

**CALL FOR SUBMISSIONS (CFS)
CFS Number 2017DES**

**California Department of Transportation
Division of Engineering Services
2016-2017 Research Proposal Guidelines**

A CONTRACT MAY OR MAY NOT BE AWARDED FROM THIS CFS.

The Division of Engineering Services (DES) of the California Department of Transportation (Department) is requesting research proposals from public research institutions; such as public colleges, universities, and government agencies that bring solutions to the Department's research problems. Respondents are encouraged to collaborate with industrial and public agency partners, to enhance the research and to facilitate communication of research results to those who deploy and operate transportation systems (technology transfer).

Private universities or institutions are not eligible participants under this Call For Submissions (CFS) process and direct submittals from these institutions cannot be accepted. Public institutions using subcontracts with private entities are subject to certain conditions and may not be eligible under this CFS process.

PROPOSAL FORMAT AND CONTENT

The research proposal should provide a detailed description of the research to be undertaken. The body of the proposal shall be limited to **twenty (20) pages maximum**, not including curriculum vitae or supporting appendices. Each proposal, including curriculum vitae, budget, timeline, appendices and cover page, must be in a single file, in either a Microsoft Word (*.doc) compatible format or an Adobe PDF compatible format. No zipped files will be accepted. The proposal shall contain the following information and be presented in the following order:

1. Cover
2. Executive Summary
3. Table of Contents
4. Research Plan
 - a. Introduction
 - b. Problem
 - c. Background/Business Case
 - d. Research Approach
 - e. Anticipated Research Results and Benefits of Research
5. Research Team
 - a. Qualifications
 - b. Accomplishments
 - c. Other commitments
6. Equipment and Facilities
7. Work Schedule (showing all deliverable milestones)
8. Itemized Budget (based on task deliverables and contract year)

9. Partnerships/Subcontracts
10. Appendices
11. Vitae

1. Cover Page

The cover page must include the date, CFS problem statement title; proposal title; lead researcher's name, affiliation telephone number, email address and address; key supporting researcher(s) name(s) and affiliation(s); name(s) and address(es) of any organization(s) with which a joint venture is proposed, if such is the case; the name and title of the person formally submitting the proposal (i.e. contracting officer); the project duration; and the project budget for each specific fiscal year where research is performed and a total budget summary across all calendar years (see Figure 1).

2. Executive Summary

The Executive Summary should be a concise, easily understandable presentation of the proposal in two pages or less. Each item from #4 through #10 above should have a separate heading and a brief description.

3. Table of Contents – Self Explanatory

4. Research Plan

The research plan shall be subdivided into the following sections:

(a) *Introduction* - The introduction to the research plan should provide a concise overview of the respondent's approach to conducting the research. It should describe the manner in which the expertise and experience of the proposed team will be used in the research, and the application of special data, facilities, contacts, or equipment should be presented. The introduction should highlight the linkages of the proposed team's capabilities to the project tasks and the manner by which the proposed plan will satisfy the objectives.

(b) *Problem* - Provide a brief technical description of the problem and why a solution is needed.

(c) *Background/Business Case* - Provide a brief discussion of the background and business case supporting the proposed research effort. Topics for discussion may include the following:

- Review related/complementary research completed or underway in the problem area. (i.e., a review of the literature).
- State proposed research scope, objectives, and motivation; specifically addressing the Department's goals.
- Describe the impact of the proposal on the existing transportation issue/problem/need.
- Provide a brief benefit/cost statement, indicating the anticipated benefits that will be derived from the ultimate product that is the subject of the work to be performed in the proposal.

(d) *Research Approach* - This section shall be used to describe the proposed methodology of the research and how the objectives will be achieved through a logical, innovative, and rational scientific plan. The plan shall describe each phase or task of the research to be undertaken. Explain the proposed research methods in sufficient detail to enable evaluation of feasibility, originality and significance of the proposal.

If appropriate to the content of the proposal, describe the current technology, policy or process that is the subject of the proposal. If the research project involves selection of a specific solution from among multiple alternative approaches, explain the reasoning behind that selection.

- Describe the alternatives.
- Identify the alternative that best satisfies the objectives.
- Explain why the selected solution was picked over the other alternatives.

The tasks necessary to achieve the objective of the proposal should follow the following format. Note that each task **must** have a “measureable” deliverable.

Task 1: Describe the first step of work detail. What is required to start, complete and maintain the project or service? Identify tasks and any related subtasks on how you would organize the work.

Deliverable: Describe what items, products or results will be delivered. What performance criteria or performance tests for the products and/or services (which demonstrate that the project deliverables satisfy the stated goal)? Are there specific questions to be answered or issues to be addressed? This should be a measurable item, achieved milestone or benchmark to complete a task. What will be accepted by Caltrans Contract Manager before Contractor begins with the next task?

Timeline: Months 1–4. If travel is associated with this task, it must be referenced within the task and what the purpose of the travel is and how it is necessary for the overall accomplishment of the research project. A separate travel table can also be prepared and included to show who is travelling, where, when, and why with the associated travel costs.

Subsequent Tasks: *Continue listing Task Descriptions; state the deliverable and duration for each task.*

(e) *Anticipated Research Results and Benefits of Research* - The research plan for each proposal shall contain specific statements describing the anticipated research results. The results should be presented in terms of the language and working tools of the practitioner or administrator so as to be immediately applicable to practice. Consequently, there must be specific statements of the manner in which the desired results would be reported (e.g., mathematical models, design techniques, field or laboratory test procedures or recommendations for changes in Department policy, practices, procedures, or standard highway specifications).

5. Research Team

When relevant, highlight the contribution of other researcher collaborations (across disciplines and campuses or with private sector) to the project.

(a) *Qualifications of the Research Team* - Proposals must describe how the research team members' academic, industrial, and/or research experiences relate to the project to be undertaken. (Identification and contact information for all researchers should be on the title page, leaving this section specifically for documenting the background and skills each researcher brings to the project. This should NOT be a copy of the Vitae, but a succinct summary of those skills and experiences that contribute to solving the problem being researched.)

(b) *Accomplishments of the Research Team* - Proposals shall contain a summary of the past accomplishments ("track record") of the research team in the same, or closely related, problem area of the project to be undertaken. This summary is to include full particulars concerning all known instances of application to practice of the agency's research results. If no such knowledge exists, it should be so stated. (Again, this should NOT be a copy of the Vitae, but should identify specific accomplishments that will contribute to the success of this project)

(c) *Other Commitments of the Research Team* - Proposals shall contain a listing of current organization and personnel commitments to work on this project and to work other than this proposed project. The description shall be provided in sufficient detail to indicate that the organization and all of the individuals assigned to the proposed project will be able to meet the commitments of the proposal.

6. Equipment and Facilities

This section shall include a description of the facilities available to undertake the research and an itemization of the equipment on hand that will be used to complete the research. In the event that use of the facilities or equipment is conditional, the conditions should be described. In the event that certain facilities or equipment are considered necessary to undertake the research but are not on hand, that fact should be presented. The respondent should identify any arrangements that will be made to purchase, borrow or rent necessary equipment. Letters of commitment should be included in the appendices to indicate the availability and commitment of equipment. Rental rates should be included in the budget for equipment to be rented. In the case where it is contemplated that additional equipment will be purchased under project funds, be certain that the budget item "capital equipment" indicates this and a detailed price list is included in the proposal.

7. Work Time Schedule and Deliverables

For planning purposes, any resulting contract(s) should be executed prior to **June 30, 2017**. The time required to complete the research project shall be clearly specified in the proposal using a months after contract award (MACA) basis. Proposals will not be rejected if the proposed time does not exactly match the time specified in the research problem included in this CFS; however, any differences must be clearly identified and explained in the proposal. In addition,

proposal shall include a Gantt chart type of schedule that shows each phase or task of the work. Schedule shall identify when a phase or task will begin, how long it will continue, and when it should end. The schedule and timetable should clearly delineate the points in time where a project deliverable and/or report are planned. For reports, the timeframes shown in the proposal schedule shall be sufficient to allow for initial development, shall include a single 45-day Caltrans review of any draft documents, shall accommodate incorporation of Caltrans comments and suggestions, and shall also accommodate the final submittal and approval cycle with an additional 45-day approval period of the final document. Any additional internal requirements that a proposer may need to accommodate that could affect the schedule of the research, shall clearly be delineated within the schedule and stated as a contingency.

At the conclusion of the project, the researcher(s) shall deliver a final report and shall also **present** the research results to the Department in a workshop forum, including a full explanation of the perceived applied usefulness of the research and follow-on steps. This may be done as a single-topic workshop or bundled with other related topics benefiting from a meeting style presentation. (Expenses, including travel, for this workshop shall be included as part of the budget and the workshop shall be shown on the schedule.)

8. Itemized Budget

The estimated cost for the project should be based on the proposed performance period. Lump sum estimates are not acceptable; budgets shall be detailed and itemized by task and contract year. A contract year is defined as a twelve (12) month period following contract execution.

The budget table must include hourly breakdowns for every principal member of the research team, including consultants and subcontractors. Actual hours should be shown rather than months or dollars. In addition, it is preferred that only one table be submitted rather than separate tables. The table should be located immediately behind the *Itemized Budget*.

Budget categories must include, at a minimum:

- a) The number and type of personnel, their associated labor rates and benefit rates;
- b) Equipment, (each major equipment item over \$5,000 must be specifically identified);
- c) Supplies and Miscellaneous Expenses;
- d) Travel; and
- e) Direct Overhead.

All expenses must be detailed and justified (e.g., benefit, subcontract, material, labor, etc.). Note, the approved overhead rate for this CFS is 17.5%.

Proposals shall be a fully developed bid with a clear Scope of Work linked to timelines in months after contract award. It is not necessary to use specific dates (i.e. April 1, 2014) for task durations, milestones, and deliverables within the schedule. It is sufficient to use days/weeks/months after contract award for timeframes within the schedule. Provide only a single text reference for the anticipated start date as part of the proposal. Each major line item in the schedule shall be fully justified within the budget.

9. Partnerships/Subcontracts

If assistance in the form of personnel, data, or equipment, etc is required from other agencies, public or private, describe the plans for obtaining such help or information. In the case where cooperative features play an important part in the conduct of the research, a letter of intent from agencies agreeing to provide cooperative features should be included in the appendices.

10. Appendices

The appendices may include such things as letters of intent from agencies agreeing to provide cooperative features, or letters of commitment regarding any arrangements that will be made to purchase, borrow or rent necessary equipment. Appendices shall be limited in use to important supporting information. Excessive use of appendices to expand the general overall proposal may result in a lower grade for the proposal.

11. Vitae

The proposer may include customized Curriculum Vitae for each member of the research team, highlighting only those items that are pertinent to this specific research proposal. The Vitae, including a list of publications and awards, should **not exceed two pages per researcher.**

FIGURE 1 Example Cover Page

COVER PAGE

CFS Research Topic Use CFS Research Topic Title

Proposal Title:

Proposing Organization: (Use respondent name that will appear on contract; include address,
email, and telephone number)

Person Submitting Proposal: (Name and address of Contracting Officer)

Proposal Date: _____

Principal Investigator: (Name, Title, Business Telephone Number and e-mail address)

Additional Investigators: (Name, Title, Business Telephone Number and e-mail address;
include all team members other than PI)

Proposed Contract Period: (In Months)

Year 1 Cost: _____

Year 2 Cost: _____

Year 3 Cost: _____

Year 4 Cost: _____

TOTAL COSTS: _____
