



Request for Proposals for Research Projects – Year 2
Pacific Southwest Region 9 University Transportation Center

RFP Issued: February 6, 2024

Proposals Due: March 27, 2024

Table of Contents

Table of Contents	1
Introduction	2
Funding for this RFP	2
Eligibility.....	3
Research Program Themes and Topic Areas	3
Caltrans Topics.....	5
Selection Criteria for All Proposals	6
Funding Guidelines and Restrictions	7
White Papers	8
Proposal Instructions	9
Selection Criteria.....	10
Budget Instructions	10
Submission Instructions	10
Further Information	11
Appendix A: Caltrans Research Priorities	12
Appendix B: USC Budget Form	18
Appendix C: PSR Center Proposal Evaluation Form.....	19

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, Berkeley, University of California, Davis, University of California, Irvine, University of California, Los Angeles, University of Hawaii, and University of Nevada, Las Vegas. PSR-funded research is expected to result in scholarly publications and contribute to generating larger grants from other sources.

Funding for this RFP

This is an RFP for Year 2, and it will allocate our Year 2 research funding for select PSR partners. USC will manage the federal PSR review for two partners who elected to have USC manage their federal RFP. In addition, Caltrans is expected to contribute \$1,500,000.00 pending executing a master contract and availability of funds. Caltrans funds are available only for partner universities in California.

The available funding that may be awarded through this RFP varies by campus. Approximate maximum amounts for each campus are summarized in the tables below.

PSR Campus	Approximate Available Federal Funding
University of California, Davis	\$200,000
University of Nevada, Las Vegas	\$50,000-55,000
University of Southern California	\$600,000

PSR Campus	Approximate Available Caltrans Funding *
Cal State University, Long Beach	\$155,000
University of California, Berkeley	\$160,000
University of California, Davis	\$160,000
University of California, Irvine	\$160,000
University of California, Los Angeles	\$160,000
University of Southern California	\$705,000

*This funding is contingent upon approval of the California Fiscal Year 2024-2025 state budget, an executed parent contract between Caltrans and USC to support the PSR, and availability within the Caltrans research budget.

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 USC. Applicants from other universities are encouraged to use budget sheets that correspond to budget practices at their university. Submission instructions and a

proposal template are also provided.

Eligibility

To be eligible to serve as a principal investigator on PSR research funded through this call, full-time tenure track faculty and research staff must be eligible to serve as a principal investigator at their home university. Funding will be allocated as shown in the tables above. 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. Proposers must be eligible to serve as a PI at their university and, for the Caltrans funds, eligibility is restricted to persons who can serve as PI's at a California PSR partner university.

Research Program Themes and Topic Areas

Our research program is organized around two themes, Accessibility and Mobility for All and Sustainable and Resilient Supply Chains, and a topic that cuts across both themes: Access to Opportunity Through Strategic Workforce Development.

Research Theme 1: Accessibility and Mobility for All: Too often, the transportation system creates and perpetuates inequities. At the same time, advances in technology and a renewed focus on multi-modal transportation bring a promise of transformative change that can reduce inequities and link previously isolated communities to opportunities. The objective of this research theme is to generate knowledge that will close access gaps and reduce inequities. There are three topics within this theme.

Topic 1.1, Accessibility for Underserved and Isolated Communities: This topic focuses on creating knowledge that helps close access gaps across underserved locations and populations throughout Region 9. That can be through a focus on technology, systems, planning, or policy, with a common thread that research on this topic will help close access gaps and increase transportation equity. Research in this topic area can include work on policies, practices, technologies, and infrastructure related to: equity and accessibility characteristics of platform or web-based systems, transportation access in remote locations, the ability of online services to substitute for or complement access among underserved populations, multi-modal transport, shared mobility (e.g. car-sharing, ride-sharing, bicycle sharing), and safety (particularly in underserved locations or among underserved populations.) This topic also includes research on preserving and strengthening access in locations where climate change poses increased risks to the infrastructure and systems that provide everyday and lifeline connections. Given the pace of technological change in this topic area, the examples listed above are not exhaustive.

Topic 1.2: Improving the Efficiency of the Mobility System: This topic will generate knowledge that will improve the efficiency of the transportation system. Examples can include research on near-term technology solutions like smart parking, car sharing or delivery consolidations, as well as long-term solutions such as the development of models and algorithms for managing shared connected and autonomous vehicles, impacts on travel behavior, and impacts on traffic flow and management in mixed fleets, and truck platoons. Resource questions, such as declines in transit ridership and financial or management models that support transit or transportation system efficiency and equity, are also appropriate for this topic.

Topic 1.3: Broadening Access to Low/Zero Carbon Transport: This topic explores policies and strategies for broadening the market for clean vehicles, with a focus on broadening access among under-resourced places or populations. This would include research that advances understanding of approaches for zero-emission passenger vehicle markets, include markets for second-hand vehicles, subsidy policies, and charging networks. Studies that incorporate the role of income, household tenure status (homeowner vs. renter), and race/ethnicity are welcomed. Studies that examine the role of other zero- or low-emission options, such as e-bikes or non-motorized modes, or new technologies that promise low/zero carbon transport, are also welcomed.

Research Theme 2: Sustainable and Resilient Supply Chains: Supply chains and the freight system that supports them are essential to the economy and society and are lifelines during emergencies. Goods movement is also a major source of environmental harm. Research in this theme will create knowledge that will promote a more resilient, sustainable, and equitable goods movement system.

Topic 2.1: Addressing Environmental Justice Problems in the Goods Movement System: Research in this topic area will include studies that help reduce environmental justice (EJ) gaps and impacts associated with growing and restructuring distribution chains, demand for warehousing, and truck travel associated with the goods movement system. This can include research focused on EJ problems associated with the surface transportation aspects of ports, airports, other large intermodal facilities, large warehouse clusters, and the corridors connecting goods to consumer markets. Research on safety, emissions and exposure, noise, crash risk, health, and other disparate impacts of the goods movement system are also appropriate in this topic.

Topic 2.2: Goods Movement System Efficiencies and Resilience: Research in this topic area will include technologies, systems, policies, plans, and practices that increase the efficiency of the US goods movement system. This can include models and methods for coordination of freight demand across modes and firms, generation and management of freight data, better management of freight pickups and deliveries, and methods to increase supply chain flexibility and resilience. Research that examines and brings solutions to shocks that occur in interdependent and high-velocity supply chains, from disruptions natural or human-made, are welcome.

Topic 2.3: Decarbonizing the Goods Movement System: This topic will research alternative fuels, examining the advantages and disadvantages of battery electric and hydrogen fuel cell fleets, as well as the costs and benefits zero emission surface transportation goods movement technologies and the costs and benefits of hybrid power trains as a bridge technology. Research in this topic can include technologies for low- or zero-emission goods movement vehicles, as well as plans, policies, and practices to implement new technologies in either pilots or at scale. Research in this topic can include life cycle models that compare upstream and downstream costs and benefits and impacts on firms, independent truck operators, and consumers from transitions to low- or zero-emission. Research that informs national guidelines for heavy-duty vehicle decarbonization is welcomed in this topic area.

Cross Cutting Topic (Topic CC): Access to Opportunity Through Strategic Workforce

Development: Research in this topic can apply to either Theme 1 or Theme 2, by examining workforce issues related to either the US passenger or freight transportation systems, or both. Research in this topic area will include studies of the changing nature of work in transportation. That can include research on

the workforce impacts of automation, the shift to new fuels, green jobs in transportation, the growth of new modes, or more broadly changes in the use of different transportation modes and assessments of the workforce impacts of transportation policies, investments, and technologies. Research with an emphasis on opportunities in lower income, under-resourced or environmental justice communities is welcomed. Research in this topic area can evaluate the effectiveness of workforce training programs, including but not limited to programs pursued by PSR universities or partners.

Funding for PSR is from both the US Department of Transportation and the California Department of Transportation (Caltrans). Submission of proposals consistent with the missions of Caltrans and its research needs related to PSR (for California universities) and with the mission of METTRANS (for USC and CSULB proposers) is encouraged.

Proposers are also encouraged to review the US DOT Research, Development, and Technology Strategic Plan, available [here](#), and articulate how their research will advance objectives in that plan while creating transformative impacts. You will be asked in the proposal submission AirTable submission form (described later in this RFP) to indicate how your proposal links to the US DOT strategic goals of equity, climate sustainability, and/or economic strength and global competitiveness, and you should articulate in your proposal text how your research contributes to one or more of those goals and how it supports the US DOT Research, Development, and Technology Strategic Plan.

Caltrans Topics

Proposers with PI status at California universities are eligible to propose research that will be funded by the Caltrans funds described on p. 2 of this RFP. For proposals for Caltrans funds, proposers are referred to Caltrans priority research topics, presented in [Appendix A: Caltrans Research Priorities](#). Proposers can submit investigator-initiated research for Caltrans funding, on topics that are not in the list presented in Appendix A. Proposals on topics in Appendix A will get priority consideration in the review process when competing for the Caltrans funding. Because proposal reviewers will be asked to comment on how all proposals support the US DOT Research, Development, and Technology (RD&T) Strategic Plan, proposers for Caltrans funding should also articulate how their research will support the US DOT RD&T Strategic Plan.

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. PSR 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, including the potential for transformative impact
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. Potential to advance US DOT Research, Development, and Technology strategic plan goals
8. Prior performance on grants (as applicable)

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

Proposers are encouraged to communicate with members of the PSR Executive Committee in the development of research proposals. The PSR Executive Committee includes the lead faculty for each partner institution. The list may be found in the directory page on the PSR website: <https://www.metrans.org/PSR.UTC.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. 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. Proposers are strongly encouraged but not required 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, and only to PSR partners in California (USC, Cal State Long Beach, and UC Berkeley, Davis, Irvine, and Los Angeles). Thus, PSR 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. Regional pool fund proposals (i.e., from proposers who are not at a PSR university but who have PI status at a university within the US DOT Region 9) must include 100% match as part of the proposal. For additional information, contact PSR Associate Director of Administration Jennifer Hong at jenc@usc.edu.

Project Selection

The PSR Executive Committee will make final project selections, taking into account reviewer evaluations, programmatic priorities, prior project performance, and PSR partner recommendations.

PSR partner universities will have the option to review proposals from their campuses and make recommendations to the PSR executive committee. 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, PSR will consider continuations of prior PSR 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 grants are eligible to apply. However, grants will not be awarded to PIs with outstanding deliverables (including, but not limited to draft or final report; research brief; data management plan compliance) on prior PSR 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. For proposers at public universities, non-resident tuition and fees are allowed expenses, provided that it is the university's practice to compensate student under Federal awards.

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 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 partner's existing subcontract or as task orders that are also subcontracts, 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, inclusive of indirect costs.
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. Research Projects that are federally funded should be budgeted to begin on August 15, 2024 and end by August 14, 2025. Proposers at universities on the quarter system should budget federally funded projects to begin at the start of the Fall quarter and end a year later. Projects that are Caltrans funded should be budgeted to begin on January 1, 2025 and end on December 31, 2025. These anticipated start dates might change based on the review process and setting up contracting and task order documents.

Research Initiation Awards

Research initiation awards are available to tenure track Assistant Professors or, by permission of the proposer's university's PSR Executive Committee representative, research staff in positions analogous to assistant professors. If you are a research staff member (not tenure-track faculty) who is interested in pursuing a research initiative award, please discuss with and obtain approval from the PSR Executive Committee representative at your university. The research initiation awards will be available with preference for faculty and researchers who have not been previously funded for research in transportation. These awards are limited to a maximum of \$35,000 in total cost. 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

White paper proposals are funded to synthesize existing evidence and identify research gaps for critical policy questions, for a maximum of \$25,000 total cost. White papers are aimed at a broad audience of professionals and policy-makers.

Research Project Requirements (applicable to all projects other than white papers)

All research projects have the following requirements:

1. Semi-annual progress reports conforming to PSR guidelines (Quarterly for Caltrans projects)
2. 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 (DMP) compliance explanation, and documentation of the research project. It should be complete, original, well organized and accurate; and comply with report content and format guidelines (posted to the PSR website).
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 PSR websites, and are submitted to PSR 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-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.
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. At least one presentation of the funded project's research at a thematic conference or seminar organized by PSR.
7. Timely reporting of all information requested for the PSR Annual Report.
8. Copies of all papers submitted to journals or conferences that are based on the project's research. Copies should be provided to the PSR Administrator.
9. Acknowledgement of PSR support in all work that results from PSR funding, including peer-reviewed publications and conference presentations.
10. **PSR projects require conformance to new data management requirements imposed by USDOT.** More here: https://www.mettrans.org/psr_utc_research_overview.

11. **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 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 PSR and METRANS and are submitted to METRANS and PSR 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 8 pages in sections 3-7. The budget forms are included in Appendix B for USC. Applicants from other universities are encouraged to use budget sheets that correspond to budget practices at their university

Use the [PSR Proposal Template](#) to write your proposal.

Each proposal must include the following sections:

1. Project title and basic info
2. Project abstract
3. Description of proposed research, including project purpose, and relevance to PSR themes
4. Methodology and scope of work
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(s) and contribution to practice (e.g. peer-reviewed publication)
7. Description of how the PI will comply with the [PSR Data Management Plan](#) (DMP).
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.) Proposers from USC must use the form provided in Appendix B for USC. Proposers from other universities should use the budget that is used for the clearance process at their university, showing detail that is similar to the form in Appendix B. Assume a start date of August 15, 2024 for federally funded projects and January 1, 2025 for Caltrans funded projects.
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
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 for USC). Proposers from other universities should use the budget form that is used for the clearance process at their university, showing detail that is similar to the form in Appendix B.

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

<u>Selection Criteria</u>	<u>Most Relevant Section(s) for this Criterion</u>
Relevance to research theme areas	Background/Objective
Quality and research significance / transformative impact	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
Potential to advance US DOT RD&T strategic plan goals	Background/Objective
Prior performance	Prior project accomplishments

Budget Instructions

For USC: Please use your School guidelines in preparing your budget. For the Price School, contact Jenny Tam at jennytam@usc.edu for budget assistance. For the Viterbi School of Engineering, 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% for USDOT-funded projects at USC, and the difference from the audited rate at USC is to be shown as a cost share. At other partner universities, use the indirect cost rate and any cost share practices approved by your university.

Caltrans has additional budget rules; Principal Investigators of proposals selected for Caltrans funding will be informed of these requirements. When preparing Caltrans budgets, use an indirect cost rate of 20% unless you receive other information from PSR. Caltrans projects will use approved Caltrans indirect cost rates, to be confirmed later. For budget purposes, use an indirect cost rate of 35% for Caltrans projects, with an understanding that once the Caltrans indirect cost rate has been confirmed,

projects might need to be rebudgeted to reflect the approved Caltrans indirect cost rate before project initiation.

Please note that all proposals must include a budget; proposals submitted without a budget will be determined to be incomplete and will not move forward in the review process.

Submission Instructions

Please use the PSR Proposal Template to write your proposal. Templates can be found on the PSR Research page: https://www.metrans.org/psr_utc_research_overview.

Proposals responding to this RFP are due no later than Wednesday, March 27, 2024, at 5:00 p.m. PT. Proposal materials must be submitted via [Airtable application form](#). Please title your PDF file as LastNameofPI_campus_2024_Proposal.pdf. For example: Boarnet_USC_2024_Proposal.pdf.

Note to PIs: Please do not submit more than one proposal per form. If more than one proposal is to be submitted, please send each in separate forms. If you are submitting more than one proposal, include the first two words of your pre-proposal title in the filename. For example, if a proposal title is "Slow Streets and Dockless Travel: Using a Natural Experiment for Insight into the Role of Supportive Infrastructure," the filename would be: Boarnet_USC_2024_Proposal_Slow Streets.pdf. 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.

PSR 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, PSR Director Marlon Boarnet can be reached at (213) 740-3696 or boarnet@usc.edu. In addition, check https://www.metrans.org/psr_utc for center organization and links to outside agencies. Proposers are encouraged to contact PSR executive committee members at their university for clarification on university-specific policies. For further information regarding program rules and procedures contact PSR Administrator Jennifer Hong at jenc@usc.edu.

For up-to-date information on the IRB process at USC, please visit the website of the USC Office for the Protection of Research Subjects: <https://oprs.usc.edu/>

Appendix A: Caltrans Research Priorities

Many of the following Caltrans research needs statements are cross-cutting. It is recommended that applicants review all of the following research needs statements, which are sorted alphabetically and not by priority. Direct questions about these statements, including about the research need requestor's contact information, Jennifer Hong at jenc@usc.edu.

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 priority research topics listed below.

Accessibility Changes as a Result of Projects that Support Electric Vehicles

Transportation accessibility refers to a measure of the ease of reaching destinations or activities distributed in a given area. Accessibility is generally associated with a place (or places) of origin and the affiliated destinations, or points of interest, that may create a trip or a chain of trips. While accessibility assessment is a growing field, the impacts of certain transportation investments remain unclear with regard to the amount of travel they may induce, shift or eliminate by mode. Caltrans seeks information on how projects that facilitate zero-emission vehicle (ZEV) use, such as improved charging, affect accessibility by zero-emission auto, and thus may influence total vehicular travel using that mode.

California Intercity Bus Study (CIBS) Phase II

Caltrans Rail Planning and Implementation Office is currently finalizing the California Intercity Bus Study (CIBS) Phase I, which identifies a conceptual coordinated statewide intercity bus network (CIBS Network) based on interconnected regional networks. Phase I establishes a business case for the CIBS Network and begins to create a roadmap for statewide program implementation.

This Phase II study will focus on market sounding and partnership model development, which will include engaging with both public and private actors to determine their potential role in the CIBS Network. Roles could span fleet, maintenance, operations, service planning, fueling/charging, integration, and customer activities (marketing, ticketing, fares). The market sounding should focus on four goals:

1. Sharpen Caltrans' view on risks and cost drivers for deployment.
2. Review 'what is possible' – what roles would public and private partners want to play? What incentivizes them to do so?
3. Narrow down range of potential program models and procurement based on what is possible.
4. Signal intent to market on what Caltrans seeks to achieve.

Early Consideration of Tribal Heritage Sites and Cultural Landscapes in Long Range Transportation Planning

During environmental review and project delivery phases of Caltrans projects, Native American tribes continue to express concerns regarding the effects of transportation and land use developments on tribal heritage sites and landscapes. Tribes indicate a desire for such heritage resources to remain intact/undisturbed, and the preservation of 'sense of place' is a key concern. The ability to avoid and

minimize impacts to tribal cultural heritage resources at a large scale is limited during project delivery phases by the fact that state and federal historic preservation laws are not triggered until there is a programmed/funded project. These laws require the identification and treatment of tribal cultural resources in consultation with tribes, but lack of appropriate planning leads to disjointed preservation efforts and project delays. More information is needed on how to use planning and coordination principles with Tribes to achieve the intended goals of preservation and transportation project efficiency. Caltrans requests research focused on identifying potential best practices for early engagement with tribes on cultural resource issues, as well as any limitations. This may be accomplished through interviews and case studies to help inform the Department’s policies and programs and to help advance multi-benefit, cross-sector, cross-jurisdictional landscape scale collaborations for land use and resource stewardship (this white paper addresses landscape level collaboration in CA and would be helpful in this research effort).

EV/Hydrogen Fueling Stations – Potential Future Locations

California has passed new policies and given direction for truck electrification and alternative fueling throughout the state. The planning of future alternative fueling stations is crucial for meeting future zero emission trucking goals throughout the state. More information is needed to create an assessment framework that identifies optimum locations of freight vehicle refueling and charging. This includes, but is not limited to, specifics of truck traffic at key nodes in a given corridor, hours of operation, expected duty cycles, and location of longer-term parking. Potential case study could be north-south corridors of State Route (SR) 99 and I-5 in the central valley.

Evaluating Named Caltrans Facilities for Sensitivity

Many facilities on the state right of way are named after individuals for memorial or other purposes, but Caltrans recognizes that the suitability of names on facilities should be periodically reviewed. There is a need to flag names known to be associated with white supremacy or other discrimination based on race, ethnicity, country of origin, gender, religion, or other serious wrongs. A publicly available Caltrans document on named highway facilities (California Department of Transportation, 2020) includes brief statements of the reasons supporting each naming, providing a useful starting point for such a review. Because many facilities are named after individuals who are not well known, research into the individual is necessary, which could include a review of public statements, writings, news reports, and public records, for example.

Evaluation of Soundwalls and Greenery Screens as Equity-Focused Countermeasures

Soundwalls and greenery screens (dense tree/bush plantings) may provide benefits beyond noise reduction. Recent studies around the effectiveness of sound walls and greenery along freeways related to air quality and particulate matter have had conflicting results – some studies showing a benefit, others showing inconclusive results. Caltrans is interested in the expansion of soundwalls and/or greenery screens in low-income communities where the freeways are in close proximity to homes, parks, and schools. What does existing literature have to say about the co-benefits of soundwalls, and what criteria can be used to screen for potential expansion of these interventions in priority population areas?

First Aid Resources on Buses – Best Practices and Guidance

Many bus systems function as part of the community's social services system. In particular, bus operators can have an emergency responder role when their passengers may experience a health crisis, such as when a passenger overdoses on opioids or has a cardiovascular event. What emergency medicines and devices should ideally be on board? What training should a bus operator have beyond what may currently be required? Caltrans seeks a survey of best practices and an analysis of the potential effectiveness of interventions that could be applied more broadly.

How do Warehousing Trends Impact California's Transportation and Land Use?

The growth of e-commerce and its impact on warehousing and distribution has shifted our understanding of how freight land use affects freight transportation. Warehousing and distribution are integral to efficient freight movement, directly affecting the State's and the nation's economic competitiveness; however, challenges and opportunities arising from current events, land use trends, and market drivers, require the State's active and cooperative resource allocation for warehousing.

The selection of warehouse sites can influence vehicle miles traveled (VMT), increase truck trips, and exacerbate congestion. There's a growing need to examine the interplay of land use and transportation factors in California's freight storage and transport. The connection between warehousing, goods movement, and highway investments remains unclear. Caltrans seeks to explore transportation and land use patterns in the context of warehousing, shedding light on these relationships. In addition, Caltrans needs more information on incentives for logistics industry facilities, including a comprehensive assessment of available state and local economic development incentives. The findings of this research, as discussed in the 2023 California Freight Mobility Plan (CFMP), will be integrated into the 2027 CFMP.

Hydrogen or Electric Transit Vehicles – Which works for your agency?

California has a mandate that requires all new buses to be fully electric by 2029. This is a difficult task as the two current technologies—battery electric vehicles and hydrogen-powered vehicles—both have strengths and weaknesses. Caltrans seeks information on the potential for deployment of battery-electric and hydrogen technologies in busses and which types of buses would be best in specific use cases. This task could include market assessment, survey of practice, modeling of duty cycles, case studies, or other methods to develop a method of assessing which ZEV technology might be good to deploy on a short and long terms scale.

Induced Demand Potential of Rail Transit and Intercity Rail Service

Induced demand refers to the concept that increasing the supply of a good or service can lead to an increase in the demand for that good or service. While commonly applied in the assessment of new roadways, relatively little is known about changes in individual travel behavior resulting from the introduction of a rail transit service. What effect does increased rail transit or commuter service have on ongoing regional travel demand for those modes? How does this relate to automotive travel demand in the same region? Caltrans seeks to investigate frameworks for assessment of induced demand for rail service, which once tested can be applied broadly in cost benefit analysis of rail projects, assessment of VMT-focused mitigations, travel demand modeling, and environmental review.

Intermodal Truck to Rail Transporting Increase

Intermodal rail freight is a transportation alternative that combines rail and truck shipping in transporting freight over long distances. More information is needed on how trucks and rail interact in providing freight services, methods to promote the use of intermodal terminals, and public infrastructure, investment, or policy that could support the efficiency and prevalence of intermodal freight.

Methods to Identify Transient Status in Pedestrian-Involved Traffic Collision Reporting

People experiencing homelessness are dying on the state right of way due to various causes, including vehicle vs ped incidents in areas where pedestrians are not anticipated by motorists like onramps, off ramps, and across the highway itself.

In an effort to create lifesaving solutions we need to understand more about the cause and effect of homeless-involved collisions, exactly how prevalent the problem is, which areas are seeing the most incidents, and why.

Gathering data on these incidents has been challenging. The California Highway Patrol (CHP) does not make the distinction between pedestrian and pedestrian experiencing homelessness. CHP only distinguishes between pedestrians that have “unboarded” from vehicles. We understand that if a pedestrian is hit by a vehicle in an area that is a location where pedestrians are not expected and is not listed as “unboarded” there is a high probability that the person is experiencing homelessness and sheltering on the state right of way.

Caltrans seeks research to gain deeper insight into the severity of the problem by identifying specific locations of repeat vehicle vs ped experiencing homelessness incidents. Due to the lack of research currently available on this topic, we are unable to gauge where, why, and how these incidents occur. Without that data, we will never be able to devise viable solutions.

The proposed research will focus on the locations of pedestrian collisions involving homeless people to determine the best mechanism(s) to reduce risk and save lives. We hope to learn the where, why, and how to determine the best solution(s) to limit these incidents.

Microtransit Services – Lessons from Abroad

California Transit Agencies are leading in the implementation of microtransit services, but many questions remain. How do we make sure the services are operating efficiently? How do we minimize the price point of operations to make these services financially sustainable? Jitney type services are used widely in developing nations and there is much to learn from their long history of operations that might help microtransit in the US. Caltrans seeks information on microtransit practices outside of California, with a specific focus on foreign countries, to determine if any practices could be adopted here, what it would take to enact them, and potential impacts from their implementation.

Minimizing the Environmental Impact of Freight in a Dense Urban Landscape

The research will examine the nexus of land-use planning, typology, and optimal residential growth methods. Focus will be given to transit-oriented developments (TODs) and “smart growth” with better efficiencies for last-mile freight, such as reduced VMT, greenhouse gas (GHG) emissions, truck trips,

and truck generation. The study will probe into truck data within urban environments and quantify the effect of various land-use types on truck trip generation and note what, if any, correlation exists.

Potential Short-Term Impacts of ZEV Policy on the Agricultural Freight Fleet

The research will plan for the future of truck electrification and addressing potential adverse impact to the agriculture industry. It will also plan for the strategic location and spacing of ZEV truck charging stations within agriculture areas. The research will establish baseline variables that will quantify existing agriculture production and agriculture freight transportation along the identified corridors.

Identifying impacts of high-volume freight routes and facilities on the environment and underserved communities. The objectives of this research are the following:

- Identify impacts that high-volume freight routes and facilities have on the environment and nearby underserved communities. Freight-related facilities include ports, warehouses, railroads, railyards, airports, highways, and more.
- Identify strategies and solutions for impacts and how these solutions can be applied.
- Use a combination of quantitative and qualitative methods to analyze the causes of the impacts.
- Provide knowledge and tools to mitigate the impacts.

Procurement of Buses – Ways to Gain Efficiency

Bus procurement in California and the U.S. in general is difficult and costly compared to other jurisdictions. Regulations, processes, and funding programs are a primary cause of inefficiency. Are there ways to make bus procurement less costly and faster? Caltrans requests an analysis of markets, rules, and local practices with regard to bus procurement and an assessment of whether policy changes and broader implementation of best practices can help reduce the cost of bus procurement.

Project-Level Economic Competitiveness Assessment

Building from recent work on tracking the effects of state action on economic competitiveness, Caltrans needs additional information on potential methods to use applicant-reported data to estimate project-level competitiveness impacts of freight projects. Caltrans received feedback from external partners to include an economic competitiveness metric within our California System Investment Strategy (CSIS), a new data driven approach to selecting transportation projects in accordance with the Climate Action Plan for Transportation Investments. While Caltrans agrees conceptually with the need to estimate potential project impacts, in practice we don't have the data and tools necessary to easily assess this for all projects. Short of doing an in-depth analysis of each project, Caltrans wishes to investigate screening methods that can be used for initial project selection.

The California Transportation Commission has indicated that they want to similarly add an economic competitiveness metric within the guidelines for the trade corridor enhancement program. This would require substantial work for each project team, and the proxy used for screening, such as broad, unweighted projections, may be too simplified to serve as an accurate evaluator of economic competitiveness. For example, choosing a proxy metric like “number of freight sector jobs within # miles of the project” would result in an urban bias.

Caltrans seeks to assess metrics for project level comparison, potential data needs, and methods to index multiple data inputs into an assessment of potential project impact on the performance of the freight sector.

Protection of Survey Monuments on State Right of Way

Survey monuments, bench marks and geodetic control are essential physical markers used in land surveying and mapping throughout our cities, counties, and nation. Survey monuments, typically made of durable materials like concrete or metal, are placed at strategic locations, such as property corners and intersections, to establish precise property boundaries. Bench marks are markers used for determining elevations. Geodetic control stations are reference points used to align data to a regional, national, or global coordinate system. All these markers are crucial for accurate and reliable land surveying data. Almost all land boundaries and infrastructure projects are tied to survey monuments, but increased infrastructure spending and disaster cleanup has accelerated the destruction of this critical asset. A preliminary review of laws in varying states has revealed that rules around preservation of these survey tools are very inconsistent around the nation. Caltrans is seeking information on policies around the nation in order to advocate for a federal level policy and dedicated federal funding to preserve survey monuments and avoid the negative impact to the public resulting from inaction.

Women's Transit Travel Needs

Los Angeles Metro did a landmark study on women's travel needs on transit to better integrate mobility of care trips, serving pregnant women, and other unique aspects of women's travel (more midday trips, safety and security, etc.) into their service. Lessons from this work could be pushed across agencies statewide, including changes to design manuals and guidance used in California to assess how to better serve women's travel. Caltrans would like to learn more about the applicability of information from the L.A. study to other regions in California through the application of a similar survey methodology and the assessment of interventions that may be able to address the areas of strongest need.

Appendix B: 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.

Appendix C: PSR 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 / potential for transformative impact	
Student involvement	
Reasonableness of budget and cost-effectiveness	
Qualifications to perform work/likelihood of completion	
Potential to advance US DOT RD&T strategic plan goals	
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):