

Procedural Manual
for Agencies Conducting Research
in the
National Cooperative Freight Research Program

August 2007

**TRANSPORTATION RESEARCH BOARD
NATIONAL RESEARCH COUNCIL**

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CHAPTER 1

GENERAL INFORMATION

1.1 Purpose of the Manual

This manual highlights some important administrative procedures and requirements. It has been prepared as a ready reference and guide for research Contractors conducting research under the National Cooperative Freight Research Program (NCFRP). Contractors' cooperation with respect to these procedures will expedite contractual matters and facilitate handling of administrative requirements.

1.2 Arrangement and Scope of the Manual

To the extent practical, the discussion in this manual is related to specific provisions in the contract for NCFRP research. Although this manual sets forth basic procedures that will assist the Contractor and the Academy in the orderly administration of contracts for NCFRP research, it should be understood that it is a **guide** only; the provisions contained herein are not a substitution for or modification of specific contract requirements.

In order to avoid delays, misunderstandings, and procedural errors, it is absolutely essential that the Contractor be completely familiar with all requirements of the contract. In the event of any conflict between the content of this manual and the provisions of a specific contract, the contract prevails.

1.3 Organization of the National Academies

The National Academy of Sciences is a private, nonprofit, self-perpetuating society of distinguished scholars engaged in scientific and engineering research, dedicated to the furtherance of science and technology and to their use for the general welfare. On the authority of the charter granted to it by the Congress in 1863, the Academy has a mandate that requires it to advise the federal government on scientific and technical matters.

The National Academy of Engineering was established in 1964, under the charter of the National Academy of Sciences, as a parallel organization of outstanding engineers. It is autonomous in its administration and in the selection of its members, sharing with the National Academy of Sciences the responsibility for advising the federal government. The National Academy of Engineering also sponsors engineering programs aimed at meeting national needs, encourages education and research, and recognizes the superior achievements of engineers.

The Institute of Medicine was established in 1970 by the National Academy of Sciences to secure the services of eminent members of appropriate professions in the examination of policy matters pertaining to the health of the public. The Institute acts under the responsibility given to the National Academy of Sciences by its congressional charter to be an adviser to the federal government and, on its own initiative, to identify issues of medical care, research, and education.

The National Research Council was organized by the National Academy of Sciences in 1916 to associate the broad community of science and technology with the Academy's purposes of furthering knowledge and advising the federal government. Functioning in accordance with general policies determined by the Academy, the Council has become the principal operating agency of both the National Academy of Sciences and the National Academy of Engineering in providing services to the

government, the public, and the scientific and engineering communities. The Council is administered jointly by both the Academies and the Institute of Medicine.

1.4 Organization of the Transportation Research Board

The Transportation Research Board is a division of the National Research Council, which serves the National Academy of Sciences and the National Academy of Engineering. The Board's mission is to promote innovation and progress in transportation through research. In an objective and interdisciplinary setting, the Board facilitates the sharing of information on transportation practice and policy by researchers and practitioners; stimulates research and offers research management services that promote technical excellence; provides expert advice on transportation policy and programs; and disseminates research results broadly and encourages their implementation. The Board's varied activities annually engage more than 5,000 engineers, scientists, and other transportation researchers and practitioners from the public and private sectors and academia, all of whom contribute their expertise in the public interest. The program is supported by state transportation departments, federal agencies including the component administrations of the U.S. Department of Transportation, and other organizations and individuals interested in the development of transportation.

1.5 Organization of the National Cooperative Freight Research Program

The freight transportation system in the United States is a complex, decentralized, and dynamic network of private and public entities, involving all modes of transportation--trucking rail, waterways, air, and pipelines. In recent years, the demand for freight transportation service has been increasing fueled by growth in international trade, and bottlenecks or congestion points in the system are exposing the inadequacies of current infrastructure and operations to meet growing demand. US domestic freight, measured by ton mileage, is expected to grow by some 50 percent in the next 20 years. Strategic operational and investment decisions by governments at all levels will be necessary to maintain freight system performance, and will in turn require sound technical guidance based on research.

The National Cooperative Freight Research Program (NCFRP) will carry out applied research on problems facing the freight industry that are not being adequately addressed by existing research programs. SAFETEA-LU, in authorizing the NCFRP, called for development of a national research agenda addressing freight transportation and for implementation of a multi-year strategic plan to achieve it.

Program staffing consists of a Director, Cooperative Research Programs; an NCFRP manager, who is responsible for overall operational matters; Project Managers (referred to hereafter and in contracts as Program Officers) who are responsible for all administrative and technical matters related to Contractors' research projects; and Editorial staff who prepare Contractors' reports for publication in the formal NCFRP series.

1.6 Communications Pertaining to Contract Matters

Generally speaking, communications pertaining to **contract matters** should be addressed to the **NAS Contract Administrator** named on the cover sheet of the contract. The Contract Administrator, who is designated by the Contracting Officer, will coordinate with NCFRP staff when required. However, direct contacts should be made with the **Program Officer** named on the cover sheet of the contract concerning all matters covered by the Contractor's **research plan**. In either case, copies of

correspondence should be furnished to the other party. The NAS Contract Administrator is reached as follows:

Office of Contracts and Grants
National Academy of Sciences
2101 Constitution Avenue NW
Washington, DC 20418
(202) 334-2060
Fax (202) 334-1835

Correspondence about project technical matters should be addressed to the appropriate Program Officer at:

Transportation Research Board
The National Academies
Keck Center, 4th Floor
500 Fifth Street NW
Washington, DC 20001
(202) 334-3224
Fax (202) 334-2006

Please refer to the TRB website at <http://www.trb.org/ncfrp> for a current staff list and other information, including e-mail addresses and telephone numbers.

If you should have occasion to visit the National Research Council, you will find the NCFRP office on the 4th Floor of the National Academies' William M. Keck Center at 500 Fifth Street NW and the Office of Contracts and Grants in Room 406 of the Cecil and Ida Green Building, 2001 Wisconsin Avenue, Washington, DC.

CHAPTER 2 RESEARCH PROCESS AND PRODUCTS

2.1 General

Research proposals are submitted in response to NCFRP Project Statements defining the research problems and listing the objectives of the proposed research. The format required for proposals is stipulated in a brochure entitled “Information and Instructions for Preparing Proposals” (this brochure can be found on the CRP website at <http://www.trb.org/nCFRP>, under “Current RFPs”) and includes a detailed research plan that is approved prior to contract negotiation. The proposal and its addenda are then incorporated into the contract as the binding scope of research effort. The final report for the research is reviewed in light of the contract’s binding scope of work.

The Contractor is required to submit monthly progress reports, quarterly progress reports, and interim reports (when specified). These reports are required in order that an evaluation may be made of (a) task achievements, (b) budgetary expenditures, and (c) technical compliance with the contract. These elements provide a basis for compiling a performance record. The Contractor should also institute any needed internal reviews to ensure the proper relationship between overall progress and the research plan. The agency’s quarterly progress report information is provided to the project panel and representatives of the sponsors for their information and comment. A preliminary draft final report in twenty (20) copies is due in the NCFRP office **90 days in advance of the contract expiration date**. The report will be reviewed by the project panel and staff, and the resulting comments forwarded to the Contractor in the shortest practical time. Prior to the contract expiration date, the contractor should complete the necessary revisions and submit a detailed response to the review comments, as well as fifty (50) copies of the revised final report. Reporting requirements are summarized as follows:

Item	Deadline	Quantity
Working Plan (Section 2.4)	15 days after beginning date of contract	20
Monthly Progress Report (Section 2.6)	Last day of the calendar month	2
Quarterly Progress Report (Section 2.7)	Last day of the calendar quarter	20
Interim Report—if required by work scope (Section 2.8)	As per project schedule	20
Preliminary Draft Final Report (Section 2.8)	90 days before contract expiration date	20
Final Report and Point-by-Point Response to Panel Comments (Section 2.8)	Contract expiration date	50

NOTE: NCFRP policy does not permit the Contractor to send any documents directly to the panel, **except** for the quarterly progress report. All other documents should be submitted to the Program Officer for distribution.

2.2 Problem Statement and Objectives

A short title is specified in the contract for the research, along with a reference to the Research Project Statement, which contains the problem description and the specific objectives of the research. Should modifications be proposed to the research objectives, a contract amendment will be required.

2.3 Research Plan

Following approval, the research plan from the Contractor's proposal is incorporated into the contract by reference. It should be noted that the objectives govern and take precedence over the research plan. It is expected, therefore, that the principal investigator will communicate promptly with the NCFRP Program Officer when circumstances indicate that the research plan will not most effectively accomplish the objectives. Any modification to the research plan must be consistent with the problem statement and objectives specified in the contract, and advance written approval for proposed modifications must be obtained. Generally, research plan modifications do not require amending the contract.

2.4 Working Plan

Prior to contract execution, the Contractor receives a Proposal Review and Recommendations form that contains (1) general comments on the agency's research proposal and (2) suggested modifications thereto. Following resolution of these suggestions and contract execution, a working plan for the proposed research is developed by the principal investigator as a part of the planning stage. It is intended that this document incorporate all agreed-on changes to the proposed research plan, and that it amplify the approved research plan in as much narrative detail as possible and include a graphic schedule of events. Twenty (20) copies of the working plan are to be transmitted for NCFRP review within 15 days after the beginning date of the contract.

Work should proceed while the working plan is being reviewed. Because the plan covers the entire duration of the project, future modifications may become necessary.

The form for a "progress schedule" to be included in the working plan is illustrated in [Exhibit 2.4.1](#). Its purpose is to illustrate graphically the status of the project and research tasks, the expenditure of contract funds, and projected estimates of completion percentages. This schedule serves as the basis for monthly and quarterly progress reporting (see Section 2.6). Figure A, "Overall Progress Schedule," shows the planned performance period for each task with a monthly expected overall project percentage completion. Figure B shows the anticipated cumulative expenditures on a monthly basis. Figure C shows the anticipated overall progress as a cumulative percentage by month.

A master of the progress schedule is provided to the Contractor to ensure that the uniformity desired by the sponsors in monthly reporting is achieved. Re-creation of the progress schedule, either on the computer or otherwise, is permitted. Electronic versions are also available from NCFRP staff on request. However, the end product of any re-creation must look similar to and contain the same information as shown on [Exhibit 2.4.1](#). Having been developed initially as the schedule of events in the working plan, the progress schedule merely requires monthly updating to report current progress (see Section 2.6).

2.5 Principal Investigator

An essential consideration in the selection of a proposal is the professional capability and time commitment of the principal investigator. Advance approval must be obtained from the Program Officer before the research agency assigns the responsibility of the research to another person.

2.6 Monthly Progress Report

At the end of each month during the course of the research, the Contractor shall submit a two-part report consisting of the following: (1) A single 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 problem encountered or anticipated that might affect the completion of the contract within the time and fiscal constraints established in the contract together with recommended solutions to such problems (or a statement that no problems exist); and (2) Three (3) copies of a project progress schedule as illustrated in [Exhibit 2.6.1](#). The right-hand column of Figure A is used to record the “percentage-complete-to-date” for each major task and the estimate of total project completion at the end of the reporting period to facilitate comparison of planned activities and actual progress. Figure B records the estimate of funds expended to show the comparative status of estimated and actual costs. Figure C depicts the overall completion status of the project. Line items below the graphs provide supplementary data for Figures B and C.

The progress report must be in the NCFRP office **by the last day of each month** so that the NCFRP can meet its responsibility for reporting. Exact expenditure figures are **not** necessary on the progress schedule; best judgment in estimating will suffice.

NCFRP policy does not permit the Contractor to send any documents directly to the panel, **except** for the quarterly progress report. All other documents should be submitted to the Program Officer for distribution.

2.7 Quarterly Progress Report

To facilitate communication between the researchers and the project panel and for various administrative purposes, quarterly progress reports (**20 copies**) are required from the Contractor and are always prepared on the basis of **calendar quarters**, with periods ending March 31, June 30, September 30, and December 31. The Contractor is required to mail one copy of the quarterly report directly to each member of the NCFRP panel monitoring the contract work (a roster and transmittal memos are provided by the NCFRP) and to forward the remaining copies to the NCFRP office **by the last day of the quarter**. Each of the 20 copies is to include the monthly progress schedule illustrated in [Exhibit 2.6.1](#) updated for the last month of the quarter.

The quarterly progress report should not be confused with the two-part monthly progress report. The quarterly progress report is made up of the project progress schedule ([Exhibit 2.6.1](#)) and a narrative report on the research being conducted. Certain basic information is required in the following order:

- | | |
|-----------|--|
| 1st page: | Cover to conform with Exhibit 2.7.1 , master copies of which are supplied to the agency. |
| 2nd page: | Progress schedule for the month closing out the quarter. |

- 3rd page & beyond: Narrative consisting of:
- a. An introduction to the report that consists of a summary of the problem being researched and the project objectives. Information as appropriate may be taken verbatim from the project statement.
 - b. A concise narrative reporting the activities pursued during the report period and identifying any activities completed in the period. This should be detailed enough to indicate clearly the overall accomplishments as related to the scheduled plan of activities. Activity descriptions should be related to major tasks listed in the Progress Schedule.
 - c. A statement regarding the activities to be undertaken during the ensuing period.

The quarterly progress report is the principal means of communication between the Contractor and the project panel. The success of the project depends, to a great extent, on how well the quarterly reports convey to the panel the status and direction of the research so that the panel members can provide timely guidance to the Contractor. It is often helpful for the Contractor to include a table in the quarterly report listing the various project deliverables, the original due date, and the date delivered. If detailed technical information is to be included, it is usually best to provide it as a working paper appended to the quarterly progress report.

Panel comments on the quarterly progress report will be collected by the NCFRP and sent to the Contractor. The Contractor will send a response to these comments to the Program Officer within three weeks of receipt.

Because the panel members receive quarterly reports directly from the Contractor without benefit of prior review by NCFRP staff, it is absolutely essential that the Contractor take all steps necessary to ensure complete, correct, and timely reports. The complications arising from failure to do so will negatively affect the evaluation of the Contractor's overall performance and would be taken into consideration in evaluating any proposals from the Contractor on future projects.

2.8 Interim and Final Reports

Not later than 90 days prior to the expiration date of the contract, twenty (20) copies of the preliminary draft final report are due in the NCFRP office. The report shall set forth the Contractor's findings and conclusions, including supporting data and procedures, and be prepared in a manner consistent with the style and organization of reports as described in the brochure "Instructions for Preparation of CRP Reports," available on the CRP website. For some projects, the specified report format may not be the most appropriate and the contractor should recommend an alternative as early as practical. For further advice, the research agency should call on the NCFRP Program Officer to resolve questions concerning report preparation at any stage.

Following review of the preliminary draft final report, comments by the NCFRP panel and staff are forwarded to the Contractor. A point-by-point response to these comments must be forwarded to the NCFRP along with the revised report before the expiration date of the contract. Where report revisions are made, the response should be cross-referenced with the report pages. If a report revision is not made for any review comment, a response is still required stating why revision was not considered appropriate. Forty-eight (48) copies of the final report, revised in accordance with the reviewers'

comments, shall be submitted by the Contractor to the NCFRP not later than the expiration date of the contract. In addition, the Contractor should include two (2) unbound, double-spaced copies of the report for editorial use, all original artwork, and a diskette or CD-ROM containing the entire report.

NCFRP policy does not permit the Contractor to send any documents directly to the panel, **except** for the quarterly progress reports. All other documents should be submitted to the Program Officer for distribution.

When a decision has been made to publish the final report, the NCFRP editorial staff carries out all subsequent editorial activities. The research agency may be called upon for verification or clarification of editorial matters but is not involved in review of proofs or other parts of the publication process.

If a decision is made not to publish a report in the regular NCFRP series, the agency report is made available through the Transportation Research Board or placed on the Internet as an NCFRP web-only document. Other measures are used, as appropriate, to ensure the availability of all details of the research to the NCFRP sponsors and other interested parties.

Many projects call for interim as well as final reports. These are normally substantive progress reports for contracts that extend beyond one year, and they are not usually intended for publication. Whenever interim reports are required, twenty (20) copies shall be forwarded to the NCFRP by the dates specified in the agency's Working Plan. These reports also should be prepared in accordance with the guidelines specified in the aforementioned brochure. If the acceptance review or other considerations should indicate that publication is warranted, two (2) unbound, double-spaced editorial copies, all original artwork, and a diskette or CD-ROM containing the entire report will be required. The revised report is to be submitted within 45 days from the date that NCFRP transmits the review comments.

2.9 Other Products

All products of the research, including manuals, videos, and computer software programs and databases, should include appropriate acknowledgments and disclaimers. Although such products are generally handled in a manner similar to final reports, the Contractor should contact the Program Officer for case-specific guidance.

Exhibit 2.6.1—Completed Monthly Progress Schedule (example)

**NATIONAL COOPERATIVE FREIGHT RESEARCH PROGRAM
TRANSPORTATION RESEARCH BOARD
PROGRESS SCHEDULE**

NCFRP Project 00 FY 2007 Month MAY
 Research Agen Acme University
 Principal Investi F.R. Eight

PHASE	RESEARCH TASK	2007					2008					2009					ESTIMATED % COMPLETION										
		J	A	S	O	N	D	J	F	M	A	M	J	J	A	S		O	N	D	J	F	M	A	M	J	
I	1. Literature Review																								100		
	2. Survey of Service Providers			20	50	80	100																			100	
	3. Survey of Manufacturers			10	75	100																				100	
II	4. Failure Modes			10	50	80	100																			100	
	5. Critical Parameters			10	50	100																				100	
	6. Tests vs. Theory			10	50	100																				100	
	7. Evaluation of Test Methods			10	20	50	100																			100	
III	8. Review Specifications			50	100																					100	
	9. Develop Reorganization Plan					100																				100	
IV	10. Interim Report			10	30	100																				100	
V	11. Analytical Studies			5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100		50		
	12. Development of Test Methods					10	15	20	25	30	35	40	45	50	60	70	80	85	90	92	95	100			35		
VI	13. Develop Performance Specifications														10	20	30	40	50	60	70	80	100		0		
	14. Develop Test Procedures														10	20	30	40	50	60	70	80	100		0		
VII	15. Revision of Documents															10	30	40	60	80	90	100			0		
VIII	16. Final Report																20	40	60	70	80	90	90	95	100	0	
	OVERALL % COMPLETED			2	5	10	15	18	20	25	30	35	40	46	53	60	65	70	75	80	83	88	92	96	96	100	43

FIG. A - OVERALL PROJECT SCHEDULE

FIG. B -- CONTRACT FUNDS

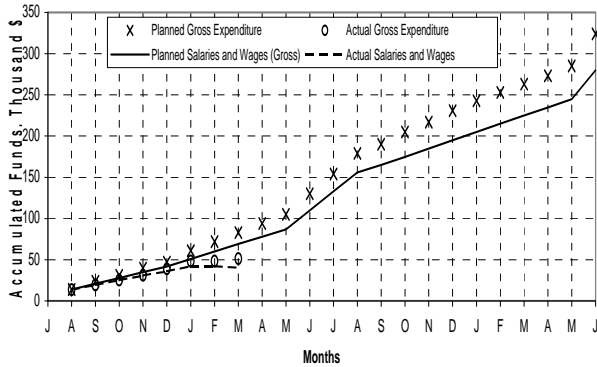
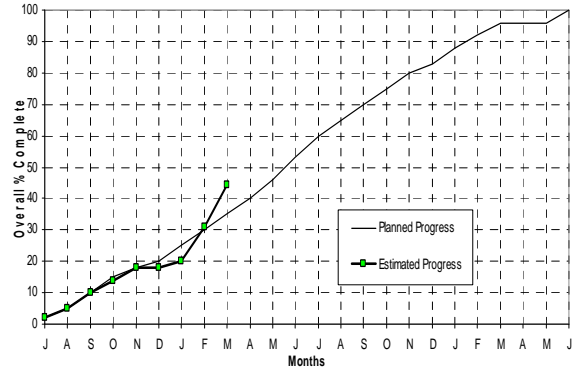


FIG. C -- CONTRACT PERIOD



Funds Expended % 16
 Contract Amount \$ 324,918
 Expended This Month \$ 3,799
 Total Exp. to Date \$ 51359
 Balance \$ 273559

Time Expended % 38
 Starting Date July 1, 1997
 Completion Date June 30, 1999

Salaries and Wages Estimated This Month \$ 7,000
 Salaries and Wages Spent This Month \$ 0
 Accumulated Salaries and Wages To Date \$ 40000

Quarterly Progress Report

to the

NATIONAL COOPERATIVE FREIGHT RESEARCH PROGRAM (NCFRP)

on Project _____

LIMITED USE DOCUMENT

This Quarterly Progress Report is furnished only for review by members of the NCFRP project panel and is regarded as fully privileged. Dissemination of information included herein must be approved by the NCFRP.

for period

_____ to _____

from

CHAPTER 3 PERFORMANCE PERIOD

3.1 Contract Period

The effective starting and completion dates of the research are specified in the contract. Costs incurred prior to the starting date or after the completion date are not reimbursed, unless otherwise approved in advance by the Contracting Officer.

3.2 Extensions

Time extensions should be avoided; however, where unforeseen circumstances constitute a valid basis for extending the contract for an additional period at no increase in the contract cost, the research agency should initiate the request at the earliest practical date, but no later than 30 days prior to contract termination, fully documenting the need by including the following:

- a. A concise narrative statement explaining the cause of the delay. This statement will be examined by the Program Officer and project panel in considering the request.
- b. The period for which the extension is requested.
- c. The unobligated balance of contract funds at the time of the request.
- d. A revised progress schedule reflecting the additional time period and how the unobligated balance of contract funds will be allocated.
- e. The steps taken to ensure completion of the research within the requested extension period.

3.3 Performance Record

A record of Contractor performance is maintained for each project and is considered by the staff, project panels, and sponsors in connection with future selections of research agencies.

The performance record includes:

- a. Technical compliance as related to approved research plan.
- b. Time required to complete the project as related to contract term.
- c. Management of contract funds.
- d. Acceptability of report(s) for publication.

3.4 Transfer of Research Contract

NCFRP contracts are non-transferable except with the written consent of the Contracting Officer.

3.5 Questionnaire

If a research agency proposes to send a questionnaire related to the project, the proposed questionnaire and transmittal letter along with any explanatory materials must be forwarded to the NCFRP for approval before being distributed. After staff and panel review, the questionnaire will be returned to the Contractor with appropriate comments. An example of a transmittal letter that should accompany such questionnaires is given in [Exhibit 3.5.1](#).

ACME CORPORATION

ACME CORPORATION
341 Business Park
Anytown, Anystate 22040

Dear Sir:

Acme Corporation, under the National Cooperative Freight Research Program (NCFRP), is conducting NCFRP Project 03, “Performance Measures for Freight Transportation.” The objective of this project is to identify measures to gauge the performance of the freight transportation system.

Task 1 of this project includes the preparation of a review of current and completed work on performance measurement relevant to this project. The enclosed questionnaire is intended to identify and describe the various performance measurements in the public and private sectors, domestically and internationally.

The questionnaire has been sent to local and regional governments, Metropolitan Planning Organizations, state transportation agencies, and others who have had experience in performance measures.

We realize that you receive many inquiries like this and that they take up a lot of your time, but the success of this project depends on your input. Therefore, we sincerely appreciate your efforts in sharing your experience with others who can benefit from it. A copy of the results of this survey will be sent to you when the data have been compiled.

Sincerely,

I.M. Smart
Research Specialist

CHAPTER 4 COST CONSIDERATIONS

4.1 General

The proposal submitted by the Contractor is included by reference in the contract. Thus, in addition to the specific research objectives outlined in the contract, the Contractor's cost estimates are recognized as being part of the agreement and are incorporated into the contract document. To provide the principal investigator with flexibility in the conduct of the research, consistent with the general scheme of the proposal, strict adherence to the original estimate in each category of costs is not contemplated, although substantial changes in proposed expenditures must be brought to the attention of the Program Officer promptly.

4.2 Maximum Cost

The contract establishes a maximum cost that the Contractor may not exceed without amendment of the contract. The NCFRP sponsors allocate funds for each project when the annual program is approved. Subsequently, the NCFRP sets a contract amount at the time specific objectives are defined. Later, after the selection of the Contractor, the budget proposed by the Contractor is reviewed and adjusted, if appropriate. The entire process emphasizes the need to ensure the best use of the limited amount of available funds. Thus, the Contractor is urged to monitor project expenditures closely to ensure satisfactory conclusion of research within the contract amount.

4.3 Anticipated Costs

The contract requires the Contractor to notify the Contracting Officer whenever there is reason to believe that the total cost will be substantially greater or less than the contract amount, exclusive of the fixed fee, if any. Furthermore, the contract requires the Contractor to notify the Contracting Officer when the costs exceed 75 percent of the contract amount, exclusive of the fixed fee, if any.

4.4 Withholding

The contract provides for withholding a percentage of the costs that are billed by the Contractor. The withholding is paid to the Contractor following receipt and acceptance of the final report and full compliance with the contract provisions detailed in Section 4.11.

4.5 Allowable Costs and Payment

Except in the case of a fixed price contract, allowable costs are specified in the contract. Certain of these costs require advance approval, and they are discussed separately below. Questions concerning costs should be referred promptly for Academy resolution. Vouchers may be submitted not more often than once a month and must conform with the Academy's billing instructions. Details on voucher preparation are explained in a billing letter that is sent by the Contracting Officer to the Contractor prior to execution of the contract. Each voucher is audited upon receipt, and the absence of required documentation will delay reimbursement. Prescribed forms are to be used for reimbursement requests. To expedite reimbursement, it is recommended that vouchers be sent directly to the NCFRP within the first week of each month.

4.6 Prior Approval of Costs

Advance approval in writing is required for the following costs:

- a. Purchase of equipment having a value in excess of the level specified in the contract.
- b. Travel to scientific or technical meetings.
- c. International travel.
- d. Subcontracts for an amount in excess of the level specified in the contract.

4.7 Equipment

The term “capital equipment” as used here includes equipment, purchased or fabricated by the Contractor, which is normally classified as a capital asset and which has a cost in excess of the amount specified in the contract. The contract requires advance approval for the expenditure of funds for the purchase of capital equipment, even though such expenditure may have been included in the proposal budget. A request for approval is to be addressed to the Program Officer as early as possible.

Among the points to be covered in any such request for approval are:

- a. The nature and purpose of the expenditure, including a complete description of the articles to be procured, together with a statement indicating the technical necessity for incurring the requested expenditure.
- b. The total price or estimated costs of the expenditure. Information regarding the price or estimated costs should indicate whether the amounts are based on the agency’s estimate, an estimate submitted by the subcontractor (or vendor), or a firm quotation.
- c. If the proposed expenditure was not in the proposal budget at the time the contract was negotiated, explain how the expenditure will affect the Contractor’s budget of funds available under the contract.

Capital equipment procured under the contract will be retained by the Contractor during the term of the contract and thereafter until disposition is determined by the Contracting Officer. If the agency desires to acquire the equipment, a bid may be entered; it shall be subject to approval by the Contracting Officer, in accordance with prescribed policy.

4.8 Travel

Approval of individual trips chargeable to the contract is not required except in reference to costs of international travel or travel to scientific and technical meetings. Travel supported by the Program has been grouped into three categories:

- a. Trips made routinely for the collection of data and information for inclusion as a substantial part of the research.

- b. Trips made to scientific or technical meetings.
- c. International travel. International travel is defined as any travel outside the United States and requires advance approval. Therefore, requests to the Contracting Officer should be submitted well in advance of the planned departure date.

Ordinarily, travel under category (a) does not require prior approval. If the research budget makes no provision for travel, and it is subsequently determined that such travel is required, with substantial costs in relation to the budget, an appropriate explanation is to be forwarded promptly to the Program Officer.

Advance authorization is required for travel to scientific and technical meetings, which ordinarily should be limited to the principal investigator or other key investigators performing the work under the contract. In submitting a request for this purpose, the following information is required:

- a. The role, at the meeting, of the individual requesting the travel.
- b. The expected contribution of the meeting to the subject research.
- c. A cost estimate of the travel and the relationship of the costs to the budget.

The following factors will be considered when determining whether attendance at a meeting is directly and specifically in furtherance of the work under the contract:

- a. The agenda of the meeting includes subjects relating to the contract on which the principal investigator is working.
- b. In the event attendance involves a personal or other interest in addition to NCFRP-related considerations, agreement is to be reached prior to the travel for charging an equitable portion of the related expenses to the contract.

If travelers do **not** go directly from their institutions to the meeting, stay only for the period of the meeting, and return directly to their home stations, it is expected that an equitable arrangement for apportioning the expenses of attendance will be accomplished and documented.

Within two weeks following the conclusion of the trip, the traveler must submit to the Program Officer a statement of the benefits derived in relation to the subject research.

A trip is directly and specifically in the performance of the contract if the principal investigator is formally invited by the NCFRP to come to Washington or elsewhere to discuss the research.

Contractors should recognize that the NCFRP is a special-purpose program, the activities of which are essentially distinct from those of the rest of TRB. Because the NCFRP is not an integral part of the information dissemination activities carried out by TRB during each Annual Meeting, it follows that the election to offer a formal paper for presentation in TRB sessions or to accept Board invitations to engage in informal discussions in various other sessions is at the discretion of the Contractors. Such participation is nonetheless subject to all applicable terms of the contract between the Contractor and the Academy. Accordingly, charges against the contract for preparation and printing of papers, summaries,

or notes and for travel solely for the purpose of presentations at the TRB Annual Meeting are allowed only with prior approval by the NCFRP.

4.9 Subcontracts

Advance written approval is required for subcontracts, even though the concept of subcontracting for materials and/or services may have been approved at the time of agency selection. The form of the subcontract agreement should parallel as closely as possible the form of the Contractor's agreement with the Academy. If not provided in the proposal, an itemized budget and a statement justifying selection of the particular subcontractor are required when submitting the subcontract agreement for approval.

4.10 Disadvantaged Business Enterprise (DBE) Plan

The proposer's plan for involvement of DBEs 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.

4.11 Overhead

Contracts for NCFRP research usually provide for negotiated overhead rates. Overhead rates may be either predetermined or post-determined, depending on circumstances. Pending negotiation of final overhead rates, provisional rates are used for both educational institutions and commercial organizations. The procedure for negotiation of final overhead rates is described in the contract; assistance for this purpose is provided by the Contracting Officer. Audit-determined rates may be used when a government auditor is located at the site of the Contractor.

4.12 Close-Out of Contract

When work is concluded, the following matters require completion prior to final payment:

- a. The required copies of the final report are to be submitted in accordance with the terms of the contract and instructions from the NCFRP.
- b. The Program Officer notifies the Contractor of receipt of the final report and informs the Contracting Officer to send the Contractor the necessary documents to close-out the award.
- c. The Contracting Officer forwards a request to the Contractor for completion of the *Inventory of Equipment and Data* form and requests submission of the final voucher for the remainder of costs incurred and not previously billed and for release of funds that have been withheld.
- d. The Program Officer reviews the final voucher and determines equipment and data disposition in collaboration with the Contracting Officer. The Contracting Officer prepares all official correspondence regarding equipment and data retention.
- e. After approval of the final voucher and concurrence with the equipment and data disposition, the Program Officer forwards the approved invoice to Accounting.

- f. Accounting prepares and forwards to the Contracting Officer a spreadsheet that indicates the final contract cost and includes a breakdown of all invoices, withholding and payment history.
- g. The Contracting Officer prepares and forwards final close-out documents to the Contractor for signature. These include the Contractor's *Release Form and Certified Claim and Reconciliation Statement* as well as a copy of the approved *Inventory of Equipment and Data* form.
- h. Upon return of completed close-out documents, the Contracting Officer forwards information copies to the Program Officer.
- i. The Contracting Officer approves payment of the final voucher and forwards this approval, as well as a copy of all close-out documents, to Accounting for processing.
- j. Accounting issues the final payment.

CHAPTER 5 PROJECT OVERSIGHT

5.1 Contract Provisions

The NCFRP research contract provides for monitoring of the research being conducted by the Contractor. Monitoring is maintained throughout the contract period by the TRB staff assigned to the NCFRP.

5.2 Oversight Committee for the NCFRP

The NCFRP provides the Research and Innovative Technology Administration (RITA) and the Oversight Committee for the NCFRP with periodic progress reports on NCFRP operation and the status and progress of the research.

5.3 NCFRP Project Panels

Technical guidance for each research project is provided by a project panel consisting of research specialists and experienced practitioners. Liaison representatives are assigned to the panels by the TRB and RITA. The functions of each project panel are to:

- a. Develop a plan for the attainment of the objectives of its project, including estimates of total cost and time to achieve them.
- b. Draft a definite statement of objectives for the project within the funds allotted.
- c. Review research proposals and make recommendations regarding selection of the Contractor.
- d. Review progress of the research.
- e. Provide counsel and advice regarding technical aspects of the research.
- f. Review and evaluate project reports (including the final report) as to the accomplishment of objectives and suitability for publication.
- g. Make recommendations regarding continuation of the project.

National Research Council policy specifies that the role of the panels is to make recommendations to the Board, and a two-thirds consensus is necessary in all policy and technical matters. Members and liaison representatives, either collectively or individually, do not act as consultants to project investigators. National Research Council policy further specifies that the results of a panel's formal actions can be conveyed to the Contractors **only** through the NCFRP staff.

5.4 Project Oversight

Project oversight may include meetings at the research site or prearranged visits of the principal investigator to the offices of the TRB. Oversight is a two-way flow of information: (1) It is desirable for the principal investigator to continually provide information on problems, tasks, methods of testing or investigating, methods of analysis, progress to date, future plans, and substantive results. (2) The NCFRP Program Officer will examine the methodology and accomplishments to ensure that the research is on schedule in terms of both progress and spending, and that it is being conducted in accordance with the approved research plan. Substantive changes that occur at any time during the research may require a contract amendment. During visits by the Program Officer, administrative

questions sometimes arise concerning, for example, proposed equipment purchases or special travel. Where such matters indicate a need for contractual action, it is important that the agency's principal investigator and business office coordinate their efforts when appropriate contact with the Contracting Officer is necessary.

Visits by persons other than responsible NCFRP staff have no official status with respect to project oversight or to contract matters.

Likewise, miscellaneous visits by principal investigators with members and liaison representatives of panels or committees have no official status with respect to contract matters, including prosecution of the research plan. Nonetheless, the Program Officer should be kept informed of such visits in the best interests of oversight and coordinated effort.