

Information and Instructions

for Preparing Proposals

for the

**Transportation Research Board's
Cooperative Research Programs**

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TRANSPORTATION RESEARCH BOARD
OF THE NATIONAL ACADEMIES

CONTENTS

I. General Information, 1

The Cooperative Research Programs, 1
Administration, 1

II. Sequence of Events for Research, 3

Research Programs, 3
Research Projects, 3
Project Statements, 3
Proposals/Contract Award, 3
Types of Research Contracts, 5
Nondiscrimination, 5

III. Research Administration, 6

Amplified Research Plan (Work Plan), 6
Monthly Progress Reports, 6
Quarterly Progress Reports, 6
Adherence to Original Research Objectives and Budget Estimates, 6
Advance Approvals, 7
Principal Investigator, 7
Payments, 7
Subcontracting, 7
Disadvantaged Business Enterprise Plan, 7
Reports, 8
Copyrights, 8
Patents and Inventions, 8
Insurance, 9
Disposition of Equipment, 9
Data Rights, 9
Fulfillment of Contract, 9

IV. Instructions for Preparing and Submitting Proposals, 10

General, 10
Deadlines, 10
Transmittal, 10
Liability Statement, 10
Acknowledgment, 11
Presentation, 11
Organization, 11

CONTENTS (continued)

Details of Essential Content, 11

1. Cover, 11
2. Summary Page, 11
3. Table of Contents, 12
4. Research Plan, 12
5. Qualifications of the Research Team, 13
6. Accomplishments of the Research Team, 13
7. Other Commitments of the Research Team, 13
8. Equipment and Facilities, 13
9. Time Requirements, 14
10. Itemized Budget, 14
11. Cooperative Features (if appropriate), 16
12. Appendixes (if appropriate), 16

V. Figures, 17

I

General Information

This brochure consists of four sections, with the respective objectives of (I) describing in general terms the Cooperative Research Programs (CRP or programs) and their administration by the Transportation Research Board (TRB), (II) describing the sequence of events leading to research, (III) describing the administrative requirements to which agencies are contractually committed, and (IV) setting forth the specific instructions for preparing and submitting proposals on CRP projects. **Readers are cautioned that a thorough understanding of both the third and the fourth sections is necessary to the preparation of acceptable proposals. Matters of ambiguity should be covered with CRP staff prior to proposal preparation so that the risk of proposal rejection may be minimized.**

The Cooperative Research Programs

Systematic, well-designed research provides the most effective approach to solving many problems facing transportation agencies and organizations. Often, transportation problems are of local interest and can best be studied by agencies individually or in cooperation with universities or other institutions and commercial organizations; however, research and development, of interest to many agencies and organizations, is best accomplished through a coordinated program of cooperative research. In doing so, the cooperative research programs operate complementary to, rather than as a substitute for or duplicate of, other research programs.

In recognition of these needs, the National Cooperative Highway Research Program (NCHRP), the Transit Cooperative Research Program (TCRP), the Airport Cooperative Research Program (ACRP), the Hazardous Materials Cooperative Research Program (HMCRP), and the National Cooperative Freight Research Program (NCFRP) were established. More information on each of these programs is available at <http://www.trb.org/AboutTRB/Public/AboutCooperativeResearchPrograms.aspx>, including each program's scope, funding, and organization.

These programs do **not** operate on a grant basis. They are applied contract research programs totally committed to providing timely solutions to problems facing transportation agencies and organizations.

Because CRP projects seek practical remedies for operational problems, it is emphasized that proposals must indicate strong capability gained through extensive, successful experiences in the relevant problem areas. Consequently, any agency interested in submitting a proposal should first make a frank and thorough self-appraisal to determine whether or not it possesses the capability and experience necessary to ensure successful completion of the project.

Administration

Each of the CRPs has an oversight committee that is responsible for (1) soliciting research needs, (2) evaluating and selecting research topics, (3) setting project priorities and recommending funding levels, (4) ensuring the dissemination of research results, and (5) evaluating program effectiveness. The oversight committees are supported in these efforts by the staff of the TRB acting as Secretariat to the committees. The TRB is responsible for technical review and acceptance of research projects that are referred by the committees to the National Research Council (NRC) for acceptance and approval. The TRB is a unit of the NRC, which serves both the National Academy of Sciences and the National Acad-

emy of Engineering. Following project approval, the TRB administers the performance of individual research projects.

Each CRP project is assigned a panel consisting of outstanding individuals, knowledgeable in the specifics of the particular project, who provide technical guidance while research is in progress. Panel membership is reported in the TRB Online Directory and includes persons from transportation agencies and organizations; the federal government; universities; national associations; institutions with related interests; industry; and other agencies. Members are appointed as individuals possessing expertise in specialized areas and not as representatives of the organizations by which they are employed. The cooperative research programs have clearly established procedures for balancing bias and avoiding organizational conflicts of interest. As such, organizational and personal conflicts of interest are scrupulously avoided.

Panel members do not act as individual consultants or advisors to research agencies; any panel guidance to a research agency must emanate from a majority consensus. Also, a condition for accepting appointment to a panel is that members are prohibited from submitting proposals on projects under their jurisdiction.

The panels are responsible for (a) drafting definitive statements of objectives for research projects within the time and funds allocated; (b) developing an operational plan for the attainment of research objectives, including estimates of total cost and time requirements; (c) reviewing research proposals and making recommendations regarding selection of research agencies; (d) reviewing progress of research; (e) providing guidance regarding technical aspects of the research; (f) reviewing and evaluating project reports (including the final report) as to the accomplishment of objectives and suitability for publication; and (g) making recommendations regarding continuation of studies.

II Sequence of Events for Research

Research Programs

Research programs to be administered under the CRPs are referred annually to the NRC. Each program consists of a group of somewhat detailed statements of research problems considered to be of national importance.

Research Projects

Following NRC acceptance of each program, project panels are convened to prepare research project statements that describe the problems and the specific objectives for problem solution. Also stated in the project statement is the **Liability Statement** (see [Figure 1](#)), **which must be signed and not be altered in any way in order for the proposal to be considered.**

Project Statements

After the project statements have been developed by the panels, they are posted on the World Wide Web during the solicitation period at <http://www.trb.org/Projects/Public/RequestsforProposals.aspx>. Research agencies and individuals may register at that web site to receive e-mail notification of new postings.

Issuance of a project statement does not constitute an award commitment by the NRC nor does it obligate the NRC to pay for costs incurred in the preparation and submission of a proposal.

Proposals/Contract Award

In response to project statements, any interested agency or individual may submit a proposal following a self-appraisal of qualifications to determine whether or not the respondent possesses, either singly or through a joint venture with others, the requisites of capability and experience necessary to ensure successful completion of the research project. In the instances of joint ventures, a prime contractor must be designated, with full justification if the prime contractor will not carry out more than 50 percent of the work (budgeted cost). Proposals become the property of the TRB, are treated as privileged documents, and are disposed of according to Program policies (this includes the possibility that all proposals might be rejected).

CRP research may be conducted by colleges, universities, industry, research institutions and foundations, consultants, or others who possess extensive, demonstrated capability coupled with a proven experience record in the problem area. Overseas agencies may, but are not encouraged to, submit proposals. Although they may be able to document that they possess sufficient depth of knowledge of American practice, the complicated logistics involved in surveillance and administration of contracts overseas might make it less likely that such agencies would be selected.

The TRB encourages participation of small businesses, minority-owned firms, and women's business enterprises as contractors or subcontractors for CRP projects.

The total funds available are made known in the project statement, and line items of the budget are examined to determine the reasonableness of the allocation of funds to the various tasks. If the proposed total cost exceeds the funds available, the proposal is rejected. Proposals that provide for cost sharing at

a proposed total cost over and above the total funds available are not encouraged, and the evaluation will be based on the work proposed to be conducted with the advertised funds.

It is emphasized that the CRP procedures do not provide for pre-proposal briefings or for meetings with staff and panels in due course of proposal evaluation or agency selection. The proposal, therefore, constitutes the one-and-only opportunity for the agency to state its case.

Instructions for preparing proposals appear in the fourth section of this document. Proposers should read and follow this section very carefully. **In order to facilitate the review of multiple proposals by the project panels and the CRP staff, compliance with the instructions for preparing proposals in Section IV is mandatory.**

Acceptable proposals are forwarded to the appropriate panels for review and evaluation. Selection of an agency is made by the responsible project panel considering the following factors: (1) the proposer's demonstrated understanding of the problem; (2) the merit of the proposed research approach and methodology; (3) experience, qualifications, and objectivity of the research team in the same or closely related problem area; (4) the plan for ensuring application of results; (5) the proposer's plan for participation by Disadvantaged Business Enterprises—small firms owned and controlled by minorities or women; and (6) the adequacy of the facilities and equipment.

The NRC will award a contract to the responsible proposer whose proposal conforming to the project statement is most advantageous to the program, i.e., two-thirds of the project panel votes in favor. The NRC may award a contract on the basis of the initial proposals received, without discussions. Therefore, each initial offer should contain the proposer's best terms from a cost and technical standpoint. The NRC may (1) reject any or all offers if such action is in the NRC's best interest, (2) accept other than the lowest cost proposal, and (3) waive minor irregularities in proposals received.

The agencies with unsuccessful proposals are so notified, and the proposals are disposed of according to program policies. The policy of the CRPs is to provide a debriefing to unsuccessful proposers. The initiative for obtaining a debriefing lies with the proposers. The debriefing is intended to indicate to the proposers the technical areas in which their proposals were judged weak and deficient and how the weaknesses or deficiencies were factors in their not having been selected. All debriefings will be conducted in a scrupulously fair, objective, and impartial manner, and the information given to the unsuccessful proposers will be absolutely factual and consistent with the evaluations by the project panels. The factors constituting the basis for selection of the successful agency will be identified, but the debriefing will not include a point-by-point comparison of all the elements considered in the evaluation criteria. Neither will there be any revelation of confidential business information, trade secrets, techniques, or processes of the other proposers, nor will there be any indication of the relative merits or technical standing of the unsuccessful proposers.

Once agency selection has been made, the proposal review comments of the panel and the CRP staff are submitted to the selected agency, and a response may be required. Some minor modifications to the proposal may be indicated. Concurrently, the agency is requested to complete a representations-and-certifications form; provide documentation to support proposed individual costs rates; and forward information concerning its travel policy, indirect cost rates, and salary and wage schedules.

Types of Research Contracts

1. *Cost-Reimbursement (CR)*, which provides for payment to the contractor of allowable costs incurred in the performance of the contract, to the extent prescribed in the contract. This type of contract establishes maximum costs for purposes of (a) obligating funds and (b) setting a ceiling, which the contractor may not exceed (except at the contractor's risk) without prior approval of the National Academies. For this type of contract, it is essential that the contractor's cost accounting system is adequate for the determination of costs applicable to the contract and that appropriate surveillance by National Academies personnel during performance will provide reasonable assurance that the effort is proceeding satisfactorily.

2. *Cost-Plus-Fixed-Fee (CPFF)*, which is a cost-reimbursement contract providing for payment of a fixed fee to the contractor. The fixed fee, once negotiated, does not vary with actual costs, but may be adjusted as a result of a subsequent change in the work or services to be performed under the contract. *For this contract, a limit has been established of seven (7) percent of contract costs, exclusive of the fixed fees for the subcontractor, if any.* Generally, this form of contract will be used where a cost-reimbursement type of contract is determined to be necessary and there is agreement that the contract should be fee-bearing.

3. *Fixed-Price (FP)*, which provides for a price that is not subject to any adjustment by reason of the cost experience of the contractor in the performance of the contract. It is suitable for use in smaller contracts when reasonably definite performance specifications (Statement of Work) are available and whenever firm and reasonable prices can be established at the outset of the effort.

Most proposals are submitted using cost-reimbursement or cost-plus-fixed-fee budgeting. Proposers may choose the type of budgeting best suited to their situation.

Nondiscrimination

Contractors are required to comply with pertinent Regulations of the U.S. Department of Transportation (U.S. DOT) relative to nondiscrimination in federally assisted programs of the U.S. DOT and shall not discriminate against any worker because of race, color, religion, sex, or national origin. In the fulfillment of this provision, the contractor is required to provide all information and reports required by the Regulations, or orders and instructions issued pursuant thereto, and will permit access to its books, records, accounts, other sources of information, and its facilities as may be determined by the National Academies or the U.S. DOT to be pertinent to ascertain compliance with such Regulations, orders, and instructions.

III Research Administration

After executing the contract, the agency is expected to pursue the research aggressively and with due regard to the performance period. An initial visit will be made by a Senior Program Officer of the CRP staff in order to become acquainted with the research agency's facilities and personnel. Other visits will be made by the staff to maintain liaison with the project throughout the contract period. Annual trips to Washington, DC, by the principal investigator (PI) for consultation with Program staff may be requested. A procedural manual is provided to the research agencies selected for CRP contracts. This manual details and expands on the administrative and fiscal procedures described in the research contract.

Amplified Research Plan (Work Plan)

As a first step, the research agency will submit twenty (20) copies of an amplified research plan (work plan) for review and acceptance by the CRP. This plan, due not later than 15 days after the contract beginning date, is to provide a detailed expansion of the approved research plan and is not to be in conflict with the research plan. It is to describe completely the activities to be pursued in the conduct of the research, including a work-flow diagram by tasks and time, and should demonstrate clearly the accomplishment of the research within the specified period and funding, a factor that will be analyzed carefully during the review.

Monthly Progress Reports

Once each month during the course of the research, the contractor shall submit a two-part report consisting of the following:

1. A cover letter providing (a) a clear and complete account of the work performed on each task during that month; (b) an outline of the work to be accomplished during the next month; and (c) a description of any problems encountered or anticipated that might affect the completion of the contract within the time and fiscal constraints as set forth in the contract, together with recommended solutions to such problems (or a statement that no problems exist).
2. Three (3) copies of a project progress schedule consisting of graphical information depicting (a) a schedule of research activities and related current progress, (b) a comparative status of actual and estimated expenditures, and (c) a percentage completion of the subject research.

Quarterly Progress Reports

Quarterly progress reports (20 copies) are required from the contractor and are always prepared on the basis of calendar quarters. The contractor mails the report directly to the CRP project panel; the remaining copies are due in the CRP office by the last day of the quarter. Alternately, the CRP Senior Program Officer may request that the contractor send an electronic QPR to him or her that will be subsequently forwarded to the panel. Each report includes the monthly progress schedule for the last month of the quarter.

Adherence to Original Research Objectives and Budget Estimates

The proposal submitted by the research agency becomes the binding scope of work in the contract with the National Academies. Thus, in addition to the specific research objectives outlined in the contract, the

research agency's cost proposal is a part of the agreement. It is not the intent of the Program, however, to limit the PI's flexibility in conducting research that is consistent with the general scheme of the proposal. Therefore, the PI and the research agency are expected to manage the expenditure of approved funds in a manner consistent with the overall objectives. However, the contract amount cannot be exceeded, and anticipated major changes in the original estimate must be discussed in advance with the CRP and submitted to the NRC Office of Contracts and Grants for negotiation of possible modifications to the original contract. The CRP must be notified when promising new leads or unproductive lines of inquiry are discovered, especially if they might lead to significant deviations from the objectives of the original research.

Advance Approvals

Under the terms of the CRP contract, the following expenditures require prior written approval even though they are included in the proposal:

1. Equipment having a value in excess of an amount specified in the contract.
2. Travel to scientific or technical meetings.
3. Subcontracts for more than an amount specified in the contract.

Principal Investigator

The research is considered to be under the technical direction of the PI identified in the proposal, and it is expected that the PI will be available for the full contract period and will have major involvement in the pursuit of the research objectives. Replacement of the PI is subject to approval from the CRP.

Payments

Payments, exclusive of amounts withheld as a performance guarantee, will be made by the National Academies upon the submission of periodic vouchers (not more often than one a month) by the research agency. Complete instructions for the preparation of vouchers are issued by the National Academies at the time of contract execution.

Subcontracting

Advance written approval is required for subcontracts of more than an amount specified in the contract, even though provision for such is included in the proposal. At a minimum, the proposal should indicate the extent to which subcontractors will be used, the method of identifying subcontractors, and the extent to which competition will be used. An itemized budget and justification of the proposed subcontractor are required when submitting the subcontract for approval.

Disadvantaged Business Enterprise Plan

The proposer's plan for involvement of Disadvantaged Business Enterprises is a factor in selection of the contractor, and the contractor's adherence to its DBE plan will be monitored during the contract period. Contractors are required to submit periodic reports comparing actual with proposed payments to DBEs.

Reports

Final reports are required for all projects, and agencies must budget for one trip by the PI to the CRP offices to complete the understanding of what is required in the preparation and editing of such documents. Twenty (20) preliminary draft copies of the project final report are due in the CRP not later than 90 days before the contract expiration date. This preliminary draft is reviewed by the cognizant panel and staff, and review comments are transmitted to the PI approximately 45 days prior to the contract expiration date. The PI then prepares a final draft report that incorporates the reviewers' comments and reflects editing by a competent technical editor to ensure compliance with the CRP requirements for style and organization of reports as detailed in the brochure entitled *Preparing Your CRP Final Report*. One hundred (100) copies of the report, prepared in accordance with CRP specifications, must then be submitted to the CRP by the contract expiration date.

This procedure obviously requires agencies to give careful thought during proposal preparation to the level of funds that will be required to ensure satisfactory compliance with contract commitments regarding preparation, editing, submission, and revision of preliminary draft reports and preparation and submission of one hundred (100) copies of the report. Final acceptance of reports is based on the following criteria:

1. Fulfillment of objectives as set forth in the contract,
2. Adequacy of documentation, and
3. Clarity of presentation.

Based on the acceptance review, a decision is made concerning publication. Such publication is the responsibility of the TRB.

An interim report may be required from the agency to provide the CRP with information on a project's activities and findings at a point during the contract period. Twenty (20) copies of the interim report are required at a time specified in the agency's work plan and will be reviewed for acceptance under the same criteria as specified for final reports. It is not usually intended that interim reports will be published. If, however, the acceptance review or other factors determine that publication is warranted, the process is similar to that described for final reports.

Copyrights

All data, written materials, computer software, and other information prepared under the CRP contract and the copyrights therein shall be owned by the National Academies. The contractor and subcontractors will be able to publish this material for non-commercial purposes, for internal use, or to further academic research or studies. The contractor and subcontractors will not be allowed to sell the project material without prior approval by the National Academies.

Patents and Inventions

The disposition of patents and inventions is the responsibility of the research agency, and its obligations in this regard are set forth in the contract. Appropriate notice to the National Academies is required of inventions, discoveries, etc., and patent applications.

Insurance

Research agencies shall be required to maintain either (1) insurance that provides for general liability, automobile usage, and worker's compensation and employer's liability as required by law; or (2) self-insurance that provides the equivalent coverage.

Disposition of Equipment

Disposition of capital equipment acquired with projects funds shall be determined by the National Academies. The research agency may be given the opportunity to acquire the equipment after completion of the contract.

Data Rights

The NRC shall have the right to duplicate, use, and disclose in any manner and for any purpose whatsoever all data, whether delivered to the National Academies or not, under the contract and to authorize others to do so.

Fulfillment of Contract

Fulfillment of the contract includes submission by the research agency of an acceptable report. Other actions to be taken in closing out a contract involve audit of contract costs (including approval of final overhead rates), submission of a final voucher by the agency, disposition of data and equipment, resolution of patent rights, completion of a certificate of performance and release form, and other related business matters.

IV Instructions for Preparing and Submitting Proposals

General

Proposals are invited only in response to the issuance of CRP project statements. The CRPs are **applied research** programs that do **not** operate on a grant basis and have no funds available to support unsolicited proposals, however meritorious they may be. The projects are structured to seek remedies for pressing problems that exist nationwide; hence, proposals are desired only from agencies or individuals already having extensive, demonstrated capability and experience in the subject problem area. Further, it is expected that this high level of capability will be applied in meeting the commitments of the proposal—capability cannot be developed at project expense.

CRP research may be conducted by consultants, colleges, universities, research institutions and foundations, or others who possess extensive, demonstrated capability and experience in the subject problem area.

Proposals become the property of the CRP, are treated as privileged documents, and are disposed of according to Program policies, including the right to reject all proposals.

Deadlines

The deadline for *receiving* proposals, as shown on each project statement, is rigid, and extensions are not granted. Officially signed copies are not required; however, the agency's own internal policies prevail in this regard. Proposers may withdraw their proposals at any time. In order to be considered, proposals must be **received** in the CRP offices not later than the deadline shown. **Without exception, all proposals arriving after the deadline shown on the project statement will be rejected**

Transmittal

A letter of transmittal need not be sent with the proposal package. In the event an agency elects to send a transmittal letter, it is cautioned that the transmittal letter must not include information vital to the proposal. All information that is to be considered as part of the proposal **must** be bound in a **single volume** that will constitute the proposal in its entirety. Brochures, pamphlets, and other descriptive materials pertaining to the agency may be included as appendix material. CD-ROMs, video tapes, or computer diskettes are not acceptable for inclusion in CRP proposals, unless specifically called for in the project statement.

Liability Statement

A Liability Statement is included in every project statement (see [Figure 1](#)). **In order for the proposal to be accepted, the Liability Statement must be signed by an authorized official of the proposing agency, and shall not be altered in any way.** The statement should be mailed with the proposal. **If a fully executed statement is not received by the proposal deadline, the proposal will be rejected.**

Acknowledgment

The CRP will not acknowledge receipt of an accepted proposal unless a self-addressed, stamped postcard is included by the sender in the proposal package. The CRP will, as quickly as possible, advise agencies of proposals rejected from consideration, conveying the reason(s) for rejection.

Presentation

Proposers are cautioned to be concise and straightforward in their single-volume proposals. Material that is extraneous and not germane to the research project under consideration will detract from the quality of the proposal. In the interest of saving paper, reduced mailing costs, and ease of handling, proposal pages should be printed on both sides, using the lightest bond weight permitting such practice, and maintaining margins of 0.5 to 1 inch. All pages of the proposal shall be numbered; use 10-, 11-, or 12-point type.

Organization

All proposal information shall be presented in twenty (20) copies of a single-bound volume that has been checked sufficiently to ensure completeness and accuracy of detail. **Proposals that do not comply with the instructions in this brochure will not be accepted.** It is **mandatory** that the proposal contain the following information and that it be presented in the order shown below:

1. Cover
2. Summary Page
3. Table of Contents
4. Research Plan
5. Qualifications of the Research Team
6. Accomplishments of the Research Team
7. Other Commitments of the Research Team
8. Equipment and Facilities
9. Time Requirements
10. Itemized Budget
11. Cooperative Features (if appropriate)
12. Appendices (if appropriate)

For the convenience of the reviewers, items 4 through 12 should be separated with either color-coded or tab-type dividers so that information may be located quickly.

Details of Essential Content

1. *Cover*—The outermost covering of the proposal shall be either paper or cardboard and must be non-glossy, light-colored material capable of accepting rubber stamp ink without smearing. The cover shall contain the CRP project number (e.g., 1-01), the title of the project, the name of the submitting agency, and a “Limited Use Document” clause; copies shall be numbered sequentially from one to twenty in the upper right-hand corner. For guidance, an example of the desired information and layout of the cover is shown in [Figure 2](#).

2. *Summary Page*—The summary page shall immediately follow the cover and shall include the information arranged as shown in [Figure 3](#). Note that the summary page shall contain the project number and title; the name, address, and telephone number of the agency submitting; the name and address of the

agency with which a joint venture is proposed, if such is the case; the name and title of the person formally submitting the proposal; the name(s) and title(s) of the person(s) who actually wrote the proposal; the name(s), address(es), telephone number(s), and e-mail address(es) of the PI(s) assigned to the project; the name, address, telephone number, and e-mail address of the responsible administrative officer having cognizance of the project (this should be the individual authorized to bind the agency contractually and to approve the expenditure of project funds); the amount of time proposed to complete the research; the total amount of the budget contained in the proposal; and the percentage and amount of fixed fee, if any (refer to Section 10(k) below for fixed-fee limitations).

3. *Table of Contents*—Self-explanatory.

4. *Research Plan*—The research plan shall detail completely the prosecution of the research, including the submission of an acceptable final report. The plan ultimately becomes a part of the contract by reference of the proposal; therefore, it should describe in a specific and straightforward manner the proposed approach to the solution of the problem described in the project statement. It should be concise, yet include sufficient detail to describe completely the approach to solution of the problem. Research methodology shall be described in sufficient detail to permit evaluation of the probability of success in achieving the objectives. It is emphasized that CRP procedures do not provide for pre-proposal briefings or for meetings with staff and panels in the course of proposal evaluation or agency selection. The proposal, therefore, constitutes the one-and-only opportunity for the agency to state its case. 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 proposer'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) *Research Approach*. This section will be used to describe how the objectives will be achieved through a logical, innovative, and rational plan. The plan shall describe each phase or task of the research to be undertaken.

(c) *Anticipated Research Results*. The research plan for each proposal shall contain specific statements describing the anticipated research results. The results are expected to 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 guidelines for recommended practice.

CRP projects are intended to produce results that will be applied in practice, and proposals and the project final report must contain an implementation plan for moving the results of the research into practice. Under Item 4(c), each proposal must include an **Implementation Plan** that describes activities to promote application of the product of this research. It is expected that the implementation plan will evolve during the project; however, proposals must describe, as a minimum, the following: (a) the "product" expected from the research, (b) the audience or "market" for this product, (c) a realistic assessment of impediments to successful implementation, (d) the institutions and individuals who might take leadership in applying the research product, (e) the activities necessary for successful implementation, and (f) the criteria for judging the progress and consequences of implementation.

If the nature of a project is such that it is known initially that the results will not be amenable to immediate implementation into practice, the research plan must include recommendations for the additional work necessary to reach the implementation stage.

(d) *Applicability of Results to Practice.* The research plan shall include a section titled “Applicability of Results to Practice” that clearly describes how the anticipated research results can be used to improve practices. Clearly indicate the expected audience for the research results. The writer should present the strongest case possible to convince the reviewer that the results of the research will be practical and implementable.

5. *Qualifications of the Research Team*—Name, address, telephone number, and pertinent background information must be provided for the PI bearing primary responsibility for the project. The same information is required for other research team members participating to a significant degree. The proposal must describe how the academic, industrial, and/or research experiences of each research team member relates to the project to be undertaken.

Item 5 in the proposal must include a section labeled “Disclosure.” Information relevant to the CRP’s need to ensure objectivity and to be aware of possible sources of significant financial or organizational conflict of interest in conducting the research must be presented in this section of the proposal. For example, under certain conditions, ownership of the proposing agency, other organizational relationships, or proprietary rights and interests could be perceived as jeopardizing an objective approach to the research effort, and proposers are asked to disclose any such circumstances. If there are none, this should be stated.

Item 5 must also include the proposer’s plan for participation by disadvantaged business enterprises (DBEs)—small firms owned and controlled by minorities or women. The plan should demonstrate responsiveness to TRB’s encouragement of participation by DBEs. The proposal should include information on each DBE.

Federal, state, transit agency, or airport employees submitting or participating in proposals to conduct CRP research must also include in this section a letter signed by appropriate authority stating that the employee’s agency is aware of the proposal and approves of the employee conducting research in the event the proposal is successful.

6. *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.

7. *Other Commitments of the Research Team*—Proposals shall contain a listing of current organization and personnel commitments to other work 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. Staff-hour commitments and percentage of time committed to other work for each member of the proposed research team shall be specified.

8. *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 considered necessary 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 proposer should identify any arrangements that will be made to borrow or rent necessary equipment. Letters of commitment should be included to indicate the availability of equipment. Rental rates should be included in the budget. 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.

9. *Time Requirements*—The time required to complete the research project shall be clearly stated in the proposal. Proposals will not be rejected if the proposed time does not match the time specified in the project statement. However, the agency must justify any difference. In addition, a schedule shall be included that shows each phase or task of the work, when that phase or task will begin, how long it will continue, and when it should end. The timetable should clearly delineate the points in time where project deliverables and reports are planned.

10. *Itemized Budget*—The estimated cost for the project should be based on the proposed performance period. The budget shall reflect phase and/or task costs. Proposals will not be accepted where budgets are in excess of the amount shown on the project statement. Also, see Section II, *Proposals*, regarding cost sharing. Lump sum estimates are not acceptable; budgets shall be itemized in accordance with the following cost categories where appropriate:

(a) *Salaries and Wages*. Each employee to participate in the performance of the project shall be identified by name, with role, level of effort, and cost presented in the format specified in the terms of [Figure 4](#). It is recognized that the internal policies of some agencies prevent strict conformance with this requirement. In all such cases and prior to submitting a proposal, contact with the NRC Office of Contracts and Grants should be made to determine the possibility of waivers.

Note: The example shown as [Figure 4](#) should be followed as closely as possible. The table must include hourly breakdowns by task 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 by task. The table should be located immediately behind the *Itemized Budget*.

(b) *Borrowed Personnel*. Reimbursement to other employers for salaries and wages paid by them to their employees released for, and directly engaged in, the performance of the subject research, plus federal and state payroll taxes and related employee benefit plan costs.

(c) *Consultants*. Costs for services of independent consultants deemed necessary for accomplishment of the research.

(d) *Subcontracts*. Costs for services of subcontractors deemed necessary for performance of a portion of the research.

(e) *Capital Equipment*. Items with a value in excess of an amount specified in the contract per article or assembly required for the conduct of the research. Any article or assembly costing more than an amount specified in the contract is subject to approval in advance of purchase.

(f) *Materials and Services*. Materials, supplies, and other articles, including the cost of processing; testing; rental of apparatus and equipment from others; preparing, editing, and reproducing reports, including the final report for submission to the TRB; and services not provided for in Items a, b, c, and d

above. After the final report has been received and accepted, publication of that report is a responsibility of the TRB. Accordingly, the budget should provide only for preparing one hundred twenty (120) copies of the final report (20 preliminary, and 100 revised); twenty (20) copies of interim reports, if applicable; and twenty (20) copies of quarterly progress reports per quarter.

(g) *Communications and Shipping.* Long-distance telephone calls, telegrams, cablegrams, radiograms, postage, freight, express, drayage, etc.

(h) *Travel.* Transportation costs plus reasonable actual subsistence expenses (or an allowance in lieu of actual subsistence costs) of persons working directly on the subject research. While all travel shall be conducted in accordance with the research agency's stated travel policies, travel expenses shall not exceed the prevailing NRC rates/guidelines for such travel. Travel should include provision for annual visits by the PI for consultation with the CRP staff and, if the requirement cannot be satisfied through one of these visits, an additional visit to complete the understanding of what is required in the preparation, editing, and revision of final reports. Approval of individual trips is not required except for costs of travel to scientific and technical meetings.

(i) *Employee Benefit Plan Costs and Payroll Taxes.* Costs of group insurance and employees' pension and retirement plans and federal and state payroll taxes for employees working directly on the subject research.

(j) *Overhead.* An allowance for overhead costs determined in accordance with the research agency's usual method of accounting and generally accepted accounting principles. The current overhead rate should be extrapolated on the basis of previous years' trends to provide the best estimate possible for the anticipated contract period. Specify the rate (a fixed rate may be proposed, if the agency so chooses) and the base on which the overhead is applicable and include a statement supporting this rate. A negotiation agreement or statement from a Federal Government agency is acceptable for this purpose.

(k) *Fixed Fee.* In the event the agency desires to undertake work on this project on a cost-plus-fixed-fee (CPFF) basis, the budget shall include a line item showing the fixed-fee percentage and amount. **The fixed fee, which is subject to negotiation, cannot exceed seven (7) percent of contract costs exclusive of the fixed fees for the subcontractor, if any. Subcontractor fixed fee is also limited to seven (7) percent.** The contractor is required to submit in the proposal a justification for the amount(s) included in the budget, e.g., a statement of the complexities of administration.

In its consideration of these items, the National Academies is guided by the applicable U.S. Government regulations. All fiscal, budget, and other pertinent information must be bound with each proposal, in the single volume required.

Cost analysis of CRP proposals will be conducted by the project panel in coordination with the NRC Office of Contracts and Grants to determine the reasonableness of the proposed itemized budget. A determination of the need for a pre-award audit for financial accountability purposes will be made on a case-by-case basis.

Institutions of higher education and other nonprofit recipients are required to meet the audit requirements of OMB Circular A-133, "Audits of States, Local Governments, and Non-Profit Organizations." OMB Circular A-133 is also applicable to all higher education and nonprofit institution sub-recipients receiving \$25,000 or more in federally funded awards during a fiscal year.

11. *Cooperative Features*—If assistance in the form of personnel, data, or equipment is required from other agencies, public or private, describe the plans for obtaining such help or information. Such cooperative features could include paid subcontractors, unpaid volunteer participants, donations or loans of equipment or data, or agreements to provide access to roads or other facilities. A letter of intent from agencies or individuals agreeing to provide these cooperative arrangements should be included in the proposal.

12. *Appendixes*—The appendixes may include such things as statements concerning previous work on this problem or related problems, abstracts of related projects, a bibliography or list of references, or descriptive brochures or materials describing the agency's organization and capabilities in general terms. Any other material not specifically mentioned previously and believed to be relevant for purposes of the proposal may be included as an appendix.

In summary, it is expected that proposers will have studied the foregoing instructions and will have complied fully with them. Failure to do so, if not warranting outright rejection, will certainly raise serious questions as to how well the agency would handle a complex research project and would, therefore, seriously jeopardize the chances of being selected to conduct the work. In matters that require further clarification, proposers should contact the CRP office with technical questions regarding the project statement and the NRC Office of Contracts and Grants with contractual questions. The name and telephone number of the staff member assigned to each project is noted on the project statement.

Please remember that noncompliance with the following will result in automatic rejection:

- 1. Proposals must arrive at the address indicated before the deadline shown on the project statement.**
- 2. Proposals must contain, in the order indicated, the 12 items listed in Section IV, *Organization*, which are described in *Details of Essential Content*.**
- 3. Proposals must be accompanied by an executed, unmodified copy of the *Liability Statement*. If this statement is not received by the proposal deadline, the proposal will be rejected.**

V
Figures

Figure 1
Cooperative Research Programs
Liability Statement
Revised May 2006

Project _____

Fiscal Year _____

The signature of an authorized representative of the responding agency is required on the following unaltered statement in order for the TRB to accept the agency's response for consideration. **Responses submitted without this executed and unaltered statement by the response deadline will be summarily rejected.** An executed, unaltered statement indicates the agency's intent and ability to execute a contract that includes the provisions below.

Proposing Agency: _____

Name: _____ Title: _____

Signature: _____ Date: _____

CONTRACTOR LIABILITY

- (a) The parties agree that the contractor and its employees and agents ("Contractor") will be primarily responsible for performing the work required under the contract, and shall therefore be legally responsible for, and shall indemnify and hold the Academy harmless for all claims asserted against the Academy, its committee members, officers, employees, and agents, by any third parties, whether or not represented by a final judgment, if such claims arise out of or result from Contractor's negligent or wrongful acts in performing such work, including all claims for bodily injury (including death), personal injury, property damage, and other losses, liabilities, costs, and expenses (including but not limited to attorneys fees).
- (b) With respect to entities of State government that are subject to State law restrictions on their ability to indemnify and hold harmless third parties ("Restricted State Entities"), the obligation to indemnify and hold harmless the Academy in Paragraph (a) shall apply to the full extent permitted by applicable State law. In addition, each Restricted State Entity executing this contract represents and warrants that no part of any research product or other material delivered by such Restricted State Entity to the Academy ("Work Product") shall include anything of an obscene, libelous, defamatory, disparaging, or injurious nature; that neither the Work Product nor the title to the Work Product will infringe upon any copyright, patent, property right, personal right, or other right; and that all statements in the Contractor's proposal to the Academy and in the Work Product are true to the Contractor's actual knowledge and belief, or based upon reasonable research for accuracy.
- (c) The term "wrongful act" as used herein shall include any tortious act or omission, willful misconduct, failure to comply with Federal or state governmental requirements, copyright or patent infringement, libel, slander or other defamatory or disparaging statement in any written deliverable required under the contract, or any false or negligent statement or omission made by Contractor in its proposal to the Academy.
- (d) The obligations in paragraph (a) of this clause to indemnify and hold harmless the Academy shall not extend to claims, damages, losses, liabilities, costs, and expenses to the extent they arise out of the negligent or wrongful acts or omissions of the Academy, its committee members, officers, employees, and agents.
- (e) Both the Academy and Contractor shall give prompt notice to each other upon learning of the assertion of any claim, or the commencement of any action or proceeding, in respect of which a claim under this paragraph may be sought, specifying, if known, the facts pertaining thereto and an estimate of the amount of the liability arising therefrom, but no failure to give such notice shall relieve the Academy or Contractor of any liability hereunder except to the extent actual prejudice is suffered thereby.
- (f) The Academy and Contractor agree to cooperate with each other in the defense of any claim, action, or legal proceeding arising out of or resulting from Contractor's performance of the work required under this contract, but each party shall control its own defense. The Academy shall also have the option in its sole discretion to permit Contractor or its insurance carrier to assume the defense of any such claims against the Academy.
- (g) The obligations under this clause survive the termination, expiration, or completion of performance under this contract.

Figure 2

Example Cover Page

copy 4

NCHRP¹

Project Number

(insert appropriate project number,
e.g., 02-04, 05-07A, 10-12(02))

Project Title

(as shown on project statement)

TRANSPORTATION RESEARCH BOARD
NAS-NRC
LIMITED USE DOCUMENT

This proposal is for use of recipient in selection of a research agency to conduct work under the National Cooperative Highway Research Program². If the proposal is unsuccessful, it is to be returned to the NCHRP¹. Proposals are regarded as fully privileged, and dissemination of the information included therein must be approved by the NCHRP¹.

Agency Name

¹ The appropriate program acronym should be used (i.e., NCHRP, TCRP, ACRP, HMCRP, or NCFRP).

² The appropriate program title should be used.

Figure 3
Example Summary Page

SUMMARY PAGE

NCHRP¹ Project (Use number on project statement)

“(Title as shown on project statement)”

Proposing Agency: (Use name that will appear on contract; include address and telephone number)

Person Submitting Proposal: (Name and title)

Proposal Written by: (Name and title)

Proposal Date: _____

Principal Investigator: (Name and title, address, telephone number, and e-mail address)

Administrative Officer: (Name and title, address, telephone number, and e-mail address)

Proposed Contract Period: (In months)

Total Contract Amount: _____

Fixed-Fee Portion at ____%: _____

¹ The appropriate program acronym should be used (i.e., NCHRP, TCRP, ACRP, HMCRP, or NCFRP).

Figure 4

Example of Effort by Tasks (Hours and Costs)

Names of Principal Staff Members*	Role in Study	Time (%) Over Contract Period**	Hours					Hourly Rate (\$)	Cost (\$)
			Task 1	Task 2	Task 3	Task 4	Total		
	Principal Investigator Overall Project Management	41.6	278	800	348	313	1,739	15.50	26,954
	Co-principal Investigator	25.0	104	644	174	122	1,044	13.20	13,781
		15.6	52	400	113	87	652	11.50	7,498
		15.6	70	400	104	78	652	10.75	7,009
		12.5	70	383	35	35	523	6.00	3,138
		12.5	52	383	52	35	522	6.00	3,132
Totals			626	3,010	826	670	5,132		61,512
* Include Subcontractors and Consultants									
** Total Hours ÷ 174 hours/month ÷ contract months									