



**METRANS UTC**  
**Tier 1 University Transportation Center**  
[www.metrans.org](http://www.metrans.org)

Request for Proposals for Research  
FY 2014 - 2015

RFP Issued: Friday, March 28, 2014  
Proposals Due: Monday, April 28, 2014

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## **Introduction**

METRANS UTC is a United States Department of Transportation (USDOT) Tier 1 University Transportation Center. It is a partnership of the University of Southern California (USC) and California State University, Long Beach (CSULB). METRANS UTC is funded by the USDOT and the California State Department of Transportation (Caltrans) to perform research on transportation problems critical to large metropolitan regions. METRANS emphasizes research directed at solving significant metropolitan transportation problems while contributing to knowledge. We expect that METRANS funded research will result in scholarly publications and will serve as seed funding that generates larger grants from other sources.

METRANS UTC is issuing this RFP to allocate Year 1 research funding. We anticipate that projects funded under this RFP will begin in Fall 2014. Projects typically have a duration of 12 months. Proposals are requested that address the thematic areas of the Center and provide solutions to metropolitan transportation problems through development of improved technology, policies, operations, or management practices. Funding to be allocated under this RFP is limited: about \$600,000 is available. Given the anticipated competition for these funds, prospective applicants should carefully consider their expertise relative to the thematic areas of the Tier 1 UTC.

The remainder of this RFP describes eligibility requirements, research topics, selection criteria, funding guidelines and restrictions, project requirements, and proposal instructions as well as budget instructions and sample budget sheets for both USC and CSULB. Submission instructions and a METRANS cover page are also provided.

## **Eligibility**

Full-time tenure track and research faculty members eligible to serve as Principal Investigators at USC or CSULB are eligible to serve as Principal Investigators on METRANS UTC grants. Proposals may include multiple investigators. Proposals may also include research faculty and non-tenure track faculty from USC and CSULB as Co-Principal Investigators.

## **Research Program Themes and Topic Areas**

Our research program is organized around two multimodal themes: 1) understanding passenger/freight interactions; and 2) achieving system efficiencies.

### ***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.

#### ***Topic 1-1: Relationships between Spatial Patterns and Transportation***

The spatial distribution of population and economic activities drives the pattern of transportation demand and flows within metropolitan areas. Metropolitan spatial patterns are changing. The overall trend is decentralization, yet downtowns are being revitalized, employment centers continue to grow, and in growing cities population density is increasing. On the freight side, warehousing and distribution is decentralizing, in part due to increasing scale economies in these industries, congestion in metropolitan cores, and rising land values. Topic 1-1 examines changing spatial patterns and their implications for

freight and passenger flows. Examples of possible topics include transit-oriented development and travel behavior; impacts of inventory practices and replenishment on truck traffic patterns.

*Topic 1-2: Characteristics of Freight and Passenger Demand*

This topic examines the role of price, travel time, and reliability in freight and passenger demand. We have a basic understanding of passenger behavior with respect to price and value of time (VOT), but know little about travel time reliability. Our understanding of shipper behavior is more limited. Understanding differences between freight and passenger demand characteristics is important for developing appropriate strategies and incentives for better managing shared systems. Examples of possible topics include shipper responses to travel time unreliability, VOT across industry segments, and effects of travel time unreliability on mode choice.

*Topic 1-3: Better Data for Analysis of Passenger-Freight Interactions*

Numerous studies have identified the lack of data on truck and freight moves as a significant barrier to developing better models of urban freight flows and developing better policies to manage the impacts of freight on metropolitan areas. There is a need for experimentation with mobile devices for more efficient data collection, and with data mining methods to derive truck data from secondary sources. In addition, there is a need to develop methods of estimating critical data elements when actual data are limited or not available. The data collected will help to build a comprehensive freight and passenger data base.

***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.

*Topic 2-1: Integrated Management across Users and Modes*

This topic examines the potential for efficiency improvements from better system integration. This topic seeks to identify interdependencies between the various transport subsystems and examine the potential benefits of incorporating them in system management. Issues such as resiliency and sustainability and cyber physical aspects are also of interest. Examples include integrated corridor management, integration of freight and passenger rail scheduling, and scheduling of pickup and deliveries outside of peak passenger demand periods.

*Topic 2-2: Policies for More Efficient Urban Transportation*

This topic develops and explores strategies that promote more efficient use of transportation resources across multiple modes or user classes. Examples include transit service priority, parking and loading regulations, and pricing policies and their impact on efficiency. We are particularly interested in the institutional conditions under which different policy incentives are feasible, and in new policy mechanisms such as negotiated agreements and self-regulation.

***Caltrans Topics:***

Caltrans has expressed interest in some research topics that fall within the tier 1 UTC thematic areas. These topics are described in the Appendix. Proposers are encouraged to submit research proposals on these topics.

## **Selection Criteria**

Transportation researchers and practitioners will evaluate proposals. Proposals will be selected on the basis of their evaluations along with programmatic priorities. Proposals will compete both within topics and across topics. METRANS UTC does not guarantee that proposals will be funded in all topic areas, or that any proposal will be funded.

Reviewers will evaluate proposals according to the following selection criteria:

- Demonstrated relevance to the above research program themes (a requirement)
- Innovation and research significance
- Student involvement
- Reasonableness of budget and cost-effectiveness
- Qualifications to perform work and likelihood of successful completion
- Match funding and potential for attracting larger grant funding
- Prior performance on METRANS grants (if applicable)

Proposals that involve collaboration between CSULB and USC, interdisciplinary proposals that cross school boundaries as well as participation from outside organizations are encouraged.

Proposers are encouraged to communicate with members of the METRANS Executive Committee or other outside organizations in the development of research proposals. A list of Executive Committee members can be found in the directory page of [www.metrans.org](http://www.metrans.org). Commitments of participation (for example data sharing or match funding) from outside of METRANS will be a consideration in making awards. Any project that involves data collection, access to facilities, or cooperation of a private or public entity *must* include a letter of participation from the entity.

Match funding is particularly encouraged; proposals that include matching funds from local public or private sources will receive preference. For additional information, contact Vicki Valentine Deguzman at [victoriv@usc.edu](mailto:victoriv@usc.edu).

Proposers are encouraged to include undergraduate students in the research project if appropriate. There are potential funding opportunities through various university programs that could support students working on METRANS projects, for example the USC Viterbi School of Engineering Merit Research Program, or the USC McNair Scholars Programs. Proposers are strongly encouraged but not required by this RFP to explore such opportunities with their schools and universities.

The METRANS Executive Committee will make final project selections, taking into account reviewer evaluations, programmatic priorities, and prior project performance. Executive Committee members are allowed to submit proposals, but are not allowed to be present during deliberations and voting related to their proposals.

## **Funding Guidelines and Restrictions**

Budgets should be conservative and cost-effective. Funding should be directed at new and original work. In some cases, METRANS UTC will consider continuations of prior METRANS projects that have achieved significant results and have a high potential for deployment, scholarly products or large grants. We will not award more than one project to any PI, though PIs may, if they choose, submit multiple proposals. At any given time, eligible faculty may serve as PI on only one METRANS UTC grant. PIs

may serve as Co-PI on no more than one other METRANS UTC grant at a time.

Funds should be spent in a manner that provides publishable results, especially in refereed journals. In general, faculty salary (summer or academic year), student support, and tuition/fee reimbursement are allowed expenses. Proposers are encouraged to budget travel to one domestic conference to present project results. Funding for students is expected in all projects, including research assistant salary and any additional costs for student presentations at conferences. Overhead and fringe benefits should also be included in the budget. A limited amount of travel for data collection purposes, materials, and supplies may be included, provided that they are a direct expense related to completing the work. International travel is not permitted.

Proposers are discouraged from budgeting for computers, equipment, support staff, outside consultants, or any salary that goes beyond normal academic or summer compensation. These may only be included if specific justification is provided as to why the work cannot be completed without the expense. In no case shall CSULB or USC employees be hired on a consulting basis.

METRANS funded proposals will be set up as satellite accounts in the proposers' departments at USC and as extramural accounts from the CSULB Foundation at CSULB. PIs *will not* have individual contracts or grants from the funding agencies (Caltrans and USDOT).

Funding Guidelines:

- Project awards have a maximum of \$100,000 per year.
- The typical project duration is one year.

**Note that conservative and cost-effective budgets are strongly encouraged.** METRANS reserves the right to reduce the budgets of submitted proposals. Note to those with current METRANS UTC grants: PIs on current METRANS UTC grants may not submit proposals, since this RFP is to allocate the remaining Year 1 funding. Projects should be budgeted to begin on August 15, 2014 and end by August 14, 2015.

### **Research initiation Awards**

Research initiation awards are available to tenure track Assistant Professors, with preference for faculty who have not been previously funded for research in transportation. These awards are limited to \$35,000 for one year. These awards will receive priority consideration over regular awards. Research initiation proposals are subject to the same selection criteria and peer review process as regular proposals.

### **Project Requirements**

All funded projects have the following requirements (guidelines and templates may be found at <http://www.metrans.org/research.htm>)

- Semi-annual progress reports conforming to METRANS guidelines.
- A Draft Final Report, conforming to METRANS guidelines, which must be delivered 30 days prior to the completion date of the project. The Draft Final Report is subject to peer review. The Draft Final Report should include an executive summary, document the research project, and be complete, original, well organized and accurate.

- A Final Report that complies with the review comments and requirements must be delivered within 30 days after the review of the Draft Report. Draft Final and Final Reports are distributed via the METRANS website, and are submitted to METRANS sponsors and to various publications data bases.
- A separate statement listing publications, presentations and inventions resulting from research; names of students supported along with their degree status; and a summary of project results. This statement is to be submitted with the Draft Final Report.
- A 2 to 4 page Research Brief suitable for a general audience that summarizes the main findings of the research and its contribution to practice or policy. This brief is to be submitted with the Draft Final Report
- A brief Biographical Sketch for each of the project's investigators to be submitted with the Draft Final Report. A template for the biographical sketch will be provided with the notification of award. The biographical sketch is to be submitted with the Draft Final Report
- At least one presentation of the funded project's research at a thematic conference organized by METRANS, and located in the Los Angeles region.
- Timely reporting of all information requested for the METRANS Annual Report.
- Copies of all papers submitted to journals or conferences that are based on the project's research. Copies should be provided to the METRANS Administrator.
- Acknowledgment of METRANS support in all work that results from METRANS funding, including peer-reviewed publications and conference presentations.

### **Proposal Instructions**

Proposals should be succinct and clearly written for a mixed technical and non-technical audience. Proposals are limited to no more than 8 pages in sections 3 – 7. Budget and other forms are included in the Appendix.

Each proposal must include the following sections:

1. Cover page (use the form provided in the Appendix)
2. Project objective and project abstract (see research page at [www.metrans.org](http://www.metrans.org) for examples; no more than one page)
3. Background and motivation for the topic to be addressed (problem to be addressed, what has been done previously, why it is important, and relevance to METRANS UTC research areas)
4. Methodology (the methodology by which project objectives will be accomplished)
5. Tasks, Schedule and Deliverable (steps that will be followed in executing the methodology, and when they will be completed)
6. Description of the expected research product and contribution to practice (.e.g. peer-reviewed publication)
7. Qualifications (the research team's relevant skills and experience that will help ensure success)
8. Budget justification (strong justification should be provided for unusual expenses, e.g., equipment). The extent of student involvement should be clearly stated
9. Reference List (no limit)
10. Budget (1 page, use the form provided in the Appendix). Please see relevant university budget instructions below.
11. Prior Project Accomplishments (1 page maximum. List publications, students who have received support from prior METRANS funding, and other grants received as a result of METRANS funding. Provide information on any policies, technologies, or products implemented as a result

- of the research).
12. Letters of participation, or match funding commitment (attached, any number and length) *Letters of participation are required for any project that involves data collection from private or public entities, access to private or public facilities, or cooperation of private or public entities.*
  13. Short bios for all investigators and a list of recent (past 5 years or less) publications and funded research projects (2 page maximum).

Proposals should demonstrate their responsiveness to METRANS selection criteria, according to the following guidelines:

<b><u>Selection Criteria</u></b>	<b><u>Most Relevant Section(s)</u></b>
Relevance to METRANS UTC research theme areas	Background/Objective
Innovation and research significance	Methodology/Tasks
Student involvement	Budget justification
Reasonableness of budget and cost-effectiveness	Budget justification
Qualifications	Qualifications
Match funding & potential for other grant funding	Budget justification, Methodology/Tasks
Prior performance	Prior project accomplishments

### **Budget Instructions**

*For USC:* Please use your School guidelines in preparing your budget. For Price, see [http://www.usc.edu/schools/price/intranet/research\\_admin.html](http://www.usc.edu/schools/price/intranet/research_admin.html) for proposal and budget instructions. Contact Elizabeth Gatchalian ([egatchal@usc.edu](mailto:egatchal@usc.edu)) for budget assistance. For VSOE, contact your department grants administrators. Note, tuition cost share is limited to PhD students. Please show the cost share in your budget. Tuition charges are not subject to overhead. The indirect cost rate is 50%

*For CSULB:* Budget guidelines for CSULB faculty are contained in the Appendix. Proposals submitted by CSULB faculty must be approved via the University's internal clearance process prior to submission. Early budget consultation with Office of Research and Sponsored Programs is essential. Once the budget is finalized, internal clearance will be initiated by the Office of Research and Sponsored Programs (ORSP).

CSULB faculty should begin the process by submitting a Notice of Intent at <http://www.csulb.edu/divisions/aa/research/our/information/forms/intent/>. If you have any questions, please contact ORSP Pre-Award Specialists David Smith (562 985-5330, [David.Smith@csulb.edu](mailto:David.Smith@csulb.edu)) or Nora Momoli (562 985-1567, [Nora.Momoli@csulb.edu](mailto:Nora.Momoli@csulb.edu)).

### **Submission Instructions**

Email a pdf copy (max 10 MB) of each proposal to METRANS Assistant Director Vicki Valentine Deguzman at [VictoriV@usc.edu](mailto:VictoriV@usc.edu) on or before 5:00 pm on Monday, April 28, 2014. Please title your PDF file as last name, first initial, university, and a number if more than one is being submitted. For example, a first or single submission would be SmithJ\_CSULB. A second submission would be SmithJ\_CSULB2.

NOTE to PIs: Please do not submit more than one proposal per email. If more than one proposal is to be submitted, please send each in separate emails, noting the number of the subsequent proposal in the

subject line of each email (for example, Second Proposal, Third Proposal, etc.). Proposals received later than the deadline will be rejected. **It is the responsibility of the PI to deliver the proposal by the deadline and to confirm receipt.**

One copy of the proposal will be retained in the Assistant Director's office, and must contain all information on the budget form. A second budget form may omit information that can be used to determine faculty salaries (e.g., months of effort). This budget will be included when the proposal is sent for review. If you submit a proposal with salary information omitted, be sure to provide one electronic copy of EACH budget.

**METRANS will reject proposals that: (1) are received after the deadline, (2) do not conform to eligibility requirements, (3) are incomplete, or (4) do not conform to thematic requirements.**

Further Information

For further information, METRANS Director Genevieve Giuliano can be reached at (213) 740-3956 or [giuliano@usc.edu](mailto:giuliano@usc.edu). In addition, check [www.metrans.org](http://www.metrans.org) for information on current projects, center organization, and links to outside agencies.

For further information regarding program rules and procedures contact METRANS Assistant Director, Vicki Valentine Deguzman at (213) 821-1025 or [VictoriV@usc.edu](mailto:VictoriV@usc.edu).

## **Appendix**

Budget Information and Forms  
Caltrans Suggested Research Topics

USC Budget Form

Category	Monthly Salary	x	% of Time on Program	x	Number of Months	=	Budget (\$)
Faculty Salary	_____	x	_____	x	_____	=	_____
Faculty Salary1	_____	x	_____	x	_____	=	_____
Student Support	_____	x	_____	x	_____	=	_____
Type of Student	_____						
Student Support*	_____	x	_____	x	_____	=	_____
Type of Student	_____						
Fringe Benefits	Rate	_____			Total		_____
Tuition	Units	_____	Rate	_____	Total		_____
Conference Travel	_____						
Conference Name/Date	_____						
Other Travel	_____						
Materials and Supplies	_____						
Equipment (list)	_____						
	_____						
Other Direct Expenses (itemize)	_____						
	_____						
Tuition cost share	Units	_____	Rate	_____	Total		_____
Overhead (50%)	_____						
<b>TOTAL FUNDS REQUESTED</b>	_____						

\* Use additional faculty and student lines only if more than one professor or student.

CSULB Budget Form

Complete areas in yellow

Category				Budget \$
	<b>Annual Salary</b>		<b>Release Time Units or % of Effort</b>	<b>Overload Salary or Summer Salary</b>
Faculty Salary	x		+	\$0
Faculty Salary <sup>1</sup>	x		#	\$0
	<b>Total Salary</b>			<b>\$0</b>
	<b>Total Budgeted Salary</b>		<b>Fringe Benefits %</b>	
Faculty Fringe Benefits (Release Time)	\$0	x	41%	\$0
Faculty Fringe Benefits (Overload/Summer)	\$0	x	8%	\$0
	<b>Total Fringe Benefits</b>			<b>\$0</b>
	<b>Hourly Rate</b>		<b># Hours</b>	
Student Support	x			\$0
	<b>Student Total \$</b>		<b>Fringe Benefits %</b>	
Student Fringe Benefits	\$0	x	8%	\$0
	<b>Total Student \$</b>			<b>\$0</b>
Conference Travel				
Other Travel				
Materials and Supplies				
Equipment (list)				
Other Direct Expenses (itemize)				
Total Direct Cost				<b>\$0</b>
			<b>Indirect Cost %</b>	
Indirect Costs (F&A)	\$0	X	44.5%	\$0
<b>TOTAL FUNDS REQUESTED</b>				<b>\$0</b>

<sup>1</sup> Use additional faculty lines only if there is more than one professor.

METRANS Cover Page

Title \_\_\_\_\_

Theme \_\_\_\_\_

Topic \_\_\_\_\_

Principal Investigator \_\_\_\_\_

Mailing Address \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

E-mail \_\_\_\_\_

Phone \_\_\_\_\_

Fax \_\_\_\_\_

Co-Principal Investigator \_\_\_\_\_

Are you submitting this proposal elsewhere, or are you currently receiving funding in the same area of research? Yes \_\_\_\_\_ No \_\_\_\_\_

If yes, please describe circumstances and funding source

METRANS Center Proposal Evaluation Form

(provided for information only; form will be used by evaluators)

Proposal Title:

Area:

Principal Investigator:

Referee Number:

Evaluation Criteria:

Please rate proposals in each of the categories below, using the following rating scale:

- 1 = Well below expectations
- 2 = Below expectations
- 3 = Meets expectations
- 4 = Exceeds expectations
- 5 = Well above expectations

CATEGORY	RATING
Demonstrated relevance to themes of RFP (a requirement)	
Innovation and research significance	
Student involvement	
Reasonableness of budget and cost-effectiveness	
Qualifications to perform work/likelihood of completion	
Match funding and potential for attracting grant funding	
Prior performance on METRANS grants (if applicable)	

Referee’s Funding Recommendation (Place an X on the line by your choice)

Fund as Submitted \_\_\_\_\_

Fund with modifications \_\_\_\_\_ (explain on second page)

Do Not Fund \_\_\_\_\_ (explain on second page)

Referees Comments (add additional pages as needed):

## Caltrans Suggested Research Topics

### 1. Impacts to California's Multimodal Freight Networks due to the Panama Canal Expansion

The Panama Canal expansion project is expected to be completed by 2016. Following that expansion, the importing and exporting flows of containers may shift to eastern and Gulf coast ports, causing shifts in freight movements associated with the largest water ports of California, Long Beach, Los Angeles and Oakland. Currently, the majority of commodity flows projections for California do not indicate any deceleration in the upward trend associated with this realignment. This topic should examine how expansion of the Panama Canal may redistribute trade volumes and freight across the intermodal system, including ports, pipelines, railroads, and highways in order to identify rational strategies for the state's multimodal network in response to this international capacity realignment. Possible projects could include:

- a. Assessment of the economic impact (positive and negative) to California's logistic infrastructure, including warehousing built around intermodal hubs.
- b. A transportation network analysis and capacity analysis of existing transportation infrastructures to identify the possible capacity problems along major freight corridors.
- c. Development of information tools and other ITS strategies to promote efficient freight movement.

### 2. Understanding passenger-freight interactions. Possible projects could include:

- a. Identify areas in California with current and expected concentrations of heavy vehicle travel (especially associated with mining, agricultural, energy cargo or equipment, and timber vehicles) where deteriorated roadway conditions exist or are anticipated, and recommend solutions to reduce or impede worsening conditions (MAP-21)
- b. Identify locations and causes of current and anticipated delays between passenger and freight rail operations and recommend operational and/or infrastructure improvements.
- c. Explore blended mass transportation/freight dedicated lane options and develop recommendations.

### 3. Achieving system efficiencies. Possible projects could include:

- a. Statewide identification of major warehouse districts and distribution centers in a geo-spatial spreadsheet (database) format. Identify current freight patterns and trends, and recommend where efficiencies can be made.
- b. Develop cost-benefit analysis criteria to evaluate and compare freight projects across modes for the purpose of prioritizing.
- c. Develop statewide primary, secondary, and emergency (e.g., disaster) routes for all freight modes in California to identify gaps and system vulnerabilities and for contingency preparation.