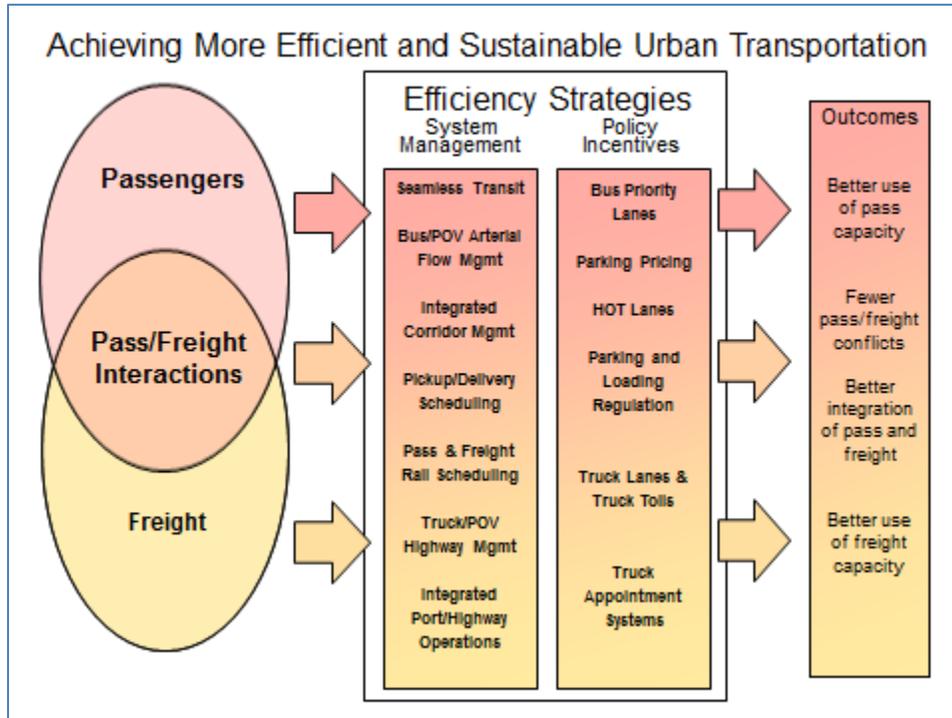
- Topic 1-1: Relationships between spatial patterns and transportation
- Topic 1-2: Characteristics of freight and passenger demand
- Topic 1-3: Better data for analysis of passenger-freight interactions

Theme 2: Achieving System Efficiencies

Research in 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
- Topic 2-2: Policies for more efficient urban transportation

Figure 1: Conceptual Model



1.1.2 Research Program Selection and Management

Year 1 Launch Projects

For Year 1 of this grant our research program has two parts. The first is a set of pre-selected Year 1 Launch Projects. These projects were selected from short proposals submitted and reviewed during the proposal preparation process and allowed us to begin the research as soon as the award contracts were established. The Launch Projects are listed in Table 1. There are some changes from the list submitted in the proposal. Two projects were deferred, and one new project was added (1-1b) as a result of changes in availability of researchers. Of the six launch projects, three are in progress, and three are awaiting receipt of match funds from Caltrans. Because the Caltrans match funding can only be used for research, the USDOT funds had to be reserved for education, training and administration. Launch project descriptions are available at <http://www.mettrans.org/tier1utc/research.html>.

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	Pending/ 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 system characteristics and 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, CSULB & Giuliano, USC) Stated preference survey of commercial & private travelers to estimate value of time, value of reliability	Deferred
Topic 1-3	Better Data for Analysis of Passenger-Freight Interactions	
1-3a	<i>Tracking Truck Flows with Programmable Mobile Devices</i> (Lam, CSULB) Demonstration of using tablet computers for truck tracking and development of database	Pending/ Caltrans
	<i>Using ADMS for Regional System Monitoring</i> (Giuliano and Shahabi USC) Development of a regional performance monitoring system using real-time and archived data for road and transit	Deferred
Theme 2	Achieving System Efficiencies	
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 managements and operations, and implications for truck travel and local community impacts	Pending/ Caltrans

Year 1 Launch Project Progress Reports

1-1b: The Freight Landscape: Using Secondary Data Sources to Describe Metropolitan Freight Flows (Giuliano, USC)

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.

Two tasks have been completed. We have reviewed the literature on freight trip generation, flow modeling, freight activity measurement, and land use and freight relationships. We have nearly completed the data collection for the Los Angeles region (we are still awaiting vehicle classification data from Caltrans). We have assembled a comprehensive geographic database for the Los Angeles region that includes five categories of data: jurisdictional (political boundaries), infrastructure (road and rail networks, terminals and facilities), land use (zoning, population characteristics, employment characteristics), flows (traffic flows), and policy (parking and truck routes).

We have also begun the Los Angeles analysis. We have developed a conceptual model and have conducted some preliminary analysis. We use a simple measure of land use intensity (population + employment density) and link it to observed network flows. As population or employment density increases, so does the demand for goods and services and hence truck traffic. Zones with a lot of employment but less population tend to be manufacturing or warehouse/distribution zones, also major truck traffic generators. Our preliminary mapping suggests substantial correlation of truck traffic with this simple land use measure.

Next steps in the work include: data collection for San Francisco and San Diego regions, analysis of Los Angeles region, analysis of San Francisco and San Diego.

USC 2-1a: Efficiencies in Freight and Passenger Routing and Scheduling (Dessouky, USC)

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. The next step in the research is to develop a solution procedure to solve the developed model.

2-1b: Design and Evaluation of Impact of Traffic Light Priority for Trucks on Traffic Flow (Ioannou, USC)

Traffic light control strategies have been studied extensively in recent years. These strategies vary from fixed-time to traffic-responsive. Some are designed to be isolated strategies and others are coordinated strategies. The problem is often formulated as a Mixed Integer Linear Programming problem, and as an extended linear complementary problem. A Markov decision process approach has also been proposed. Reinforcement learning and game theory viewpoints are also studied. All these approaches ignore an important fact that vehicles with significantly different dynamics will influence the traffic light control sequence and may lead to violation of all the optimality criteria used to establish it in the first place. The response time for trucks is higher than that of passenger vehicles, as they have much slower acceleration/deceleration rates. Our goal in this research is to design a comprehensive traffic light control strategy which takes into account the presence of trucks, with the objective of minimizing the total traffic light delay, and reduce travel time for all vehicles. Intuitively such a strategy will involve priority for trucks in order to reduce the number of delays due to stop and go traffic induced by the slow moving trucks.

One task has been completed as planned. We have completed a literature review on traffic light control and road traffic control strategies, and we have developed a control algorithm for a single isolated intersection. The algorithm takes into account the flows of cars and trucks as well as the size of the queues in both directions and the position of the trucks in the queue and generates the control cycle of the traffic lights that minimizes the total delay. It also takes into account the differences in dynamics between different classes of vehicles. A microscopic simulation network has been setup to test the proposed algorithm first for a single intersection and then extend it to multiple intersections. In addition to the algorithm based on optimization, another strategy that has been used for bus priority traffic light control has been reviewed and modified for our problem. In the case of buses, the objective is to minimize the travel time of busses often at the expense of passenger vehicles. In our case the objective is to give priority to trucks in order to minimize the travel time of all vehicles involved.

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. The RFP was issued in March 2014, and proposals were due April 28, 2014. The RFP is available at <http://www.metrans.org/announce/item.php?id=265>. All tenure track and research faculty at USC and CSULB are eligible to submit proposals. The RFP process described in the Tier 1 proposal was followed, and we received 15 valid proposals. The Associate Director for Research (Ioannou) is managing the proposal review process. We anticipate making selection in the summer, with projects to start in the fall 2014 semester.

1.1.3 Dissemination

Nothing to report; no research projects completed

1.1.4 Plans for next reporting period

Plans for the next reporting period are to 1) complete the Year 1 open solicitation and select projects for funding and set up the new projects to begin in August 2014; 2) set up the Caltrans funded Launch Projects as soon as funding is available; 3) complete the first three Launch Projects by 12/31/14; and 4) begin dissemination research results via conference presentations and papers.

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. Rather, our approach is multi-disciplinary, multimodal, and incorporates both passenger and freight. Under this grant we are developing a series of education activities, from PhD through K-12. Our programs build on the graduate and professional training programs available at the two universities.

1.2.1 *New and continuing activities associated with degree programs*

Graduate research assistantships: We have reserved funds for graduate research assistantships to support dissertation research not tied to a specific research grant and to attract new PhD students. During this year we have been able to support our PhD students on other grants, and have been able to recruit new students without offering separate assistantships. These funds will be reserved and rolled over to Year 2.

New graduate courses: We have developed a new course, PPD 599 Seaport Policy and Management, to be taught in Fall 2014 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 will examine 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. National and local governments that regulate or influence ports and the movement of goods are also discussed.

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.

Leadership for professionals: See Section 1.2.4 below on the Metropolitan Transportation Management Certificate.

Internships: Internships provide professional experience and often lead to jobs. Internships are part of the Masters of Planning and of Public Policy at USC and Masters level supply chain programs at CSULB. All transportation students are encouraged to secure internships. 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. Internships are both paid and unpaid, and typically last for an academic year. During the reporting period, fifteen USC students were successfully placed in transportation related internships, and three of these students secured employment as a result. Internship providers include Los Angeles County Metropolitan Transportation Authority (LA Metro), the Port of Los Angeles, the Port of Long Beach, Southern California Association of Governments, and Foothill Transit.

Internships are required for completion of the Masters of Arts in Global Logistics (MAGL) degree program at CSULB. The internship program is designed as a 3-unit summer course with placements made by the METRANS Associate Director who serves as instructor for the class. Students complete a summer long research project based on their work experience, including developing a research proposal. This provides valuable experience in the development of a proposal for the capstone project which is the program's terminal degree task. Eighteen students completed internships in the summer/fall of 2013. Five of these students secured full time employment as a result. CSULB is in the process of seeking approval from the CSU Chancellor's Office to transition the MAGL program to a Masters of Science in Global Supply Chain Management (MS-GSCM) to better reflect course content and to facilitate outreach to potential students. Internships are expected to remain a vital part of the new MS program.

1.2.3 Facilitating connections between students and employers

Professional development: METRANS partnered again this year with WTS-LA to promote student participation in the WTS-LA resume book.

Mentor program: The mentor program is intended to guide graduate students who plan to pursue a professional, nonacademic career in transportation or a transportation related field in making informed career decisions and helping them 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 third year, and has averaged 20 matches each year for the past two years.

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. The MTMC is in development.

1.2.5 Seminars, workshops, training courses

Monthly seminar series: The METRANS seminar series serves as a forum for faculty, guest presenters, and advanced graduate students. The seminars are open to the public. They help to increase the visibility of METRANS 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. Table 2 lists seminars conducted during this reporting period.

Table 2: METRANS Seminar Series, Fall 2013 – Spring 2014		
DATE	SPEAKER(s)	TITLE
March 26, 2014	Mohja Rhoads, Xize Wang (Price School, USC)	Transportation Student Research Showcase
March 13, 2014	Dr. Robert Sampson (Harvard University)	Great American City: Chicago and the Enduring Neighborhood Effect ^a
March 12, 2014	Dr. Jenny Schuetz (Price School, USC)	Does Rail Transit Investment Encourage Neighborhood Retail Activity?
November 20, 2013	Dr. Ketan Salva (Industrial and Systems Engineering, USC)	Stability and Robustness of Dynamical Transportation Networks
November 7, 2013	Dr. Jean-Paul Rodrigue (Hofstra University)	The Waves of Containerization: Shifts in Global Maritime Transportation
November 4, 2013	Special Panel Maged Dessouky, USC Mike Waters, Megabus/Coach USA Jeff Shields, LA Zipcar	Nest Gen Transportation: Private Sector Alternatives ^b
October 23, 2013	Dr. Adam Rose (Price School, USC)	The Macroeconomic Impacts of Reducing Wait Times at US Border Crossing

^a Jointly sponsored with Price Center for Social Innovation and Lusk Center for Real Estate

^b Jointly sponsored with Bedrosian Center on Governance and the Public Enterprise

1.2.6 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. The LBUSD is 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. Modules in Intro to Logistics and the Economics of Transportation are currently in development.

1.2.7 Dissemination

Dissemination has been accomplished through the METRANS seminar series and student engagement in the mentor program and internships.

1.2.8 Plans for next reporting period

Plans for the next reporting period include: 1) launch the new Seaport Policy and Management graduate course, 2) continue internship program, mentor program, METRANS seminar series; 3) complete curricula development for three-unit 100-level classes as part of the Virtual Transportation Academy;

4) complete curriculum design on the Metropolitan Transportation Management Certificate and pilot test with partner agencies in the Southern CA region..

1.3 TECHNOLOGY TRANSFER

The goal of the METRANS UTC technology transfer program is 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, 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. Planning has begun for the next Town Hall, to be held October 15, 2014 at the Carpenter Performing Arts Center at CSULB. The topic is Global Trends and Local Responses. As a prelude to that event, METRANS is preparing to host its first METRANS Industry Outlook in April at USC that will feature the discussion of the future of U.S. competitiveness in the age of globalization. The presentation will trace the history of U.S. trade policy and discuss its relationships to structural changes in the US economy and concludes with some suggestions on how the U.S. can compete more effectively in the global economy.

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 conference featured over 100 presenters and panelists coming from 16 countries and from throughout the United States. The complete agenda, copies of conference presentations and papers, a list of sponsors, and other conference information are available at www.metrans.org/nuf/2013.

The 2013 I-NUF keynote speaker was Charles (Chuck) Holland, Vice President of Engineering at UPS. He offered perspectives on emerging trends in local package delivery including the impacts of e-commerce and home shopping on the urban freight business. The featured spotlight speaker was Jake Racker, Regional Logistics Director at Kroger Co. He discussed recent changes in distribution for the grocery industry, especially in the area of automation.

As a tie-in to the 2013 I-NUF, several presenters from the conference were invited to participate in the October 16, 2013 Talking Freight Seminar on Urban Freight Transportation. Details are available at <http://www.metrans.org/nuf/2013/webinar.html>.

The 6th METRANS I-NUF is scheduled for October 21-23, 2015 and will again be at The Westin Long Beach. The main focus for this project at this point has been to identify venue options, select the conference venue and date, and establish the contract with the hotel, Save-the-Date cards have been designed and printed and will be distributed in April and May as well as throughout the year at various events, both nationally and internationally.

1.3.2 Media and communications

Dissemination through 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 will be published in a volume of *Research in Transportation Business and Management*. We are nearing completion of the review process, and the volume should be published in summer 2014.

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.

METRANS News: METRANS News is a tri-annual newsletter that features research results, student awards and activities, new program initiatives, and summaries of METRANS events. After a search, a new editor was selected for *METRANS News* and production of his first issue will begin in early summer. Three issues of METRANS News were published over the past year; one was published during the time period covered by this report.

METRANS Website: We are constructing a new website for the entire METRANS Transportation Center, and the Tier 1 UTC website will be part of the new website. We have completed website design and are now generating content. The new website is scheduled for launch at the end of May 2014. Until the new launch, METRANS UTC information is available at <http://www.metrans.org/tier1utc/>. We have started the search for student researchers to work on the social media aspects and will interview and make a selection in the April/May.

METRANSInfo: METRANSInfo will be a queryable database that includes definitions, basic information on urban transportation systems and data (e.g. how many truck trips are generated by retail stores, how many passengers are carried on the Metro rail systems annually). A Research Assistant has been hired to coordinate the development of the database. Preliminary research is underway. METRANSInfo will be integrated into the new METRANS website.

Other media: Our partner organization, the Center for International Trade and Transportation (CITT) located at CSULB, provides ContainerCasts, webcasts focusing on topics of interest to the international trade community. All ContainerCast episodes, including those in this reporting period, are archived and available at www.ccpe.csulb.edu/citt.

Five METRANS Seminars are available on YouTube. The full METRANS Playlist URL is <http://www.youtube.com/playlist?list=PLFF4D4389AC445594>

Thomas O'Brien writes the Trade and Transportation Perspective monthly column for the *Long Beach Business Journal*, a bi-weekly publication. The column highlights important issues in goods movement and international trade and features CITT activities, including research findings. These industry-related articles are found at <http://www.ccpe.csulb.edu/CITT/IndustryArticles.aspx>. Articles produced during this reporting period are as follows: 1) [Creating a Border](#), March 18, 2014, 2) [Big Ship Ready](#), January 21, 2014, 3) [Strong Leadership Provides Blueprint for Moving Forward](#), December 3, 2013, 4) [A Message from the Freight Industry](#), October 22, 2013.

1.3.3 Dissemination

We have published one issue of METRANS News, and a second is to be published in May. All seminar presentations are recorded and available on our website. The following ContainerCasts were issued during the reporting period:

Local Mobility and Global Trade, available as of October 29, 2013

Host: Mat Kaplan

Guest: Thomas O'Brien, Ph.D

Freight is taking on an increasing importance in the discussion of mobility within the city of Long Beach.

End of Semester Grades, available as of October 22, 2013

Host: Mat Kaplan

Guest: Thomas O'Brien, Ph.D

Mat Kaplan and Thomas O'Brien discuss Thomas' Long Beach Business Journal article from April 23, 2013, where he gives a "mini state of the state" of where we are with trade in the region.

1.3.4 Plans for next reporting period

Plans for the next reporting period include the following: 1) hold the Town Hall event in October, 2) continue planning for INUF 2015, 3) publish *Research in Transportation Business and Management* volume, 4) publish two issues of *METRANS News*, 4) launch and expand new website, 5) launch social media programs.

2. Products

2.1 PUBLICATIONS

No publications from this research program have been generated as yet, because no research project is sufficiently far along to have publishable research results. One conference presentation based on research project 1-1b was made at the Transport Research Arena 2014 Conference held in Paris in April 2014.

2.2 WEBSITES

A temporary METRANS UTC website has been set up, and is available at <http://www.metrans.org/tier1utc/>. The temporary site includes only the required elements: key personnel and research project descriptions. Seminars, newsletters, and other information are available at the main METRANS site, www.metrans.org. The new website is scheduled to be launched in May 2014.

2.3 TECHNOLOGIES

Nothing to report

2.4 INVENTIONS

Nothing to report

2.5 OTHER PRODUCTS

The following other products have resulted from this grant: 1) freight landscape database created under project 1-1b, 2) podcasts of METRANS Seminars, 3) Seaport Policy and Management course curriculum; 4) O'Brien *Long Beach Business Journal* column publications.

3. Participants and Collaborating Organizations

In this section we describe participant and collaborating organizations associated with the METRANS UTC. We define as participants 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 otherwise generally support the center are listed as 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 the Center for International Trade and Transportation, 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. This section presents our collaborators and their relationship to the METRANS UTC.

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. The Advisory Board met on December 10, 2013. The purpose of the meeting was to introduce the Tier 1 center, provide an update on all Center activities, and discuss fundraising strategies. A list of Advisory Board members is available at <http://www.mettrans.org/about/advisory.html>.

Table 3: METRANS UTC Partners and Contributions		
Name	Location	Contribution
Sol Price School of Public Policy	USC Los Angeles	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 Los Angeles	Participating faculty, education programs, students; indirect cost and tuition cost share, METRANS labs
Center for International Trade and Transportation	CSULB Long Beach	Home of CSULB METRANS, participating faculty, training and professional education programs, students; METRANS offices
College of Engineering	CSULB Long Beach	Participating faculty, education programs, students
Department of Economics	CSULB Long Beach	Participating faculty, education programs, students
California Department of Transportation	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	City of Industry, CA	METRANS Associate, financial contribution
Gateway Cities Partnership	Paramount, CA	METRANS Associate, financial contribution
Southern California Association of Governments	Los Angeles	METRANS Associate, financial contribution, internships, data sharing
Los Angeles County Metro	Los Angeles	METRANS Associate, financial contribution, internships, research funding
ILWU	Los Angeles	METRANS Associate, financial contribution

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 with distinguished reputations and career accomplishments 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 California State University, Long Beach. The PSC helps direct the outreach activities of the Center for International Trade and Transportation, including those sponsored by the METRANS Transportation Center. 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 Policy and Steering Committee meets on a bimonthly basis. A list of the Policy and Steering Committee members is available at <http://www.ccpe.csulb.edu/CITT/IndustryArticles.aspx?PID=37>.

In addition to these formal organizations, METRANS has extensive relationships with industry and government. The Southern California Association of Governments (SCAG) provides regional planning and transportation modeling data. The Los Angeles 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), and Harbor Association for Industry and Commerce (HAIC). The HAIC and LATC have endowed scholarship funds for GLS students. The HTC contributed 100% of its scholarship fundraising to students in CITT programs. Numerous other companies in the transportation and logistics sector have contracts with CSULB for internship placements as part of the Masters programs in logistics and supply chain management.

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), Institute of Science and Technology for Transport (IFSTTAR), and the Korean Transport Institute (KOTI). MetroFreight has greatly expanded our international linkages, and offers many opportunities for collaboration and partnerships. During this reporting period, METRANS faculty participated in three joint proposals that included researchers from the MetroFreight consortium and other partner institutions. Our international activities also include joint research with a consortium led by University of Antwerp. A recent outcome of these efforts was participation in the Transport Research Arena 2014 Conference held in Paris; Dessouky, Giuliano and O'Brien gave research papers.

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. The research contract has not yet been finalized, and thus there is no activity to report.

4. Impact

METRANS UTC has been in existence only a few months, and hence has not yet generated enough product to have a significant impact. We provide a brief summary of impacts.

4.1 Impact on principal disciplines

METRANS is a multi-disciplinary research center that includes engineering, social sciences, urban planning and public policy. Nothing to report.

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) are working on METRANS outreach activities. At CSULB, three masters students (economics) are working on METRANSInfo and social media.

Mentor program: The mentor program is in progress. During this reporting period, 18 students have been paired with mentors. Of the mentee group, six are women, and fifteen are members of other underrepresented groups. Mentors are drawn from the METRANS Advisory Board, local government agencies, and private industry.

Dissemination to public: The I-NUF conference was held in October 2013, attracting 225 attendees from 16 countries. Participants included faculty, graduate students, public agencies, and industry. Two Container Casts were issued during this reporting period. In the Fall 2013 semester, METRANS organized a field trip to Foothill Transit, where students took a tour of bus operations, maintenance, scheduling, dispatching, and clean fuel vehicle operations.

4.3 Resources at university and partner institutions

The METRANS InfoShop is in development. Nothing to report.

4.4 Technology transfer

Nothing to report; grant activity has just started.

4.5 Society beyond science and technology

Nothing to report; grant activity has just started.

5. Changes

There are no significant changes to report. Two Year 1 Launch Projects were deferred, and one new project was initiated. Three projects are awaiting match funding, as new contract with Caltrans is still pending. Year 1 competitive solicitation projects are expected to begin in August 2014. Education and outreach projects are on schedule.

6. Special Reporting Requirements

No special reporting requirements. Nothing to report.