



University of California Center ON Economic Competitiveness in Transportation, UCCONNECT

Request for Faculty Research Proposals

FY 2017-2018

Due Date for Proposal Submissions: October 4, 2016

Award Period: 12 months, starting February 1, 2017 ending January 31, 2018¹

Caltrans Division of Research, Innovation and System Information and Division of Transportation Planning have set aside approximately \$630,000 to fund 1-year research projects to advance the goals of Caltrans' *Strategic Management Plan*. That plan can be accessed at: www.dot.ca.gov/perf/.

All work funded through this grant will be conducted through UCCONNECT. Hence, principal investigators from the five UC campuses within the UCCONNECT consortium, Berkeley, Irvine, Los Angeles, Riverside and Santa Barbara, along with PI's from UCCONNECT's affiliate campus, the California State Polytechnic University, Pomona, are invited to submit research proposals in response to this call.

Proposals should address one or more of the broad, interconnected goals described in Section 1 of this call below. Proposals that address these goals with theoretical or experimental flavors would be equally welcomed, and may pertain to the movements of people, or goods, or both combined via surface transport modes. Be aware, however, that UCCONNECT is inclined to develop a diverse research portfolio, and would therefore be hesitant to fund new research that duplicates or closely follows ongoing work already sponsored by the center. Summaries of those previous and ongoing works are furnished under the research links at <http://www.uconnect.berkeley.edu/research>. Potential PI's are encouraged to review those links before preparing proposals.

Questions concerning the preparation or submission of proposals in response to this call can be sent by email to: uconnect@berkeley.edu.

1. Priority Research Goals

Proposals submitted in response to this call should be aligned with one or more of the 5 goals that constitute Caltrans' *Strategic Management Plan for 2015-2020*; visit www.dot.ca.gov/perf/ and click on the link for that plan. The goals are described below. The descriptions include examples of aligned research thrusts. These are offered for illustrative purposes only.

Goal 1: Safety and Health

Research is sought to enhance the provision of safe transportation systems, to promote health through active transportation (e.g. bicycling and walking), and to reduce pollution in communities. Proposals to

¹ No-cost time extensions beyond January 31, 2018 will **NOT** be possible. Nor will it be possible for Principal Investigators to defer project start dates beyond February 2017.



improve the safety of travelers by any surface transport mode(s) would be welcomed, as would proposals to address the safety of Caltrans workers, say at construction sites or work zones. Proposals may therefore be targeted to the planning, design, construction, maintenance or operation realms of transport systems. Research to advance Caltrans' ongoing efforts to prepare and implement a *Statewide Highway Safety Plan* to improve safety of most any surface travel mode would be welcomed. The same would be true of proposals: to advance the implementation of the *2013 Zero Emission Vehicle Action Plan* from the Governor's Office of Planning and Research; or to further the state's *Active Transportation Program* to enhance public health by encouraging trips by non-motorized modes. Thus, research to explore how Caltrans can employ the most cost-efficient means possible to gather, store and utilize bicycle and pedestrian (as well as transit) trip data would be welcomed. Caltrans is particularly interested in finding efficient ways to track these mode shares to determine if targets are being met.² Research to explore innovative roles for alternative-fuel vehicles or advanced technologies in the realms of transport health and safety would also be of interest.

Goal 2: Stewardship and Efficiency

Proposals are sought to enhance the management of California's transportation-related assets. With the sun-setting of Proposition 1B, the state is shifting its focus away from capacity-building projects, and toward the maintenance and repair of aging infrastructure, particularly for roads. Proposals to explore "costs" (broadly defined to include lifecycle costs) of deferred activities would be of interest, as would proposals to explore innovative roles for technology in the realms of maintenance and repair. Strategies for raising revenues, whether through tolls or other mechanisms, would be of interest as well.³ Also welcomed would be research to advance: the state's nascent efforts to develop an *Asset Management Plan* to preserve the condition of its transport assets and enhance system performance; or its *Interregional-Transportation Strategic Plan* to prioritize projects statewide.

Goal 3: Sustainability, Livability and Economy

Research is sought that can aid the state in making smarter, longer-lasting mobility decisions to improve the environment, support a vibrant economy and build communities, rather than promote sprawl. Proposals to better integrate components of the state's multi-modal systems would be of interest, including those that advance California's *Rail Plan*, or that support the state's *Transportation Plan 2040*. These documents can be accessed at: www.dot.ca.gov/californiarail/ and www.dot.ca.gov/hq/tpp/californiatransportationplan2040/2040.html, respectively.

Also welcomed would be proposals to improve access to public and non-motorized transport options, or to enhance livability and local economies via innovative smart-growth measures or land-use policies. Research would also be welcomed that links transport to other infrastructure systems, perhaps by

² Caltrans Division of Transportation Planning seeks to triple the state's share of bicycle travel, and double the shares of pedestrian and transit trips.

³ Principal investigators considering ideas in the realms of congestion pricing, especially VMT-based policies, or of managed lanes should review UCONNECT research projects awarded in previous funding cycles (visit www.uconnect.berkeley.edu/research) to avoid submitting proposals that might be viewed as duplicative of past or ongoing Center-supported work.



exploring: transport's impacts on water and air quality; the planning of more resilient transportation systems in the face of rising sea levels or other effects of climate change; or links between electric vehicles and the power grid. Efforts to develop sustainability metrics for prioritizing projects would be of interest as well.

Also of interest would be proposals to explore transportation planning at mega-regional scales that group together neighboring metropolitan areas. Inter-jurisdictional decision-making at that scale would be a welcomed thrust. Proposals exploring mobility issues in rural settings would be welcomed as well. Finally, proposals to advance California's Freight Mobility Plan would be of interest. The plan can be accessed at: www.dot.ca.gov/hq/tpp/offices/ogm/california_freight_mobility_plan.html. The plan lists goals that correspond to the following seven topic areas:

- (i) Freight Performance Metrics
- (ii) Economic Competitiveness
- (iii) Safety and Security
- (iv) Freight System Infrastructure Preservation
- (v) Environmental Stewardship
- (vi) Congestion Relief
- (vii) Innovative Technologies and Practices

Thrusts in this (freight) area might cover: explorations of where and how public versus private investments should go for freight distribution; innovations for first- and last-mile deliveries; issues of small-package delivery with the rise of internet shopping (including impacts on congestion and the environment); or study of logistical sprawl, where warehousing in remote areas with lower land costs may increase VMT.

Goal 4: System Performance

Proposals to develop more integrated transportation systems are sought, to provide greater reliability and accessibility to travelers. Proposals to advance California's *Transportation Plan 2040* would be welcomed. So would proposals to better integrate components of the state's multi-modal transport systems. Thrusts in this realm might focus on first- and last-mile connections to longer-haul modes, such as high-speed and intercity rail. Mobility aspects of the sharing economy would also be of interest, including explorations on the shared use of electric- or smaller-sized vehicles. Research to better understand impacts of new mobility platforms like Uber and Lyft (e.g. on congestion or on disruptions to the economy) would be welcomed. So would proposals dealing with innovative street designs, particularly in metropolitan areas and town centers, or that advance the state's *Complete Streets Implementation Action Plan 2.0*.

Goal 5: Organizational Excellence

Finally, proposals are sought to further Caltrans' national leadership in delivering quality service through excellent employee performance, public communication, and accountability. Proposals to aid Caltrans in its focus on transport planning or operations would be welcomed. So too would research to enhance



Caltrans' organizational excellence, or to advance the expertise of its personnel, including but not limited to its supervisory personnel, to meet evolving challenges. Research on initiatives that promote creativity and innovation among Caltrans personnel would be of interest, as would research to improve Caltrans' communication methods, or to enhance its practices in collaborating with other agencies.

2. Eligibility for Awards

To serve as a faculty lead in a proposal for this call, an applicant from one of the five UC campuses within our consortium,⁴ or from our consortium's affiliate campus, Cal Poly, Pomona, must be approved by his or her campus to serve as a Principal Investigator (PI). The PI is ultimately responsible for the conduct of the project and for satisfying award requirements; see Sections 5 and 9 of this call. Proposals that entail collaborations across any of the five UC campuses and/or our affiliate campus are encouraged, as are proposals that pursue research that is multi-disciplinary in nature. **Junior faculty members are especially encouraged to respond to this call**, since the center welcomes opportunities to help advance early careers.

A researcher within the consortium who is not eligible for PI status may still be included in a proposal, with his or her salary covered in place of the PI's; see Section 6.3 for limitations on salary compensation through this grant. The same is true for a visiting scholar who is officially affiliated with a campus within the consortium. Though exceptions may be made for special circumstances that are fully explained in the proposal, researchers not officially associated with our consortium or affiliate are ordinarily not eligible for funding through this call.

2.1 Restrictions on the Number of Submissions

Eligible faculty may submit no more than one proposal as a PI, and one additional proposal as a co-PI, in response to this call. PI's who presently have ongoing or pending research funded through UCONNECT or UCTC (the forbearer to our present center) are eligible for funding under the present call. However, a submitted proposal is expected to entail research work that is distinct from any of the PI's of co-PI's past or present UCONNECT and UCTC Faculty Research Grants.

2.2 Budgetary Constraints

Eligible faculty members are asked to bear in mind that the funding available for this call (\$630,000 approx.) is appreciably lower than in previous calls. We therefore expect that fewer proposals will be awarded this time around than in previous cycles.

2.3 Separate Program for Dissertation Grants

A separate program has been established to financially assist doctoral candidates in completing their dissertations. Faculty should therefore not submit proposals to support dissertation work under the

⁴ University of California campuses within the consortium are: Berkeley, Irvine, Los Angeles, Riverside and Santa Barbara.



present call, but can instead inform students of UCONNECT's ongoing competitions for dissertation grants.

3. Performance Period

Successful applicants will receive 1-year grants. All projects are to begin February 1, 2017 and end January 31, 2018. No-cost time extensions beyond January 2018 will not be possible. Nor can a PI defer a project's start date beyond February 2017.

4. Funding Levels

UCONNECT faculty grants are intended to seed new research directions and therefore offer only modest levels of financial support. Grants to individual faculty cannot exceed \$120,000. The center will fund proposals of up to \$175,000 for research that involves collaboration between two or more PI's from a single campus. Awards as high as \$200,000 may go to collaborative research efforts that involve two or more campuses within our consortium, and multi-campus proposals would be enthusiastically welcomed.

The expected maximums cited above include indirect cost (i.e. overhead) of 17.5%. Budgets submitted from our affiliate campus, Cal Poly, Pomona, must include an additional 26% indirect cost rate on the first \$25K of budgeted costs. UCONNECT may adjust the amounts budgeted to winning proposals if this is needed to meet the center's own budgetary constraints; see sec. 2.2.

4.1 Non-Resident Tuition

Funding for Non-Resident Student Tuition (NRT) is not to be included in a proposal submitted in response to this call. Instead, the intent to hire a non-resident student (and an attendant request for NRT-funding) should be indicated in a separate cover letter to accompany the proposal. All NRT requests will be scrutinized, and separate awards for NRT support will be made as funds permit. NRT funds can only be awarded after a non-resident student researcher has been hired for a project. Funds awarded for NRT may not be used for any other purpose.

4.2 Domestic Travel

Certain travel costs can be budgeted into a proposal, but only for trips that bear directly on project performance (e.g. field trips to collect data, meetings with collaborators, etc.). **Funds to attend conferences, such as the TRB Annual Meeting, are NOT available under this grant.** Awards will be made for domestic travel only (i.e. travel funds are not available for trips outside the US). We do not anticipate that the allocation of travel funds will exceed \$2,500 for any one project, though exceptions can be made if reasons specified in the proposal are compelling.

5. Project Deliverables

Project deliverables may to some degree vary with the nature of the proposed research. However, the deliverables from all projects are to include a report or working paper that describes research results. This document is to be submitted immediately upon completion of the research project. (The document's title and scope are to be consistent with that of the funded proposal.) UCONNECT staff will post these documents on the center's website. Upon a PI's request, a report or working paper can be augmented by any published journal articles that come later.

To ensure that the outcomes of UCONNECT research reach wide audiences, PIs are further required to do at least one of the following within 1 year of project completion: (i) publish a shortened version of the report in *ACCESS Magazine* or similar professional publication; (ii) submit a 500- to 600-word, 2-page UCONNECT *Policy Brief*; (iii) present the work in formal fashion to a meeting with Caltrans personnel or in a Caltrans-UTC webinar or similar on-line forum targeted to practitioners. Presentations at conferences or professional meeting (e.g. the TRB Annual Meeting) would NOT fulfill this third requirement.

Very importantly, as findings from the research begin to take shape, the PI and other project participants are expected to work with Caltrans staff as needed to (i) determine which forms of deliverables make most sense in light of those findings; and (ii) refine and ready research results for professional use.

Along these same lines of thought, ***PI's of funded proposals may be asked to deliver workshops on their ideas to staff at Caltrans and other agencies.*** Workshops might be on the order of 2-hours in duration, and could be delivered: near the start of the research project so as to develop partnerships and refine project scope; and perhaps again at or near the completion of the work. The center will make additional funds available to cover any unexpected extra costs incurred by having to deliver workshops.

Other key reporting requirements and expectations that accompany each grant award are described in Section 9 of this call. Prospective PIs and co-PIs should consider carefully the information in that section.

Of special note: UCONNECT-funded research projects are expected to yield useful products. Hence a proposal's expected deliverables will weigh heavily when making awards.

6. Proposal Contents

A proposal is to consist of three components, to be designated Components A, B and C. These are to be submitted electronically in separate documents. There are strict page limits associated with these components, as noted below. Proposals that exceed these limits may be rejected without further review.

6.1 Proposal Component A

Component A of each proposal will be sent to external peer reviewers and to Caltrans reviewers; and is to consist of the following elements.

1. A title page to include: the PI's name and institution (along with those of any co-PI); and an abstract that is not to exceed 200 words.
2. A description of the proposed research that is to include the following:
 - A Problem Statement describing background and the proposed work.
 - Discussion on the proposal's relevance to one or more of the 5 priority research goals described in Section 1 of this call. The discussion should specify which of the priority goals are addressed in the proposal, and the manner in which the proposed work would advance that goal or goals.
 - Description of the Methodology to be used. ***A degree of detail is very important in this regard.*** Moreover, if the work is to include the collection of original data, the discussion should comment on (i) the likelihood of completing that element of the proposed work within the project's 1-year time frame; and (ii) plans to make the data freely available to the user and research communities. UCCONNECT advocates an open-access policy for data sharing. (Applicants seeking an exemption to this policy should clearly explain why in their proposals.) If data are to be procured from outside sources, indicate whether arrangements have been made with the data provider.
 - Task descriptions and estimated time schedules for each task
 - Expected Results and Products; see again the last paragraph of Section 5
 - Key References

Appendices may be added at the applicant's discretion, but these would count as part of the (strictly-enforced) page limit for Component A.

As regards that page limit, all discussion pertaining to item 2 above is not to exceed 10 pages in total, double-spaced with minimum 11-point font and 1" margins. Page numbers are to be included at the bottom center of each page. (Applicants will note that the maximum page length for Component A of the proposal is therefore 11 pages: a 1-page cover sheet, plus a research description not to exceed 10 pages.)

6.2 Proposal Component B

Component B of each proposal is to consist of the following five elements.

1. A UCCONNECT cover page, 1-page only. The template for this cover page is available at www.uconnect.berkeley.edu/research/uconnect-2017-18-faculty-research-rfp.
2. A staffing plan, not to exceed 1 page, describing the proposed role of each project participant, including student participants. Describe both the budgeted- and pro-bono time of all participants.
3. A summary, not to exceed 2 pages in total, of the PI's and any co-PI's accomplishments on past UCCONNECT or UCTC research grants, if any. List all products supported by those earlier grants, including working papers, reports, journal publications or other articles, conference presentations, testimonies and public service. Also list any additional participation in past UCTC- or UCCONNECT-sponsored activities, including student conferences or other meetings, committee assignments and grant reviews.
4. Brief statements identifying any research funding from, or pending proposals to, other agencies that is related to your present UCCONNECT proposal. Funding from multiple sponsors is encouraged and reporting on these sources, if any, is a requirement.
5. A brief CV, not to exceed 2 pages, for each of the principal research participants.

6.3 Proposal Component C (Budget)

Component C is a 1-year budget and timeline for the project. The spreadsheet template is available at www.uconnect.berkeley.edu/research/uconnect-2017-18-faculty-research-rfp. The template, which includes two worksheets, is to be filled-out.

Your budget may include:

1. One summer-month of salary for each faculty PI and co-PI (if any). Non-tenured Assistant Professors may request up to two months of summer salary.
2. One student researcher for each PI and co-PI, each to be funded up to ½-time for the academic year and up to 100% for as many as 3 summer months.
3. Employee benefits.
4. Supplies and expenses (e.g. copying, shipping, computing expenses, etc.) not to exceed \$4,000.
5. Domestic travel, as described in Section 4.2.
6. Indirect charges: budgets must reflect overhead rates of 17.5%. Budgets submitted from our affiliate campus, Cal Poly, Pomona, must include an additional 26% indirect cost rate on the first \$25K of budgeted costs.

Recall that a budget in Component C is not to include costs of Non-Resident Tuition; see again Section 4.1 for instructions on requesting funds to cover NRT cost. Equipment totaling more than \$5,000 is not allowed, nor can UCCONNECT cover costs for administrative staff.



7. Submission Instructions

Applicants are to submit Components A, B, and C of the proposal as separate attachments to a single cover letter. There is to be **three** attachments in total: one attachment for Component A of the proposal; another for Component B; and one budget template for Component C. Each attachment is to be in pdf format.

For ease of handling, we ask that applicants name their attached files using a convention like: Proposal_Component A [or B or C]_PI Last and First Names; e.g. Proposal_Component B_Smith_John.

We ask that the cover letter include the names and contact information of suggested external reviewers for the proposal.

The cover letter and its four attachments are to be submitted by email to: uconnect@berkeley.edu **no later than October 4, 2016 (11:59pm PST).**

7.1 Submission Verification (IMPORTANT!)

It is the policy of UCONNECT to handle submitted proposals with all due diligence. Still, to address the possibility of a misplaced proposal, UCONNECT will adhere to the following practice.

UCONNECT staff will confirm receipt of each proposal via email within 24 hours of its submission. (This verification will be sent to the email address used to submit the proposal documents.) **Should email confirmation of a proposal's receipt not arrive within 48 hours of its submission, it is incumbent on the PI (or his/her agent) to notify UCONNECT staff of this discrepancy.** Said notification can be made via email to: uconnect@berkeley.edu and cassidy@ce.berkeley.edu.

Should any proposal be lost in the submission process, discovery of that lost proposal must be made by October 13, 2016. *Any lost proposal discovered after October 13 will not be reviewed and will not be eligible for funding under the present call.* No exceptions will be made in this regard.

8. Review and Award Processes

Awards will be made on a competitive, peer-review basis. Component A of each proposal will undergo a confidential, single-blind external review by university researchers (not from the PI's campus) and senior professionals, including Caltrans professionals, with expertise in the topic(s) addressed in the proposal. Reviewer comments will be provided to all applicants.

Again, we ask that the applicant suggest external peer reviewers for Component A of his or her proposal. Suggested names and contact information can be included as part of a cover letter to accompany the proposal.



Components B and C of each proposal will be reviewed by a panel composed of UCONNECT staff and Caltrans leadership.

The reviews of Components A-C will form the basis for a proposal's selection for award. External and Caltrans reviews of Component A will typically carry the most weight, though a PI's and any co-PI's accomplishments on any previous UCONNECT or UCTC grants, and participation in UTC activities (as described in Component B) will also be a consideration, as will the reasonableness of the proposal's budget (Component C). Some proposals may be funded at reduced levels. Funding may be contingent upon: revising a proposal in response to reviewer comments; and/or refining a project's scope of work in response to collaborative discussions with Caltrans leadership.

9. UCONNECT Research Policies and Requirements

The PI of each awarded project is responsible for the following.

1. Collaborate with UCONNECT staff to define a Data management plan in compliance with the US DOT Public Access Plan. At the start of each project, the PI(s) will be expected to (i) have or acquire ORCID identification; and (ii) respond to a "Data Management Questionnaire" prepared by UCONNECT personnel. These personnel will work with PIs to assist them in fulfilling this requirement.
2. A brief report on progress and expenditures, to be submitted quarterly upon request of the Caltrans Task Manager and/or UCONNECT personnel.
3. Information on all students engaged in the project, whether their efforts are funded or not, to be submitted in response to periodic requests from the campus' Associate Director or UCONNECT staff at Berkeley. Student contributions are to be further acknowledged in any publications resulting from UCONNECT funds, whether by co-authorship or by some other form of mention within the publication.
4. A working paper or report to be submitted immediately upon completion of the research project. The title and scope of this report should be in keeping with the topics and themes described in the original proposal for the work.
5. So that UCONNECT outcomes might reach wide audiences, PI's are required to submit at least one of the three additional deliverables described in Section 5 of this call within one year of the project's termination date.
6. Also as previously noted in Section 5 of this call, PI's may be required to prepare and deliver one or more workshops on their research, should the work be judged suitable for this.