Request for Proposals for Research Projects Year 3

National Center for Sustainable Transportation

RFP Issued: 02/15/19

Proposals Due: 03/15/19

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Introduction

The National Center for Sustainable Transportation (NCST) provides national leadership in advancing environmentally sustainable transportation through cutting-edge research, direct policy engagement, and education of our future leaders. The Institute of Transportation Studies at the University of California, Davis (ITS-Davis) leads the NCST in partnership with the University of Southern California; California State University, Long Beach; the University of California, Riverside; Georgia Institute of Technology; and the University of Vermont.

Funding for this RFP
This is an RFP for Year 3, and it will allocate our Year 3 research funding for USC and CSULB. Funding available under this RFP is approximately $650,000 from US DOT and $250,000 from Caltrans.

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 proposal template are also provided.

Eligibility

Full-time tenure track and research faculty members eligible to serve as Principal Investigators at USC are eligible to serve as Principal Investigators on NCST grants. At CSULB, those eligible to serve as Principal Investigators in the Colleges of Business Administration, Liberal Arts, and Continuing and Professional Education are eligible to serve as Principal Investigators on NCST grants. Proposals may include multiple investigators. Proposals may also include research faculty and non-tenure track faculty from USC and the eligible CSULB colleges as Co-Principal Investigators.

Research Program Themes and Topic Areas

The goal of the NCST is to produce research that directly supports the efforts of policy makers and professionals to improve the sustainability of the transportation system. Proposed projects must fall under one or more of the following research tracks:
- Environmentally Responsible Infrastructure and Operations
- Multi-Modal Travel and Sustainable Land Use
- Zero-Emission Vehicle and Fuel Technologies
- Institutional Change

The NCST is particularly interested in funding research in the following emphasis areas that cross-cut these three research tracks:

- **Sustainable Freight** - Examples of projects include but are not limited to strategies for reducing carbon and criteria pollutant emissions and increasing energy efficiency through vehicle technology, system operations, logistics, and land-use planning; and cost-effective strategies for increasing environmental sustainability in the freight sector.
- **New Mobility** (Including connected, shared, and/or automation of vehicles)– Examples of projects include but are not limited to behavioral implications of new mobility (who will use it and under what conditions); the potential for new mobility to meet the needs of rural areas and mobility disadvantaged travelers, as well as interregional travel needs; the potential to reduce vehicle use (by increasing load factors in cars, vans, buses, and rail); future funding scenarios that address new technologies and mobility services; and the potential synergies between ride-sharing, automation, and electrification that could lessen environmental impacts and improve access for disadvantaged riders while reducing transportation costs.
- **Environmental Review** – Examples of projects include more proactive approaches to identifying environmental justice issues and an understanding of what types of data should be collected; and strategies for incorporating environmental analysis and mitigation early in the planning process.

Applicants are encouraged to review NCST's current portfolio of research projects https://ncst.ucdavis.edu/research/current-projects/ and white papers http://ncst.ucdavis.edu/research/white-papers/ to gain a better understanding of the type of projects the NCST is interested in funding. Proposed projects may be in any discipline and multidisciplinary topics are encouraged when appropriate.

The primary METRANS focus area for NCST research is sustainable freight. Improvements may be achieved through technology, operational efficiencies, or policy incentives. All modes of surface freight transport are of interest. Possible topics include: 1) system management strategies to facilitate truck movements, 2) consolidation or other load management strategies, 3) more efficient fuels, vehicles, or modes.

Proposals addressing other sustainability topics that fall within the mission of METRANS – solving transportation problems in large metropolitan areas – are also encouraged. Proposals may address passenger or freight transport. Possible topic areas include: 1) spatial patterns and the sustainability of passenger and freight transport, 2) public transit management and productivity, 3) resiliency of urban transportation systems.

Funding for the NCST is from both the US Department of Transportation and Caltrans. Submission of proposals consistent with both the mission of METRANS and the mission of Caltrans and its research needs for the NCST is encouraged.

Caltrans Topics
Proposers are referred to Caltrans research program themes and topics, presented in Appendix A.

Selection Criteria for All Proposals

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 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:
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 USC and CSULB, interdisciplinary proposals that cross school boundaries, as well as participation from outside organizations are encouraged.

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 in the proposal***. *Without such verification of participation, the proposal will not be considered for funding.*

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 Gateway (formerly McNair) Scholars Programs. 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 NCST encourages 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 METRANS Associate Director of Administration Cort Brinkerhoff at mcbrinke@price.usc.edu.

Project Selection
The METRANS Executive Committee will make final project selections, taking into account reviewer evaluations, programmatic priorities, and prior project performance. For Caltrans funded projects, Caltrans will approve selected projects. 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 will consider continuations of prior METRANS 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 METRANS grants are eligible to apply. However, grants will not be awarded to PIs with outstanding deliverables (draft or final report; research brief) on prior METRANS 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. However, Caltrans will not fund travel to TRB conferences. 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:
1. Research project awards have a maximum of $100,000 per year, inclusive of indirect costs
2. The typical project duration is one year
3. NCST white paper proposals are targeted at $10,000 - $25,000. White paper budgets in excess of this amount require justification of any additional costs
4. **Note that conservative and cost-effective budgets are strongly encouraged.** METRANS reserves the right to reduce the budgets of submitted proposals. Projects should be budgeted to begin on August 16, 2019 and end by August 15, 2020

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. 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.

White Papers
NCST encourages proposals for white papers that offer a synthesis of the literature on a specific sustainability topic of critical policy interest. The white papers should summarize the state of knowledge and identify research gaps. White papers are aimed at a broad audience of professionals and policy-makers. The maximum funding for white papers $25,000.

Project Requirements

All research projects have the following requirements:
1. Semi-annual progress reports conforming to METRANS/NCST guidelines
2. A Draft Final Report, conforming to METRANS/NCST 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, document the research project, and be complete, original, well organized and accurate.
3. 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 and NCST websites, and are submitted to METRANS sponsors and to various publications databases
4. 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
5. A two- to four-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
6. 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
7. At least one presentation of the funded project's research at a thematic conference organized by METRANS, and located in the Los Angeles region
8. Timely reporting of all information requested for the METRANS Annual Report
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. Acknowledge METRANS support in all work that results from METRANS funding, including peer-reviewed publications and conference presentations
11. **NCST projects require conformance to new data management requirements imposed by DOT.** More information here: https://ntl.bts.gov/public-access/faqs
12. **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

White paper projects have the following requirements:
1. Semi-annual progress reports conforming to METRANS guidelines if the project exceeds 6-months of duration.
2. A Draft White Paper submitted 30 days prior to the completion date of the project. The Draft White Paper is subject to peer review.
3. A Final White Paper that responds to the review comments must be delivered within 30 days after the review of the Draft white paper has been received by the author. The white papers are distributed by NCST and METRANS, and are submitted to METRANS and NCST sponsors and to various publications databases.
4. A brief Biographical Sketch for each of the project's investigators to be submitted with the Draft white paper. 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.
5. Timely reporting of all information requested for the METRANS Annual Report.

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

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 ten pages. Budget and other forms are included in Appendix B. Each proposal must include the following sections:

Use the NCST Proposal Template to write your proposal: https://www.metrans.org/research-projects/national-center-for-sustainable-transportation

1. Project title and basic info
2. Project abstract
3. Description of proposed research, including project purpose, and relevance to NCST themes
4. Methodology (the methodology by which project objectives will be accomplished)
5. Tasks, Schedule and Deliverables (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. Description of how the PI will comply with the Data Management Plan (DMP). The DMP is available at https://ncst.ucdavis.edu/research/data-management.
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
11. Budget (1 page.) For USC proposals, use the form provided in Appendix B. For CSULB proposals, include with your proposal the budget that is used for the clearance process. Assume a start date of 7/1/19.
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)

White Paper Proposal Instructions

White paper proposals must include the following:
1. Cover page (use the form provided in Appendix B)
2. One- to two-page description of the proposed topic
3. One-page bio that includes recent relevant publications
4. Budget. (Budget and other forms are included in Appendix B)

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

Selection 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

For USC: Please use your School guidelines in preparing your budget. For the Price School, contact Elizabeth Gatchalian (egatchal@usc.edu) for budget assistance. For VSOE, contact your department grants administrators. Note that tuition cost share is limited to PhD students. Please show the cost share in your budget. Tuition charges are not subject to indirect costs. The indirect cost rate is 50%, and the difference from the audited rate is to be shown as a cost share.

For CSULB: Budget guidelines for CSULB faculty are contained in Appendix B. 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).

Caltrans has additional budget rules; Principal Investigators of proposals selected for Caltrans funding will be informed of these requirements.

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

Submission Instructions

Email a pdf copy (max 10 MB) of each proposal to METRANS Associate Director of Administration Cort Brinkerhoff at mcbrinke@price.usc.edu before 5:00 pm on March 15, 2019. 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 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. For CSULB proposals, include with your proposal the budget that is used for the clearance process.

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 regarding research topics, METRANS Director Genevieve Giuliano can be reached at (213) 740-3956 or giuliano@usc.edu. For further information regarding program rules and procedures contact METRANS Associate Director of Administration at (213) 740-4297 or mcbrinke@price.usc.edu. In addition, check www.metrans.org for information on current projects, center organization, and links to outside agencies.

Appendices

Appendix A
Caltrans Themes and Topic Areas

Appendix B
Budget Information and Forms

Appendix A

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):
    o Impacts of shared moblity on vehicle miles traveled (VMT)
    o Transportation-related cybersecurity risk
    o Meeting transportation needs in the midst of changing California demographics
- Implementation of the statewide freight plan and emerging sustainable freight trends (http://www.dot.ca.gov/hq/tpp/offices/ogm/california_freight_mobility_plan.html), including but not limited to:
    o Methods for determining freight origin and destination
    o Truck parking innovations
    o Modal shifts from trucks to rail or barge
    o Intelligent transportation systems for freight
- Meeting transportation system performance measurement requirements of the FAST Act and California Senate Bill 1, including but not limited to:
    o Data collection needs for new performance metrics in the Caltrans Strategic Management Plan including prosperity, accessibility, livability, and resiliency (http://www.dot.ca.gov/perf/library/pdf/Caltrans_Strategic_Mgmt_Plan_033015.pdf)
    o Best practices in performance-based transportation planning in the U.S.
    o How to use GPS data for mode and activity deduction and investigate how other DOTs are using big data
    o How to use Big Data platform for integrating land use planning and transportation planning
    o How to incorporate contingency planning into corridor planning (Shared mobility (TNCs), AV/CV deployment, Climate Change, economic uncertainty, etc.); how to incorporate health and accessibility scores into corridor planning
    o How to identify data sources and develop parameters for qualitatively ranking critical corridors and optimal projects
    o Opportunities and barriers of various congestion pricing strategies that have the potential to equitably reduce VMT
    o Improved active transportation safety, mobility, and equity aimed at fostering healthy and sustainable communities, including but not limited to:
    o Access to needed safety data to effectively evaluate overall system or specific location safety issues
    o Analysis of benefits and costs of bicycle and pedestrian safety infrastructure projects
    o Estimating greenhouse gas reduction potential of active transportation facilities
    o Bicycle and pedestrian trip data collection methodology and forecasting
- Tools for assessing lifecycle GHG emissions and costs for highway and other projects (as per Executive Order B-30-15 (https://www.gov.ca.gov/2015/04/29/news18938/))

- Tools for the prediction and mapping of mudslides as a result of the environmental effects of wildfires
- Case studies in transportation equity
- Racial history and impacts of transportation decisions in the state of California and at Caltrans

In addition, proposals are encouraged to show linkages to one or more of the following key documents, programs, and Executive Orders:

- Caltrans Strategic Management Plan (http://www.dot.ca.gov/perf/library/pdf/Caltrans_Strategic_Mgmt_Plan_033015.pdf)
- Senate Bill 1 of 2017, which creates the Road Maintenance and Rehabilitation Program and requires the California Transportation Commission to adopt performance criteria to ensure efficient use of transportation funds authorized by the bill.
- The Caltrans Transportation Asset Management Plan (http://www.dot.ca.gov/assetmgmt/tam_plan1.html)
- California Transportation Plan 2040 (http://www.dot.ca.gov/hq/tpp/californiatransportationplan2040/2040.html)
- Caltrans Workplan Standards Guide - This document provides an overview of the Caltrans project process (http://www.dot.ca.gov/hq/projmgmt/documents/wsg/Workplan_Standard-Guide_V-11-1_2015-10-05.pdf)
- Active Transportation Program (http://www.dot.ca.gov/hq/LocalPrograms/atp/index.html)
- Transportation-related elements of the California Sustainable Freight Action Plan that support a transition to a more sustainable freight system (http://www.casustainablefreight.org/theplan.html)
- Executive Order B-30-15 (https://www.gov.ca.gov/news.php?id=18938) that sets a 2040 GHG emissions reduction target along with directing state agencies to take additional action on climate mitigation and adaptation efforts. In response to this Executive Order, Caltrans is interested in tools for assessing lifecycle GHG emissions and costs for highway and other projects.

Caltrans is seeking proposals on the following specific topics:

- Modeling Truck/Bus-Created Fugitive Dust on Highway Roadsides with Narrow or Absent Shoulders
- Intersection of Battery Electric Vehicle and Internal Combustion Engine Vehicle Cost Savings
- Review of the Contractor Submittal Document Handling Process used by Caltrans

Appendix B

Budget Information and Forms

USC Budget Form

Category	Monthly Salary		% of Time on Program		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%)   _____

TOTAL FUNDS REQUESTED   _____

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

CSULB Internal Clearance Process Instructions Using Cayuse SP

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 using Cayuse SP.

You can access Cayuse SP through the ORSP website - http://www.csulb.edu/office-of-research-and-sponsored-programs/cayuse-internal-clearance-and-electronic-proposal

Your Pre-Award Specialist will still need the PI to send their 700-U or Federal Conflict of Economic Interest form, project summary, budget and budget justification for review. These documents can also be uploaded in to the "Proposal Attachments" section in Cayuse SP.

All templates for the summary, budget, budget justification and Conflict of Interest forms are located on the ORSP Website at - http://www.csulb.edu/office-of-research-and-sponsored-programs/forms-and-templates

As the PI, you should have access to Cayuse SP under your single sign-on; if not, please let your Pre-Award Specialist know and they will have ATS add that to your SSO. When contacting your Pre-Award Specialist regarding SSO, please include your employee ID number.

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).

NCST 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)	
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 NCST 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):