Request for Proposals for Research Projects 2

Pacific Southwest Region 9 University Transportation Center
METRANS/National Center for Sustainable Transportation

RFP Issued: March 12, 2018
Proposals Due: April 13, 2018

Table of Contents

Introduction

The *Pacific Southwest Region University Transportation Center (PSR)* is the Regional UTC for US Region 9 (California, Arizona, Nevada, Hawaii, and the Pacific Islands). PSR is led by the METRANS Transportation Center, University of Southern California and includes the following partners: California State University, Long Beach; Northern Arizona University; Pima Community College; University of California, Davis; University of California, Irvine; University of California, Los Angeles; and University of Hawaii. PSR funded research is expected to result in scholarly publications and contribute to generating larger grants from other sources.

The *National Center for Sustainable Transportation (NCST)* is a USDOT National UTC improving the sustainability of the nation's transportation system by reducing greenhouse-gas emissions from passenger and freight travel. METRANS is a partner in the NCST consortium. NCST research focuses on sustainable freight transportation, including efficient freight operations, land use strategies to reduce GHG emissions, and workforce development implications of GHG reduction policies and strategies.

1. Funding for this RFP

This RFP covers both PSR and NCST, and includes funding from USDOT and match funding from Caltrans. *Proposals must identify both the center and the funding source* for which the PI is applying to fund the proposal.

PSR: This is the second PSR RFP, and it will allocate Year 2 USDOT research funding and Year 1 Caltrans match funding. USDOT funding available under this RFP is approximately $575,000. Available Caltrans funding is approximately $400,000. No USDOT funding is available for CSULB.

NCST: This is the second NCST RFP under the new grant, and it will allocate Year 2 USDOT research funding and Year 1 Caltrans funding. USDOT available funding is approximately $280,000, and available Caltrans funding is approximately $130,000

Please note that the final Caltrans contracts have not yet been signed. We anticipate approval by June. We are soliciting proposals now in order to start them as soon after funds are available as possible.

The amount awarded under this RFP will be determined by the quality and relevance of proposals received. Given the anticipated competition for these funds, prospective applicants should carefully consider their expertise relative to the thematic areas and topics.

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 cover page are also provided.

2. Eligibility

Full-time tenure track and research faculty members eligible to serve as Principal Investigators at any of the partner universities are eligible to serve as Principal Investigators on PSR and NCST UTC grants. Proposals may include multiple investigators. Proposals may also include research faculty and non-tenure track faculty from the partner universities as Co-Principal Investigators. A small amount of funding has been reserved for university researchers within Region 9 but outside the consortium. The same eligibility requirements apply.

3. PSR Research Program Themes and Topic Areas

Our research program is organized around four themes: Technology for improved mobility; Improving mobility for disadvantaged populations; Improving resilience and protecting the environment; and Managing mobility in high growth cities and regions.

Theme 1: Technology for improved mobility
We are on the threshold of a largely unforeseen technological and social transformation in connectivity, automation, and the sharing economy that promises to revolutionize travel in our region and beyond. This theme explores technology solutions for improving mobility for both passengers and freight. Our Theme 1 research program is organized around three topic areas.

Topic 1-1: Technology and mobility: This topic examines emerging technologies and their potential for improving passenger and freight mobility. Innovation is rapid across both passenger and freight modes. Examples include smart parking, dynamic routing, delivery consolidations, and integrated transit fare systems, in addition to the well-known transportation network companies (TNCs). This topic examines the potential of these innovations to solve the transport problems of Region 9.

Topic 1-2: Smart infrastructure and vehicles: Technology for connected and autonomous vehicles (CAVs) is advancing rapidly. This topic examines AVs and CAVs. Examples of research include: development of models and algorithms for managing shared CAVs; impacts on travel behavior; impacts on traffic flow and management in mixed fleets; and truck platoons. This topic also examines the potential long term impacts of AVs and CAVs on travel behavior, location choices of households and firms, and metropolitan spatial structure.

Topic 1-3: Public policy and implementation: This topic explores the role of government in technology implementation and regulation. Research is needed on the role of government in this changing environment. A second issue is cooperation. A future of vehicles managed at the system level requires cooperation of public and private entities involved, yet there are many barriers to such cooperation. Finally, there are questions about the viability of CAVs.

Theme 2: Improving mobility for disadvantaged populations
This theme addresses mobility and accessibility problems of disadvantaged populations.

Topic 2-1: Novel modes for improved mobility and accessibility: This topic explores the potential of novel modes, new models of public transport, and new models of private vehicle access to address mobility problems. Research may include challenges to implementation and strategies to overcome them.

Topic 2-2: Land use, accessibility, mobility: Addressing the needs of the disadvantaged includes studying relationships between land use and transport with respect to minority and disadvantaged populations. This topic examines the impacts of limited accessibility and mobility both in urban and rural areas. It also explores the role of land use policies in reducing access barriers for underrepresented groups.

Theme 3: Improving resilience and protecting the environment
Resilience, or the ability to absorb shocks, recover quickly, and adapt to changing social, economic, and environmental conditions is essential to ensuring well-functioning and sustainable communities. Sustainability also requires reducing environmental problems. This theme addresses all aspects of environmental protection.

Topic 3-1: Analyzing alternative resilience strategies: More effective resilience strategies can reduce the damages of natural disasters, accidents, or terrorist events. There is a need for research on frameworks to analyze resilience strategies at different geographic scales. Effectiveness of resilience strategies is often analyzed via economic impact models. In the case of transportation, these models could be linked with transportation network models to quantify the cost-effectiveness of different strategies. Methods to examine distributional impacts of disruptions and resilience across socioeconomic groups is also needed.

Topic 3-2: Smart technologies: Smart technologies can improve system monitoring. Smart sensing systems, including those powered through solar or power harvesting, can provide the necessary information to monitor the health of systems so that proactive repair and replacement can be dealt with through normal crew duties.

Topic 3-3: Reducing environmental impacts: The challenge for Region 9 is to reduce environmental impacts while meeting the mobility needs of society, fostering healthy communities, and supporting economic growth. Research is needed to address this challenge along three fronts:1) *Infrastructure and operations*: lifecycle use of materials and practices in roadway construction, maintenance, and operation; assessment of environmental implications of Intelligent Transportation System (ITS) strategies; 2) *Travel demand*: effectiveness of strategies for shifting driving to transit, walking, and bicycling; implications of automated cars for land development patterns; role of new mobility services in daily household travel; and 3) *Vehicle and fuel technologies*: assessment of new-generation fuel and vehicle technologies, including battery, plug-in hybrid, roadway-powered, and fuel cell electric vehicles, with respect to lifecycle emissions, private and social costs, consumer behavior, and regulatory and market policies.

Theme 4: Managing mobility in high growth cities and regions
This theme addresses the transportation problems of regions and metro areas experiencing rapid population and employment growth.

Topic 4-1: Managing passenger demand: This topic explores meeting human needs while lessening travel required. The emphasis is on "accessibility" rather than "mobility." Well-being is enhanced when people are able to acquire goods and services, employment and education, but not necessarily by increasing travel volume. There is increasing emphasis on combining land use planning with transportation capital investments to achieve efficient movement patterns.

Topic 4-2: Managing freight demand and its impacts: This topic addresses the challenges of managing freight, both last mile and regional. For example, the rise of e-commerce has brought about changes to global and local supply chains and has greatly increased urban freight deliveries. The revitalization of our urban cores adds another increase in demand that translates into additional trips made by trucks and delivery vans. Research is needed to examine the impacts of e-commerce and other changes on local and regional mobility, economic activity, and employment patterns, such as passenger-freight conflicts, dynamics of shifts and their local impacts, and effective strategies for managing trade-related traffic, including better balancing demand across time intervals, routes, and modes.

4. NCST Research Program Themes and Topic Areas

The NCST research program is organized around four themes: Environmentally Responsible Infrastructure and Operations; Multi-Modal Travel and Sustainable Land Use; Zero-Emission Vehicle and Fuel Technologies; and Institutional Change

Theme 1: Environmentally Responsible Infrastructure and Operations
Strategies to improve system efficiency usually also reduce energy consumption, GHG emissions, air pollution, and other environmental impacts for both passenger travel and goods movement. Strategies to reduce the carbon intensity of infrastructure often reduce overall costs and provide greater resiliency to commodity price fluctuations. NCST research in this theme develops and assesses strategies that reduce carbon emissions associated with infrastructure provision and systems operation, targeting better lifecycle use of materials and practices in roadway construction, maintenance, and operation as well as innovative Intelligent Transportation System (ITS) approaches that generate environmental benefits in addition to improving safety and mobility, including using information and communication technologies to create new mobility services, improve traffic flow, and motivate eco-driving.

Theme 2: Multi-Modal Travel and Sustainable Land Use
State, regional, and local governments are increasingly pursuing land-use and transportation strategies that provide greater accessibility at substantially lower levels of energy and resource consumption with improved economic performance. NCST research in this theme develops and assesses strategies to promote low-impact travel and sustainable land use in urban, suburban, and rural settings for both passenger and goods movement, targeting strategies that shift travel from solo driving to more-efficient and low-carbon modes, including transit, walking and biking, and "new mobility" services; reduce "logistics sprawl" for goods movement; and shape land use to enhance the viability of sustainable driving alternatives while improving accessibility to jobs, housing, recreation, and services.

Theme 3: Zero-Emission Vehicle and Fuel Technologies
Improvements in vehicle and fuel technologies are largely responsible for the tremendous progress that has been made in reducing air pollution, and they show great potential for doing the same for GHG emissions. The need to further improve energy efficiency and reduce GHG emissions is motivating a shift to new-generation vehicle and fuel technologies, particularly biofuels and the full range of electric vehicles, including battery, plug-in hybrid, roadway-powered, and fuel cell electric vehicles. NCST research in this theme supports the transition toward zero-emission vehicle and fuel technologies through research on lifecycle emissions, full private and social costs, consumer behavior, and regulatory and market policies.

Theme 4: Institutional Change
Advances in infrastructure and operations, land use and travel, and vehicles and fuels will require changes in the institutions that shape the transportation system, particularly within federal, state, regional, and local agencies. Agency roles must evolve, especially for state DOTs and MPOs, and new financial and regulatory structures are needed. NCST research in this theme developa and disseminates innovative tools that agencies need to support implementation of policies and programs to reduce GHG emissions and produce environmental, economic, and social co-benefits, and identifies and evaluates best practices for institutional change to achieve meaningful progress.

Significantly reducing GHG emissions and adapting to climate change requires a comprehensive approach that addresses each of these areas, for all modes and settings for people, services, and goods. No single segment of the transport sector, public or private, and no one strategy on its own can achieve substantial reductions in GHG emissions. NCST research in this theme addresses this full range of issues within the context of the full breadth of environmental, economic, and social co-benefits.

5. Guidelines for Caltrans Proposals

Caltrans encourages proposals that address the specific needs identified by its constituent departments. A list of suggested topics is in Appendix A, and proposals addressing these topics are encouraged. If proposers have suggestions for Caltrans research projects or project topics not on the list, proposers are strongly encouraged to discuss with Caltrans representatives directly.

6. Selection Criteria for All Proposals

Both researchers and practitioners will evaluate proposals. Proposals will be selected on the basis of their evaluations and programmatic priorities. Proposals will compete both within and across topics. METRANS does not guarantee 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:

1. Demonstrated relevance to the above research program themes (a requirement)
2. Quality and research significance
3. Student involvement
4. Reasonableness of budget and cost-effectiveness
5. Qualifications to perform work and likelihood of successful completion
6. Match funding and potential for attracting larger grant funding
7. Prior performance on grants (as applicable)

Proposals that involve collaboration between partner universities, interdisciplinary proposals that cross school boundaries, and include participation from outside organizations are encouraged.

Proposers are encouraged to communicate with members of the METRANS Executive Committee in the development of research proposals. A list of Executive Committee members can be found at https://www.metrans.org/metrans-key-personnel. Commitments of participation (for example data sharing or match funding) from outside of PSR 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 in the proposal*.

Proposers are encouraged to include undergraduate and masters level students in the research project if appropriate. There are potential funding opportunities through various university programs that could support students working on PSR projects. Proposers are strongly encouraged but not required by this RFP to explore such opportunities with their schools and universities.

Match Funding
The USDOT University Transportation Center program requires a non-federal match as a condition of the federal funds. Caltrans provides only a portion of the required match. Thus PSR and NCST encourage proposals that include match funding from non-federal sources. Proposals that include at least a 10% hard match (e.g. contribution to direct costs from external source) will receive priority consideration. For additional information, contact PSR Associate Director Victoria Deguzman at VictoriV@price.usc.edu.

Project Selection
The METRANS Executive Committee will make final project selections, taking into account reviewer evaluations, programmatic priorities, prior project performance, and partner recommendations. For Caltrans funded projects, Caltrans will approve selected projects. Executive Committee members are allowed to submit proposals, but are not present during deliberations or voting related to their proposals.

8. Funding Guidelines and Restrictions

Budgets should be conservative and cost-effective. Funding should be directed at new and original work. In some cases, PSR and NCST will consider continuations of prior projects that have achieved significant results and have a high potential for deployment, scholarly products, or large grants. PIs may submit multiple proposals, though it is unlikely that any PI will be awarded more than one grant. PIs with current PSR or NCST grants are eligible to apply. However, grants will not be awarded to PIs with outstanding deliverables (draft or final report; research brief; data management plan compliance) on prior grants.

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.

There are additional restrictions on Caltrans funds. Those submitting Caltrans proposals should see their contracts and grants coordinators.

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 PSR partner university employees be hired on a consulting basis.

PSR funded proposals will be set up as satellite accounts in the proposers' departments at USC. At the partner universities, accounts will be set up within the subcontract per each partner's policies. PIs *will not* have individual contracts or grants from the funding agencies (Caltrans and USDOT).

Funding Guidelines
1. Research project awards have a maximum of $100,000 per year
2. The typical project duration is one year
3. **Note that conservative and cost-effective budgets are strongly encouraged.** PSR reserves the right to reduce the budgets of submitted proposals. Projects should be budgeted to begin on August 15, 2018 and end by August 14, 2019.

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 a maximum of $35,000 for one year, and receive priority consideration over regular awards. Research initiation proposals are subject to the same selection and peer review process as regular proposals.

White Papers

White paper proposals are funded by NCST to synthesize existing evidence and identify research gaps for critical policy questions, for a maximum of $25,000 (direct costs). White papers are aimed at a broad audience of professionals and policy-makers. The white paper proposal should include a meeting with policy-makers, researchers, and/or practitioners as part of the white paper development process.

Research Project Requirements

All research projects have the following requirements.

1. A *Draft Final Report*, conforming to PSR 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, data management plan compliance explanation, and documentation of the research project. It should be complete, original, well organized and accurate, and should comply with report content and format guidelines (posted to the PSR website).

2. 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 PSR websites, and are submitted to PSR sponsors and to various publications databases.

3. A *Products 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.

4. A two-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 Final Report.

5. 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. At least one presentation of the funded project's research at a thematic conference or seminar organized by PSR.

6. Conformance to new data management requirements imposed by DOT. These requirements are attached.

7. PI ORCID number. PIs are directed to obtain and provide this number to the center administrator within 30-days of notification of project selection. Numbers can be obtained at https://orcid.org/register.

8. Timely reporting of all information requested for the PSR/NCST semi-annual and annual reports.

9. 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.

10. Acknowledgement of PSR/NCST support in all work that results from PSR/NCST funding, including peer-reviewed publications and conference presentations.

NCST projects also require a two-page *Policy Brief* suitable for a general audience that summarizes the

main findings of the research and policy recommendations.

Projects funded by Caltrans have additional reporting and budget requirements. Principal Investigators of proposals selected for Caltrans funding will be informed of these requirements.

9. Proposal Instructions

Research Proposal Instructions
Research 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 Appendix B. Each proposal must include the following sections:

1. Cover page (use form provided in Appendix B)

2. Data Management Plan commitment (the 2016 FAST Act requires a data management plan for all UTC research; our Data Management Plan is attached in Appendix C).

3. Project objective and project abstract (see research page at https://www.metrans.org/psr-utc-research for examples; no more than one page).

4. 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 selected research areas).

5. Methodology (the methodology by which project objectives will be accomplished).

6. Tasks, Schedule and Deliverable (steps that will be followed in executing the methodology, and when they will be completed).

7. Description of the expected research product and contribution to practice (e.g. peer-reviewed publication).

8. Qualifications (the research team's relevant skills and experience that will help ensure success).

9. Budget justification (strong justification should be provided for unusual expenses, e.g., equipment). The extent of student involvement should be clearly stated.

10. Reference List (no limit).

11. Budget (1 page.) For USC proposals, select and use the appropriate form (Caltrans or DOT funding) provided in Appendix B. For partner universities, use the budget that is used for the clearance process.

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).

Selection Criteria

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

Criteria	Most Relevant Section(s)
Relevance to research theme areas	Background/Objective
Quality 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

Please see Appendix B for budget instructions

10. Submission Instructions

Email a PDF copy (max 10 MB) of each proposal to PSR Associate Director Victoria Deguzman at VictoriV@price.usc.edu on or before 5:00 pm on April 9, 2018. 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_USC. A second submission would be SmithJ_USC2**.**

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 Associate 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.

Please note that all proposals must include a budget; proposals submitted without budgets will be determined to be incomplete and rejected.

PSR will reject proposals that are received after the deadline, do not conform to eligibility requirements, are incomplete, or do not conform to thematic requirements.

Further Information

For further information, PSR Director Genevieve Giuliano can be reached at (213) 740-3956 or giuliano@usc.edu and PSR Associate Director, Victoria Deguzman can be reached at (213) 821-1025 or VictoriV@price.usc.edu.

Appendices

Appendix A

Caltrans Themes and Topic Areas

Appendix B

Budget Information and Forms

Appendix C

Data Management Plan

Appendix A - Caltrans Themes and Topic Areas

CALTRANS RESEARCH PROGRAM THEMES AND TOPIC AREAS

One source of funds for this RFP to which PIs may apply is the California Department of Transportation (Caltrans). Priority for the use of those funds will be given to projects that help to implement and/or inform future activities associated with the following priority research areas:

- Critical societal and technological trends for consideration in the California Transportation Plan and subsidiary Caltrans modal plans, including (not limited to):
  - Infrastructure needs for connected and automated vehicles
  - Impacts of Shared mobility on vehicle miles traveled (VMT)
  - Public private partnerships for data gathering and sharing
  - Transportation equity, accessibility, and public health
  - Transportation-related cybersecurity risk
  - Meeting transportation needs in the midst of changing California demographics
  - Drones and unmanned aerial vehicles
  - Zero emission vehicles, charging and infrastructure
  - Use of block chain in the transportation sector

- Implementation of the statewide freight plan (link) and emerging sustainable freight trends, including (not limited to):
  - Truck parking needs assessment aimed at increasing supply
  - Truck parking innovations
  - Commercial truck platooning/autonomous technology for freight vehicles
  - The effect of load-matching apps on freight industry metrics
  - Modal shifts from trucks to rail or barge
  - Optimization of freight routing in urban environment
  - Methods for determining freight origin and destination
  - Freight transport workforce development
  - Collaborative logistics aimed at reducing total transactions and maximizing system capacity
  - National best practices in freight corridor management
  - Intelligent transportation systems for freight

- Meeting transportation system performance measurement requirements of the FAST Act and California Senate Bill 1, including (not limited to):
  - Best practices in performance-based transportation planning in the U.S.
  - Data collection needs for new performance metrics in the Caltrans Strategic Management Plan (link) including prosperity, accessibility, livability, and resiliency

- Improved active transportation safety, mobility, and equity aimed at fostering healthy and sustainable communities, including (not limited to):
  - Access to needed safety data to effectively evaluate overall system or specific location safety issues
  - Safe streets and crossings
  - Perceived comfort of biking near automobiles
  - Analysis of benefits and costs of bicycle and pedestrian safety infrastructure projects
  - Identifying and connecting complete streets elements
  - Evaluating mode shift potential of active transportation facilities
  - Estimating greenhouse gas reduction potential of active transportation facilities
  - Bicycle and pedestrian trip data collection methodology and forecasting
  - Effectiveness of public outreach and advocacy programs
  - Equity in active transportation investment
  - Equity considerations in car sharing, bike sharing and ride sourcing/transportation network companies

- Economic and equity co-benefits of an environmentally sustainable transportation system

- Mitigation and avoidance of potential infrastructure risks due to climate change, such as sea-level rise, riverine flooding, and landslides

- Innovative methods for transportation financing

- Impact of early public engagement and Native American Tribal consultation on both projects and the project development process with respect to environmental outcomes

- Identifying the benefits and costs of the relinquishment of state highways to local governments and communities

Appendix B - Budget Information and Forms

USC Budget Instructions

Please use your School guidelines in preparing your budget. For the Price School, contact Elizabeth Gatchalian (egatchal@usc.edu) for proposal and budget instructions and assistance. For VSOE, contact your department research administrators.

There are different budget requirements for USDOT and Caltrans. If you are submitting a proposal under DOT, the indirect cost rate is limited to 50%, with the difference from the audited rate to be shown as a cost share. Otherwise all federal grant budget requirements apply.

If you are submitting a proposal under Caltrans, the indirect cost rate is limited to 20%. In addition, travel to TRB will not be funded. The Caltrans restriction on indirect costs requires adding some of the costs of grant administration into direct costs. Each Caltrans budget must include 1 month of PI effort to be charged as an offset to regular salary. The PI may include up to 1month summer salary as well. For Price School applicants, a portion of administrative staff costs will be included as direct costs. Contact Elizabeth Gatchalian at egatchal@usc.edu for assistance.

A budget template is included for your convenience. Excel versions may be obtained from Elizabeth Gatchalian.

For partner universities: Please see your university/school/department guidelines for extramural funding proposal budgets.

CSULB Budget Instructions

Proposals and the proposal budgets submitted by CSULB faculty must be approved via the CSULB Office of Research and Special Program's (ORSP) internal clearance process prior to submission.

CSULB faculty should begin the process by submitting a Notice of Intent at http://www.csulb.edu/divisions/aa/research/forms/ and completing all of the applicable documents, including the budget form and applicable details, e.g., fringe rates and F&A.

For CSULB proposals, include with your proposal the budget that is used for the clearance process. Please note that all proposals must include a budget; proposals submitted without budgets will be determined to be incomplete and rejected.

If you have any questions on clearance, please contact ORSP Pre-Award Specialists Mr. David Smith (562) 985-5330, David.Smith@csulb.edu) or Ms. Nora Momoli (562) 985-1567, Nora.Momoli@csulb.edu).

BUDGET FORM

Title:
_PI:_
Period: 08/15/2018 - 08/14/2019

Object Code		_Rates_	**08/15/18 - 08/14/19**	**Total**
	SALARIES			
11200	PI			
	Name	-		
	Base Salary 17/18: $xxx/9	_0.00%_	-	-
11200	Co PI			
	Name			
	Base Salary 17/18: $xxx/9	_0.00%_	-	-
	TOTAL SALARIES		-	-
	FRINGE BENEFITS			
13100	FY 18 & Future	_33.20%_	-	-
	TOTAL FRINGE BENEFITS		-	-
	Graduate Research Assistant			
	xx% effort, x months		-	-
	Total Compensation		-	-
16600	**TUITION REMISSION**			
	FY 17/18 xx units/year/RA @ $xxxx/unit		-	-
	Materials and Supplies		-	-
	Travel		-	-
	(Please declare travel plans - conference, meetings, workshops and estimated date of attendance. Note that CALTRANS does not allow TRB travel.)			
	Other Direct Costs (RA Health Costs/University Srvcs)		-	-
	Total Direct Costs		-	-
	F & A Base FY 18 & Future		-	-
	Total Base		-	-
10100	**INDIRECT COSTS (F & A)**			

F & A Base FY 18 & Future	*0.00%*	-	-
Total Indirect Costs	*(METRANS negotiated 50%; CALTRANS approved 20%)*	-	-
TOTAL COST		-	-

Less Cost Share:			
Difference in Indirect Cost **Total Indirect Costs 65% <0%>**	*0.00%*	-	-
Tuition Cost Share	*(Federal rate less agency rate)*		
	(Cost of total units taken by RA minus cost of grant supported units)	-	-
Total Cost Share		-	-

TOTAL COST TO AGENCY	-	-

Notes:
An annual x% increase was given to the PI beginning August 16, 2017.
An annual x% increase was given to the RA salary beginning August 16, 2017.
An annual x% increase was given to the tuition beginning August 16, 2017.

Per the Federal Rate Agreements from August 28, 2017 the following Fringe Benefit and Indirect Cost Rates apply:

Fringe Benefits   *33.20%*   Faculty & Staff Provisional
07/01/16 - Future

Indirect Costs   *65.00%*   Provisional
07/01/16 - Future

Proposal Cover Page

Application for project for (select and complete only one option)

____   PSR - DOT funding

                   PSR Theme _____*and*

                   PSR Topic Area _____

                   or

____   PSR - Caltrans funding

                   PSR Theme _____*and*

                   PSR Topic Area _____*and*

                   Caltrans Topic _____

                   or

____   NCST - DOT funding

                   NCST Theme _____

                   or

____   NCST-Caltrans funding

                   NCST Theme _____*and*

                   Caltrans Topic _____

Title   _____

Principal Investigator _____

Mailing Address   _____

                              _____

                              _____

 E-mail   _____

 Phone   _____

Co-Principal Investigator_____

Are you submitting this elsewhere, or receiving funding for the same topic? Yes __ No __
If yes, please describe circumstances and funding source _____

Does this proposal comply with the PSR Data Management Plan? Yes _____   No   _____

<p style="text-align: center;">**PSR Center Proposal Evaluation Form**</p>

<p style="text-align: center;">(Provided for information only; form will be used by evaluators)</p>

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)	
Quality 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 PSR grants (if applicable)	

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

Highly recommended   _____

Recommended   _____

Not recommended   _____

Referee Comments (add additional pages as needed):

Appendix C - Data Management Plan

PSR Data Management Plan

Disclaimer
This Data Management Plan (DMP) has been written to comply with U.S. Department of Transportation funding requirements in the "Plan to Increase Public Access to the Results of Federally-Funded Scientific Research." All Pacific Southwest Region University Transportation Center principal investigators (PIs) funded by USDOT are expected to follow the guidance and rules laid out in this DMP. Detailed instructions will be provided upon the receipt of a research award, and the PI will be required to acknowledge compliance with the DMP requirements.

For any questions regarding this document or how to comply, please contact Victoria Deguzman at (213) 821-1025, or via email at victoriv@price.usc.edu.

Pacific Southwest University Transportation Center
The Pacific Southwest Region University Transportation Center (PSR UTC) conducts an integrated, multidisciplinary program of research, education and technology transfer aimed at improving the mobility of people and goods throughout the region. Our program is organized around four themes: 1) Technology to address transportation problems and improve mobility; 2) Improving mobility for vulnerable populations; 3) Improving resilience and protecting the environment; and 4) Managing mobility in high growth areas.

Region 9 includes four diverse states as well as the Pacific Island territories. The region is home to eight metropolitan areas in excess of one million in population (including the nation's second largest), four of the seven most visited U.S. cities on the globe, four of the nation's 10 busiest airports, the nation's largest port complex, and the largest high tech region on the planet. At the same time the region is home to vast, sparsely settled desert regions, and some of the most remote pacific islands. The region has the nation's highest proportion of non-native born populations, large concentrations of Native American and native island populations, and concentrations of extreme poverty and disadvantage.

The PSR UTC supports research that addresses the unique combination of problems in the region, serves as a clearinghouse for curriculum to improve transportation education programs, addresses workforce development through targeted training, community college partnerships and professional development, and conducts a comprehensive, multimedia dissemination program.

The PSR UTC is structured to have a regional focus and is intended to build a strong university-government-industry partnership. Our consortium of universities and community colleges, together with partnerships with state Departments of Transportation (DOTs) and Metropolitan Planning Organizations (MPOs), forms a region-wide network to guide the development and implementation of the center's research, education, and technology transfer programs.

Data Management Plan

Data description
Transportation data often becomes inaccessible over time for the following reasons: 1) Data has a format no longer supported by current software; 2) There is no information on the source or structure of the data; and 3) Data resides with the researcher and is not available to others. Historical data can be

very valuable. Data may be used in new ways, or to answer new questions. Different datasets may be merged or used for comparative analysis. With this DMP, our research data will be able to accumulate over time and be accessible to future researches.

As part of compliance with the PSR UTC DMP, PIs will write data descriptions for funded projects. These should distinguish between newly collected data and data being re-used from other projects as well as the actual observations and generated data to be submitted to a data repository. The PI is responsible for compliance with the DMP.

Some but not all types of data that PSR UTC gather are listed below:

Travel surveys: On-line or on-paper surveys administered to random samples of individuals or households as to daily travel patterns, attitudes and perceptions, and demographic characteristics. Datasets include individual and/or household records with names, addresses, and all other personal identifiers redacted.

Professional surveys: On-line or on-paper surveys administered to random samples or purposive samples of individuals acting in their professional capacity and/or as representatives of their organizations. Datasets include individual or organization records with individual names, addresses, and all other personal identifiers redacted.

Interviews: Structure, semi-structured, or open-ended interviews conducted by phone or in-person with human subjects and/or key informants on topics relating to travel behavior, transportation policy, transportation practice, or similar topics. Datasets include transcriptions of interviews with name, addresses, and all other personal identifiers redacted. Any video and audio recordings will be granted an exception to data sharing requirements owing to privacy concerns and requirements of Institutional Review Boards.

Video observations: Video recordings of the operation of transportation facilities, such as streets, roundabouts, bike trails, and transit stations, including the movement of people and vehicles through these facilities. Datasets include video files as well as manual or automated coding of the video. Vehicle/person location data: Time-stamped vehicle or person location collected by mobile device or GPS loggers. High-resolution data will be granted an exception to data sharing requirements owing to privacy concerns and requirements of Institutional Review Boards. Datasets summarizing the high-resolution data will be made available.

Traffic volume data: Proprietary datasets collected using cell phone tracking and Bluetooth signals, licensed from third parties. Datasets summarizing the licensed data will be made available.

Vehicle activity data: Time-resolved data on vehicle trajectory (speed, attitude, and position of vehicles) and other parameters such as energy use and emissions. Includes data collected through instrumentation of test vehicles and data produced through simulation models.

Infrastructure data: Data points that map out the location of infrastructures such as warehouses, gas stations, etc. Highway, railway and public transportation routes are also included.

Demographic data: Data on individual and household characteristics as well as vehicle ownership and other travel-related characteristics acquired from state agencies and/or commercial vendors. Exceptions to data sharing requirements will be granted when access to such datasets is restricted and special permission is required for access.

Industry data: Data on business operations acquired from state agencies and/or commercial vendors. Exceptions to industry data sharing requirements will be granted when access to such datasets is restricted and special permission is required for access.

Modeling and simulation data: Input data and outputs for models such as CUBE, TRANSCad, or VISSIM; input data and output for simulation models created by PSR researchers.

Data format and metadata standards
We will follow the format of http://www.nrel.gov/transportation/secure_transportation_data.html and/or the FHWA Research Data Exchange https://www.its-rde.net/ In some cases, using proprietary data formats is unavoidable (e.g. shp or msd files); in such cases the rationale for using those standards and formats will be explained. Data from PSR projects will be stored in non-proprietary formats, such as txt, csv, mp3, dat, JPEG, etc.

The Metadata schema PSR will be using is described here http://wiki.datadryad.org/Metadata_Profile. Dryad is a conformant data repository of the USDOT and the metadata schema they use is assumed to meet the requirements.

Policies for access and sharing
All projects involving human subjects will abide by the requirements of the Institutional Review Board (IRB) of the institutions of the Principal Investigators of the projects. These projects must have an IRB-approved protocol for ensuring informed consent of participants and protecting privacy and confidentiality. Data will be shared only after redaction of all individual identifiers, including names, residential addresses, geo-coordinates of residences, and email addresses.

Projects using proprietary data from commercial or public sources will abide by all conditions and requirements imposed on the use of the data. If the source organization prohibits the public sharing of the data, the project will be granted an exception from data sharing requirements.
Programming code developed by a project will be archived with the data if it is required to access the data.

The Principal Investigators of the project will be responsible for acquiring IRB approval and adhering to IRB and other data sharing requirements. The PIs must report IRB approvals and other data sharing requirements in their project proposals and progress reports.

Policies for re-use, redistribution, derivatives
Intellectual property rights will generally be held by the Principal Investigators of the projects and/or their home institutions. However, data transferred to the archive becomes part of the public domain. Copyrights may apply to data from some projects, such as those using copyrighted instruments or proprietary data sources. Any copyrights applying to the data will be identified. Projects using

proprietary data from commercial or public sources will abide by all conditions and requirements imposed on the use of the data.

Materials generated under the project will be disseminated in accordance with University/Participating institutional and USDOT policies.

Research data which documents, supports and validates research findings will be made available after the main findings from the final research data set have been accepted for publication.

Plans for archiving and preservation
PSR will archive all data on Dryad, whose policies are conformant to the requirements enumerated by the US DOT Public Access Policy. Their policies are informed by the Open Archival Information System (OAIS) reference model (ISO 14721:2012) which defines "long term" to be a period of time long enough for there to be concern about the impacts of changing technologies, including support for new media and data formats, and of a changing user community. They ensure compliance with legal regulations, and maintains all applicable licenses covering data access and use, including, if applicable, mechanisms to protect privacy rights and maintain the confidentiality of respondents. Dryad's policies for archiving and preservation are at http://datadryad.org/pages/policies.

Processes to ensure project-level adherence
There are four stages that PSR UTC will perform to ensure that each project funded by US DOT complies with the DMP requirements proposed by US DOT:

Proposal stage: PIs commit to conforming to the DMP in the proposal

Award stage: PIs receive DMP compliance instructions as part of the award letter, and PIs must acknowledge the award letter and commit to all requirements in the letter by signature. Contents included in the DMP compliance instructions are: a) Data descriptions as indicated in the first section; b) Data formats and reasons for necessary proprietary formats, if applicable; c) Contextual documentation, such as data dictionaries defining the variables; README.txt files giving rational for the project and explaining methodologies; code books defining how data was processed; d) Quality control measures; and e) If applicable, explanations on why certain data sets cannot be shared.

Project completion stage: PIs submit data to PSR UTC director and PSR UTC will conduct an internal review to ensure compliance and then submit the data to Dryad within 60 days.