National Cooperative Highway Research Program

NCHRP Synthesis 277

Consultants for DOT Preconstruction Engineering Work

A Synthesis of Highway Practice

Transportation Research Board
National Research Council

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Consultants for DOT Preconstruction Engineering Work

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Transportation Research Board
National Research Council

Research Sponsored by the American Association of State Highway and Transportation Officials in Cooperation with the Federal Highway Administration

NATIONAL ACADEMY PRESS
Washington, D.C. 1999

Subject Areas
Planning and Administration, and
Hghway and Facility Design

NATIONAL COOPERATIVE HIGHWAY RESEARCH PROGRAM

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NCHRP SYNTHESIS 277

Project 20-5 FY 1996 (Topic 29-06)
ISSN 0547-5570
ISBN 0-309-06856-8
Library of Congress Catalog Card No.99-74397

Price $31.00

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Transportation Research Board
National Research Council
2101 Constitution Avenue, N.W.
Washington, D.C. 20418

and can be ordered through the Internet at:

http://www.nas.edu/trb/index.html

Printed in the United States of America

PREFACE

A vast storehouse of information exists on nearly every subject of concern to highway administrators and engineers. Much of this information has resulted from both research and the successful application of solutions to the problems faced by practitioners in their daily work. Because previously there has been no systematic means for compiling such useful information and making it available to the entire community, the American Association of State Highway and Transportation Officials has, through the mechanism of the National Cooperative Highway Research Program, authorized the Transportation Research Board to undertake a continuing project to search out and synthesize useful knowledge from all available sources and to prepare documented reports on current practices in the subject areas of concern.

This synthesis series reports on various practices, making specific recommendations where appropriate but without the detailed directions usually found in handbooks or design manuals. Nonetheless, these documents can serve similar purposes, for each is a compendium of the best knowledge available on those measures found to be the most successful in resolving specific problems. The extent to which these reports are useful will be tempered by the user's knowledge and experience in the particular problem area.

FOREWORD

By Staff
Transportation
Research Board

This synthesis report will be of interest to DOT preconstruction engineering supervisors and program managers, contract administrators, and project managers. It will also be of interest to engineering consultants who do work for state DOTs. It describes current practice in contracting with consultants for DOT preconstruction engineering work. The synthesis documents the practices in all stages involved with obtaining consulting services, from the initial designation of projects for consultant work to project completion and acceptance procedures. The study also collected the views of selected consultants on DOT practices. Information for the synthesis was collected by surveying U.S. transportation agencies and by conducting a literature search.

Administrators, engineers, and researchers are continually faced with highway problems on which much information exists, either in the form of reports or in terms of undocumented experience and practice. Unfortunately, this information often is scattered and unevaluated and, as a consequence, in seeking solutions, full information on what has been learned about a problem frequently is not assembled. Costly research findings may go unused, valuable experience may be overlooked, and full consideration may not be given to available practices for solving or alleviating the problem. In an effort to correct this situation, a continuing NCHRP project, carried out by the Transportation Research Board as the research agency, has the objective of reporting on common highway problems and synthesizing available information. The synthesis reports from this endeavor constitute an NCHRP publication series in which various forms of relevant information are assembled into single, concise documents pertaining to specific highway problems or sets of closely related problems.

This report of the Transportation Research Board provides information on the history and trends in outsourcing of preconstruction engineering activities and compares current levels with those found a decade earlier. The steps in the procurement and management of consulting services are provided in detail. These include deciding on when and what

to contract out and the selection, negotiation, and consultant management activities that follow. Finally, the appendixes contain numerous samples of collected forms and procedures used by a variety of states to accomplish this work.

To develop this synthesis in a comprehensive manner and to ensure inclusion of significant knowledge, the Board analyzed available information assembled from numerous sources, including a large number of state highway and transportation departments. A topic panel of experts in the subject area was established to guide the research in organizing and evaluating the collected data, and to review the final synthesis report.

This synthesis is an immediately useful document that records the practices that were acceptable within the limitations of the knowledge available at the time of its preparation. As the processes of advancement continue, new knowledge can be expected to be added to that now at hand.

CONTENTS

ACKNOWLEDGMENTS

David K. Witheford, Reston, Virginia, collected the data and prepared the report.

Valuable assistance in the preparation of this synthesis was provided by the Topic Panel, consisting of Jamshid M. Armaghani, State Pavement Evaluation Engineer, Florida Department of Transportation; James O. Brewer, Engineering Manager, Kansas Department of Transportation; D.W. (Bill) Dearasaugh, Senior Program Officer, Transportation Research Board; Peter F. Devlin, Contract Administrator, Michigan Department of Transportation; Daniel B. Fambro, Associate Professor, Department of Civil Engineering, Texas A&M University; Vito A. Genua, Assistant District Engineer for Design, Pennsylvania Department of Transportation; Hal Kassoff, Parsons Brinckerhoff Quade & Douglas; Gary Moss, Highway Engineer, Federal Highway Administration; Max R. Sproles, Vice President, Frederick R. Harris, Inc.; and Mike Todd, Transportation Engineering Program Supervisor, Virginia Department of Transportation.

This study was managed by Stephen F. Maher, P.E., Senior Program Officer, who worked with the consultant, the Topic Panel, and the Project 20-5 Committee in the development and review of the report. Linda S. Mason was responsible for editing and production.

Crawford F. Jencks, Manager, National Cooperative Highway Research Program, assisted the NCHRP 20-5 staff and the Topic Panel.

Information on current practice was provided by many highway and transportation agencies. Their cooperation and assistance are appreciated.

CONSULTANTS FOR DOT PRECONSTRUCTION ENGINEERING WORK

SUMMARY

State departments of transportation increasingly are required to contract out activities previously performed by agency staffs. Thus, for all phases of preconstruction engineering, the use of consultants is often essential. The purpose of this study was to synthesize DOT practice regarding use of consultants in these activities, by conducting surveys of both DOTs and consultants and reviewing available literature.

The first finding was that a significant increase in work assigned to consultants has occurred since previous surveys. Half the states now contract out 50 percent or more of their preconstruction engineering. Ten years ago, only one-fifth of the states contracted out such a high proportion. At the same time, the number of states doing 80 percent or more of their design work in-house has declined from over half to only one-sixth of the total. With new national highway legislation leading to program expansion, most states foresee a continuation of the trend to increasing outsourcing.

The need to contract out design work is driven mainly by constraints on or reductions in the numbers of DOT staff. As work programs have grown or at least remained stable, DOTs have been required to shift work to the private sector in order to meet program schedules. Some states have determined that design costs have increased as a result, but cost analyses have rarely been conclusive. Other impacts are the reassignment of engineering staff from in-house design functions to consultant project manager roles and an increase in the use of "Indefinite Delivery of Services" or "On-call" contracts. Many states, as owners of the public trust, show concern about retention of staff skills in order to manage effectively. They keep enough projects in-house to provide the training, diversity, and challenge needed to sustain a state-of-the-art professional design staff.

The relationship between DOT staffs and consultants is sometimes seen differently by the two parties. To DOT staff, consultants are regarded generally as extensions of staff; some states employ the term "partnering" to characterize the nature of the association. While about half the consultants reported a similar perception, approximately half described the quality of the relationship with mixed or negative connotations.

Qualifications-based selection (QBS) is the practice by which consultants are generally chosen. But it is not the exclusive factor in all states, even on federally supported projects. Some states have legislatively authorized procedures that incorporate cost considerations, which are introduced into an otherwise QBS process. Similarly, prequalification of consultants is common, but not universal; the proportion of states practicing prequalification has remained at two-thirds for about the last decade. Procedures for obtaining letters of interest on specific projects vary. Some states use prequalification lists to solicit them, some use additional advertising also. One or more media outlets, such as official publications, newspapers, and the Internet, are employed.

Selection committee makeup and operation takes several forms, depending in some cases on the roles of the central and district offices in consultant procurement and management. Committee membership may be a fixed group of high-ranking department staff, or be project-specific with representation of appropriate technical specialties. Committees vary in size, in assigned tasks, and in what they review to rate consultants for shortlists. How the factor of consultant workload is reviewed is one variable that interests consultants. Additional variability is found in the uses of selection committee findings for debriefing and future evaluation purposes.

The concerns of consultants in the selection process begin with the level of effort required to compete versus the probabilities of success in getting the work. Some consultants reported that meetings involving short-listed candidates are a mixed blessing, with associated costs trading off against the resulting informational benefits; they believe that meetings are useful for complex projects but should not be held for routine ones. In general, consultants lean toward simplifying and shortening the selection process.

In the negotiation stage, the responsibilities of project managers vary from one state to another. Sometimes the project manager may be the sole negotiator, but usually the role is more limited. One task is likely to be preparation of scope statements, which initially may be simple statements for project authorization. Detailed scope statements must eventually be drawn up to facilitate the state's need for a cost estimate and also for consultants' estimating purposes. Agreement of both parties on understanding the project scope is a critical element in successful negotiations.

Pre-award audits are common as part of the negotiations process and are often the cause of protracted proceedings. Both the American Association of State Highway and Transportation Officials (AASHTO) and the American Consulting Engineers Council (ACEC) have expressed interest in shortening the audit process. Current national legislation urges increased acceptability of recent audits provided for other projects or in other states. Overhead rates charged by consultants are limited by caps in half the states, with specific values ranging between 120 percent and 170 percent. Fixed fees vary also, but in a narrower range than in the past, none now exceeding 15 percent in survey responses.

The time required from advertising the project to the start of consultant work is typically less today than it was a decade ago. One state reportedly can accomplish needed procedures for even the largest projects in only seven weeks. The average time is almost six months, but can amount to one year or more for large projects in some states.

Two-thirds of the consultants provided comments on the negotiation stage. Their principal concerns were twofold. First, negotiations were sometimes experienced less as a collaborative process than as a means for states to achieve pre-established objectives. Second, DOTs were perceived to need better-trained staff for conducting negotiations. Consultant suggestions included increased staff training and other improvements to expedite the negotiating process.

All states have a common objective of obtaining acceptable project results within the predetermined time and budget constraints of consultant agreements. Variability is again the essence of the detailed administrative and technical project management procedures involved. While this variability may present a burden to consultants practicing in different states, consultants did not appear to have many problems on this score. Issues such as insurance and liability protection are handled differently among the states. Contract amendment procedures vary also, but appear to present few problems of delay or dispute for either party.

The amounts and lengths of time that funds are retained at project completion are quite variable. Both states and consultants generally favor the practice of monthly billing and progress reports unless project-specific reasons suggest otherwise. Evaluations during the life of a project are seen as useful. Final evaluations are customary; most states share the findings with consultants, and consultants generally have no problems with the procedures.

Training DOT staffs, especially in project management techniques, is a need pointed out by consultants and recognized by many states. Most consultants find that states have improved their communications and liaison activities. Consultants benefit also from participation in joint training programs initiated by the DOTs. Consultants rate communication with DOTs as clearly improving as use of the Internet increases.

CHAPTER ONE

INTRODUCTION

BACKGROUND

The last decade of the 20th Century has seen major changes in the activities of state departments of transportation. When the charge of building the Interstate System, which dominated the last 40 years of highway programs, was met, the focus for many departments shifted to reconstruction, operations, and maintenance. The passage in 1998 of the Transportation Equity Act for the 21st Century (TEA 21) brought renewed impetus to construction funding and perhaps again changed the emphasis.

In the same period, societal changes created new pressures on governments at all levels. Terms like outsourcing, privatizing, and downsizing described new efforts to reduce the payrolls of public agencies. These influences have caused most transportation agencies to modify their practices. Activities that were customarily performed in-house are now increasingly contracted out. One area is that of preconstruction engineering. Consultants are called on more and more to produce the plans for construction programs.

The growing reliance on consultants for design and related work led to recognition by the American Association of State Highway and Transportation Officials (AASHTO) of the need for better information on techniques employed in consultant management. Though federal regulations specify many practices with respect to Federal-Aid projects, considerable variation in management practices still existed among the states. Thus, in 1991, *AASHTO Guidelines for Preconstruction Engineering Management (AASHTO 1991)* was published. A task force continued to study the related issues into the early 1990s. Its report appeared in 1996 as *Guide for Contracting, Selecting, and Managing Consultants (AASHTO 1996).*

Last, the federal highway legislation (TEA 21) also impacts directly on consultant management practices. Like Section 307 of the 1995 National Highway Safety Act (NHS), it contains specific provisions that affect the conduct of state transportation agencies with respect to the acquisition of consultants.

PROJECT SCOPE AND PROCEDURES

This present synthesis was proposed because an updated review of state practices could be a useful supplement to the 1996 AASHTO Guide. Initially titled "Consultants for DOT Design Work," it was determined that the nature of work to be covered would be preconstruction engineering. Construction engineering and inspection, an area also often using consultants, was excluded. The definition of preconstruction activities paralleled that of the AASHTO Guide covering three areas: "Project development and environment," "Design," and "Other" (including software, manuals, training, and special studies). Practice in all stages involving consultant services—from the initial designation of projects for consultant work to project completion and acceptance procedures—would be reviewed. The project would also assemble the views of selected consultants on DOT practices.

Development of the report followed the usual synthesis procedures of surveys and literature reviews. A search of data bases resulted in relatively few finds of relevant material. The subject has evidently generated few publications, and not many articles in technical journals. Thus, the bibliography lists perhaps as many memoranda, state manuals, and other such documents as it does traditional reference materials.

The survey of DOT practices required preparation of lengthy forms in order to compile the needed information. The questionnaire was ultimately divided into two parts. The first was designed to elicit qualitative "essay responses" on many aspects of obtaining consultant services. The second, in a tabular format to elicit quantitative responses, was described to respondents as an optional item. Both parts of the DOT survey forms are presented in Appendix A.

The project scope specified a consultant survey as well. It was designed to facilitate essay comments on topics essentially parallel to those in the state DOT survey. The American Consulting Engineers Council (ACEC), in Washington, D.C., provided a list of potential recipients, representing firms practicing in all regions of the country and consisting mainly of members of that organization's Transportation Committee. The consultant survey form (see Appendix B) was distributed at the same time as the state survey.

Report Organization

The following chapter describes survey response rates, and gives an overview of practice drawn from the survey returns. It shows the history and trends in outsourcing of

preconstruction engineering activities and compares current levels with those found a decade earlier.

Subsequent chapters report on characteristics of steps in the procurement and management of consultant services. These include deciding when and what to contract out, and the selection, negotiation, and consultant management activities that follow.

The last chapter summarizes changes and trends in practice and conclusions about issues that appear to concern both states and consultants. Suggestions for further research are also provided.

Appendix materials include the survey forms, summaries of selected survey replies, and samples of collected forms and procedures that may be informative.

CHAPTER TWO

OVERVIEW

This chapter presents an overview of project findings, beginning with a description of the survey responses to both state DOT and consultant surveys. The history of contracting out preconstruction engineering work is followed by a brief look at the characteristics and current levels of consultant usage.

SURVEY RESPONSE RATES

DOT Survey

Thirty-three states responded to the DOT survey. The low response rate may reflect the length of the survey form. Recognizing the potential problem, the questionnaire transmittal letter suggested that Part II of the survey need not be completed if circumstances did not readily permit. About half the respondents provided data for this latter section. Additionally, one-third of the states provided supplementary materials, such as forms and manuals, which also had been solicited. The chart in Appendix C summarizes the responses.

Balance in the returns by region was good, and replies were received across the range of DOT sizes, from small states with $100 million annual construction programs to those with over $1 billion in annual construction. Responses were well distributed in terms of the range of consultant usage for preconstruction engineering (PCE), from those using consultants for less than 15 percent of the work to those contracting out up to 80 percent. Though not evaluated statistically, the survey returns appeared to reasonably represent the national situation in DOT use of consultants.

Consultant Survey

Somewhat similar results were obtained with the survey of transportation consultants. From a mailing to 96 firms around the nation, replies were recorded from about 40 percent. Ten replies came from different regional offices of one firm; rather than possibly bias the results by including all, only three responses from the firm were tabulated. They were selected to represent otherwise underrepresented regions, or because their regional locations had large highway construction programs. In a geographical sense, the consultant returns overrepresented the Southeast and underrepresented the Northeast and Midwest. Table 1 presents the distribution for both state and consultant survey returns by the four AASHTO regions.

TABLE 1
GEOGRAPHIC DISTRIBUTION OF SURVEY RESPONSES

AASHTO Region	DOT Responses	Consultant Responses
Northeast	9	2
Southeast	8	14
Midwest	8	4
West	8	10
Total	33	30

Selected attributes of responding consultants include:

- Annual dollar volume of DOT business ranged from $100,000 per year to $60 million per year.
- Among all firms reporting $1 million per year or less, eight did business with only one DOT.
- Among firms with business of $10 million or more, one worked with only two states, one with as many as 26, and the others with from five to 20 states.
- As a proportion of all business, the volume of DOT work was significant for 17 firms. For seven others, it was less than 20 percent. The remainder described proportions of DOT work in a range of 25 to 30 percent.

HISTORY OF CONSULTANT USAGE

A previous survey on all DOT outsourcing *(Witheford 1997)* showed that design work was contracted out by some states before the 1950s. From then on, the number of states contracting out design and the volume of work grew steadily. The same study showed some design activities being contracted out at 20 percent or less of the total effort, but others contracted out as much as 80 percent. The present survey solicited information on a more detailed breakdown, itemizing tasks under the three subheadings used in the AASHTO Guide: predesign, design and other. Though results by tasks were usually too sparse to develop much meaningful information, varying patterns of practice between states were evident. Appendix D shows, for example, that predesign activities were contracted out as early as the 1960s by Minnesota but not until the 1990s by Missouri. The periods that other activities began to be contracted out were equally varied.

TABLE 2

CHANGING USAGE OF CONSULTANTS

Percent of Work by Consultants	Percent of States Reporting		
	15 Years Ago (Approx.)	10 Years Ago (Approx.)	1998
0–19	62	56	17
20–49	28	26	38
50–100	10	18	45*

*Of the states reporting these data in 1998, 5 report 50–59%, 3 report 60–69%, 3 report 70–79%, and 2 report 80–89%.

TABLE 3

CONSULTANT USAGE BY DOTs FOR PCE WORK IN 1998

State	Percentage of Work by Consultants	State	Percentage of Work by Consultants
Arizona	70	Michigan	46
Arkansas	40–45	Minnesota	16
California	15	Missouri	40
Colorado	50	Nebraska	40
Connecticut	70	New Hampshire	35
Florida	80	New Jersey	85
Georgia	25–30	New York	50
Hawaii	60	North Carolina	35
Illinois	80	South Carolina	40
Iowa	40	Tennessee	54
Kansas	60	Texas	30
Kentucky	73	Virginia	65
Louisiana	50	Washington	15
Maryland	70	Wisconsin	37
Massachusetts	50	Wyoming	10–15

CURRENT LEVELS OF CONSULTANT USE

The proportion of all preconstruction work being given to consultants varies greatly between states. Table 2 compares present survey findings with those from NCHRP Synthesis 137: *Negotiating and Contracting for Professional Engineering Services (Sternbach 1988).* The earlier data are based on aggregated results from 39 states; the present data are not necessarily from the same states. The comparisons are still useful, even if individual state comparisons are not possible. The number of states using consultants to a small extent, i.e., for 20 percent or less of their PCE work, has dropped in approximately 15 years from 62 percent to 17 percent. During the same time, the percentage of states using consultants for 50 percent or more of their PCE work has grown from 10 to 45 percent. Two of the states report using consultants to perform from 80 to 89 percent of their PCE work. Table 3 provides a state-by-state listing of the reported usage.

Confirmation of these higher percentages was provided by a Texas DOT telephone survey in early 1998 on the same question. It reported that 25 states used consultants to design one-half or more of their project plans, while 10 states used them for 25 percent or less of the design effort *(Texas DOT 1998).*

Information from three states further illustrates the changes. A review of Mississippi DOT design management *(TransTech Management 1998)* noted that while construction outlays rose from $213 to $430 million annually between 1987 and 1997, the number of DOT employees remained virtually the same. In the same period, contracted design work increased from 6 million dollars to 16 million dollars. A study in Wisconsin *(Audit 1997)* showed that design engineering costs grew from $36 million to $81 million between 1987 and 1997. The split of work between DOT staff and consultants dropped from proportions of 71-29 to 64-36 in the same period. The dollar volume of work doubled for the state staff but almost tripled for consultants. Kentucky's recent experience in consultant volumes of work is illustrated in Figure 1, which shows changes over a 5-year period. The consultant share of design project expenditures grew from 62 to 73 percent of the total. In dollar terms it more than doubled, however, from $18 million to $40 million in 5 years. In the same period, DOT staff project work increased only from $10 million to about $15 million.

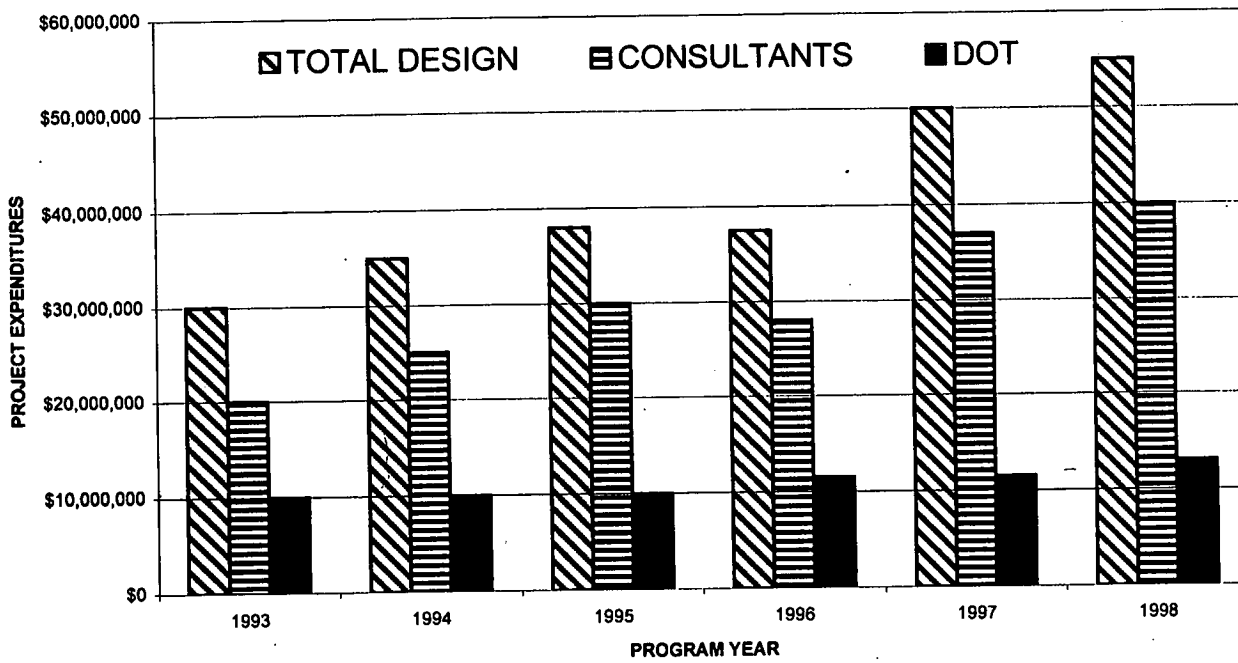

FIGURE 1 Project expenditures for design—Kentucky Transportation Cabinet, May 1998.

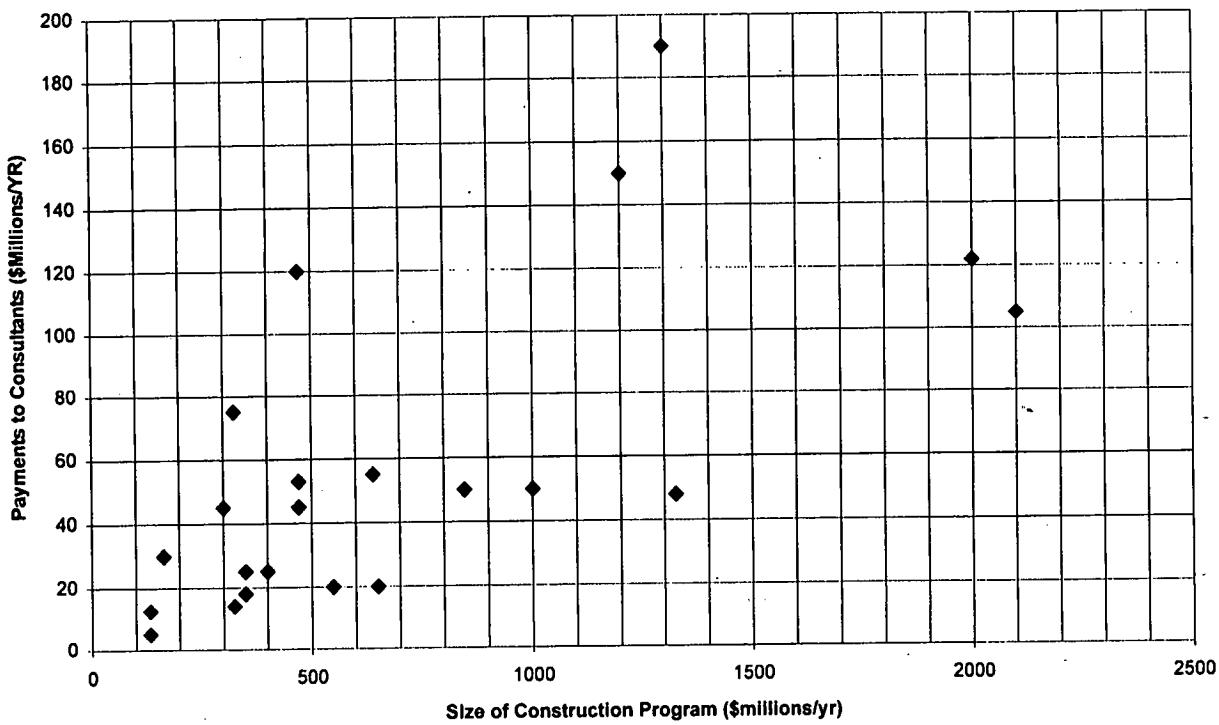

FIGURE 2 Consultant payments versus construction programs.

Only seven states in the current survey said there were no trends toward increased consultant use and five suggested that work levels fluctuated up and down. Twenty states affirmed trends to increased consultant usage, and more than half of this group expected the trends to continue.

NCHRP Synthesis 137 *(Sternbach 1988)* presented a graph of the annual payments to consultants in the late 1980s, plotted against annual construction program dollars. It demonstrated a poor correlation. Figure 2 indicates that a similar exercise with current data produces similar dispersion in results. For instance, among nine states with current construction programs in the $300–$400 million range, four spend less than $20 million on consultants, while five spend over $40 million per year. Among states with large construction programs at or above $1 billion per year, two

TABLE 4

CHANGES IN CONSTRUCTION VOLUME AND CONSULTANT PAYMENTS

	Change in Program and Consultant Activity Levels from Late 1980s to 1998					
	Annual Construction Program ($M)		Annual Consultant Payments for PCE Work ($M)		Percent Gain in Payments—1980s–1998	
State	1988 (Approx.)	1998	1988 (Approx.)	1998	Construction	Consultant
Arizona		850		51		
Arkansas	200	380	1	18	90	1800
Colorado	144	300	–	45	108	–
Connecticut	350	400	43	25	14	(-42)
Florida	750	1300	50	190	73	280
Georgia	500	650	21	57	13	171
Hawaii	50	120	–	5	140	–
Illinois	875	1337	45	47	53	4
Iowa	200	325	4	14	63	250
Kansas	260	550	3	20	112	567
Maryland	450	350	18	74	78	111
Michigan	400	151	2	30	(-62)	1500
Missouri	392	650	0	20	65	(infinite)
New Hampshire	80	110	–	11	38	–
New Jersey	430	437	30	53	2	77
New York	850	1200	56	150	41	168
North Carolina	350	1000	3	50	186	1567
South Carolina	280	350	10	25	25	150
Tennessee	450	680	8	–	42	–
Texas	1900	2100	36	105	11	192
Virginia	900	2500*	40	121	–	203
Washington	362	494	–	120	36	–
Wisconsin	250	450	12	45	80	275

*Combined construction and maintenance.

states spend about $50 million for consultants, one spends $95 million, one $150 million and the last $190 million.

Table 4 compares the present outlays with those from a decade or more ago, without adjusting for inflation. Changes in construction program volumes are almost all gains, ranging from 2 percent to as much as 186 percent. The changes in consultant PCE programs vary even more widely. Data from 31 states in the 1980s showed the median construction program was about $350 million and the median expenditure for consultants was $12 million. With 28 states reporting in 1998, the median values were $400 million and $25 million, respectively. Thus, though changes in construction generally have been modest, on average the outlays for consultants have doubled. A continuing source of information for business volumes in DOT design work is provided by the Zweig Report, accessible via the Internet or in hard copy *(Zweig 1997)*.

Appendix D shows other current characteristics of consultant contracts. The table lists contracted activities under the three AASHTO PCE work groups of predesign, design and other. Broadly, the proportions of predesign activities that were contracted out, for example, ranged from 20 to 75 percent, and the dollar amounts ranged from a low of $3 million to a high of $40 million. Under the various 16 listed tasks, the types of consultants employed, the selection processes, and the payment methods were quite consistent. Typically, general consultants were procured through negotiated agreements and paid on a cost-plus-fee basis, and the major factor reported in deciding to contract out predesign tasks was staff constraints. The need for special skills was the main determinant for obtaining consultants in certain activities. Some tasks (such as asbestos abatement studies, archaeology, hazardous materials, and value engineering) are wholly contracted out by many states, as presumably no in-house capability exists to carry out the work.

Appendix D's subhead of "Design" includes a general category and 13 separate tasks. General consultants are most often used for design; they are obtained through negotiated agreements on a cost-plus-fee basis. Staff constraints are reported to be the chief cause for consultant use in this broad category of work.

"Other" activities include tasks ranging from management systems to training courses. Many of the activities were first contracted out as recently as the 1990s and information was provided by few states. Dollar volumes are relatively small. The tasks are often contracted out totally, as the need for consultants was reportedly driven mostly by a lack of appropriate skills in-house.

INFLUENCES ON CONSULTANT MANAGEMENT PRACTICES

Federal legislation and policies have profoundly affected the procedures of state DOTs in obtaining consultant

services for preconstruction engineering. Perhaps the most important influence was the Brooks Act, passed in 1972, which established federal selection policy for architects and engineers. The law required that consultant selection be based first on qualifications only, and that negotiations should then follow about the cost of services. Subsequent years have produced refinements that carry through into the current act (TEA-21), covering contracting procedures for projects on the Federal-Aid highway system. One relevant aspect of TEA-21 is that: "Options are eliminated for States to adopt by statute alternate procedures for procurement of consultant services. . . . States that have adopted their own procedures by statute may continue to use their own procedures; no new ones can be used for Federal-aid contracts."

In general, the common Rule, 49CFR18, 23USC112, 23CFR172, and the Federal Acquisition Regulations (FARs) are used for consistent and equitable contract administration, accounting, and audits unless the state has comparable statutory controls. While the impact of federal regulations has clearly led to limits and boundaries, it may also have produced more uniformity. The current survey findings nonetheless reveal that diversity still prevails among the states.

One more influence on state practices has been the recent evolution of the "partnering" concept. Introduced by some states in the early 1990s, partnering procedures lead to more constructive relationships between owner/clients and engineering consultants in the conduct of projects. The views of both sides regarding this concept were solicited in the surveys and are presented in later chapters.

CHAPTER THREE

ESTABLISHING THE CONSULTANT PROGRAM

This chapter describes the considerations for state DOTs and their practices in setting up PCE consultant services. These include determinations of overall needs for outside assistance, methods to determine for which projects consultants are needed, and the concerns of DOT staff about using consultants to augment in-house staff.

ASSESSING THE NEED FOR CONSULTANTS

Various factors require departments to consider employing consultants to supplement their in-house staff in carrying out preconstruction engineering tasks. Table 5 indicates the relative significance of four factors, as ranked by survey respondents: 1) staff shortages, 2) peak shedding, 3) special skills, and 4) legal and policy considerations.

TABLE 5
IMPORTANCE OF FACTORS INFLUENCING CONSULTANT USE

Factors	Ranking by Number of Responses		
	High	Medium	Low
Staff shortage	19	6	7
Peak shedding	17	7	8
Special skills	6	11	15
Legal and policy	5	2	25

Staff Shortages

Shortage of staff is the most highly ranked reason for contracting out PCE work to consultants. The data in Appendix D support that in showing staff constraints as the dominant reason for contracting out. The Mississippi case cited earlier exemplifies the problem. The state's construction programs, and thus preconstruction effort, grew in magnitude significantly while Department staff remained the same.

Peak Shedding

Regardless of whether in-house staff and work programs are reasonably in balance, fluctuations in program levels inevitably occur over time. Good management suggests that the workforce be adequate to cope with "valley" levels and that the "peaks," likely of short duration, be accommodated some other way. Contracting work to consultants in order to continue meeting program schedules is the usual answer. Figure 1 showed the work volume increase for Kentucky and how it was met by using consultants in varying degrees for successive years.

Special Skills

Apart from consultant needs driven by imbalances between DOT staff and changing program levels, certain projects may require special expertise not available in-house. Aspects of such PCE work frequently include special archeological or environmental studies; others may involve projects with complex or specialized structural requirements. Limited frequency of these projects may not warrant keeping the relevant skills represented on the Department staff. Consultants can instead provide them as needed.

Legal and Policy Requirements

Few states rated legal or policy factors of high importance in determining the use of consultants. Those that did included California, Illinois, Michigan, New Hampshire, and Texas. California has a recent history of legal actions on both sides of the issue about how much use should be made of consultants. Texas has had several studies relating to whether the DOT use of consultants is consistent with legislative mandates in that regard *(Office of State Auditor 1997)*. The Illinois survey response described ". . . a commitment to consultant use." Typically, however, as Table 5 shows, legal or policy requirements were rated as having little importance as factors in the use of consultants.

COST AS A CONSIDERATION

Whether it is more cost-effective to do PCE work in-house or by contract is a matter that has received attention. One study using FHWA data demonstrated that states contracting from 50 to 70 percent of their engineering work achieved the lowest total overall engineering costs *(Fanning 1992)*. Using PCE costs as a percentage of construction costs as the criterion, and based on a long history of Department cost records, the Missouri DOT found that in-house engineering costs averaged 7.34 percent of construction costs against 9.62 percent for consultant designs *(Missouri DOT 1993)*. A review of 16 studies made in

conjunction with a Louisiana inquiry summarized their findings as follows: in 80 percent of the studies, in-house design was less costly; in only one case were consultants less costly; in the remainder, no significant difference could be determined. In the Louisiana experience, consultants were 20 percent more expensive *(Wilmot et al. 1999, p.1)*. Without offering specific data, some present survey respondents commented that using consultants was more costly, although one respondent observed that consultants could be more cost-effective for very large projects. Consultants have argued that, beyond these considerations, the benefits of timely availability and technical expertise that they offer provide values that cannot be measured in cost-effectiveness terms. Furthermore, cost comparisons should be measured counting total costs, including construction, on the basis that construction economies may be achieved through consultant designs. Another basis for disagreement is whether DOT cost estimates reflect all elements of overhead in the same way that consultant costs do.

The lack of consistent findings on the cost issue does not appear to cause great concern, in any case, given the fact that the need for consultants is overridingly created by staff constraints within the DOTs.

PROCEDURES FOR SELECTING CONSULTANT PROJECTS

Resolving which and how many projects are given to consultants is done in various ways. The size of projects, their complexity, or "long life," would cause them to be set aside for consultants, according to several states. For example, the Connecticut response said it was more cost-effective to do projects of less than $5 million in-house, and that larger ones would generally be contracted. Projects requiring skills not available in-house were obvious candidates for consultants.

Several states reported that no special processes were involved in selecting projects to be assigned to consultants. Eleven said that in-house staff was used to the maximum extent, with overflow work then going to consultants. One criterion for keeping certain projects in-house was suggested by the AASHTO Guide:

> There are certain types of projects, mainly where retrofit is involved, that are less costly and also more cost-effective when done by in-house staff experts. These include reconstruction projects that require extensive knowledge of the system or area, many rehabilitation projects, most emergency repair and permanent restoration projects, and traffic management safety projects *(AASHTO 1996, p.3)*.

Terms such as "manpower analyses," "workload/program comparisons," were used by survey respondents, suggesting that studies were made to establish the consultant level of effort. From the lack of detail provided, however, it appeared that these were essentially informal assessments.

Overall, the level of consultant services was determined by imbalances between program levels, schedule demands, and the availability of staff to meet them. As a previous study of outsourcing noted, "The degree of outsourcing is not typically resolved by standard formulas or models" *(Witheford 1997, p.15)*.

CONCERNS ABOUT USING CONSULTANTS

The tendency for growing consultant usage in preconstruction engineering does present some concerns to DOT staffs. In some cases, the shift of work from the public to the private sector can affect in-house staff capabilities. Thoughtful assessments of such changing conditions raise questions of retaining "core competency." The working relationship between department staff and consultants is another issue, as are other effects of ongoing trends.

Consultant Use and Human Resource Impacts

As manpower constraints are the major reason for consultant employment, Department policies aimed at maintaining staff expertise could be expected. Two-thirds of the survey returns confirmed such policies exist, yet 10 states offered no comments on this subject.

The most frequently cited measure to maintain staff capability was to keep specified percentages of work in-house. The proportions ranged from 50 percent up to 80-95 percent. Other specific policies were:

- Keep all projects less than $5 million in-house;
- Ensure a distribution of varied projects in-house; and
- Rotate engineers and technicians through an 18-month program.

No policies specifically designed to retain young engineers were in place, according to 18 responses. Remarks on related difficulties included the following: "We are a training ground for consultants." Restrictions on former DOT employees going to work for consultants carrying out state projects are found in some states, although they are often related to retiring staff rather than young engineers. A survey found that restrictions or "cooling off" periods applied for up to 2 years in many states *(TransTech Management 1998, Appendix B)*.

Missouri reported that consultants had an agreement with the state "not to raid staff." Nebraska said that a study of salary differentials between DOT staff and consultants was currently underway. Among 14 states describing some form of retention policy, eight states listed training programs as an inducement. In addition, some offer incentives such as special entry rates, rewards for passing Professional Engineer examinations and obtaining licenses, challenging and diverse design opportunities, continuing education, increased responsibilities, and promotions. A recurrent theme in survey responses with regard to human resource issues was that more training activities were being developed.

Most DOT responses indicated that the use of consultants has affected the mix and numbers of DOT employees engaged in preconstruction engineering. With respect to engineering personnel, half indicated there were no changes in numbers, but both decreases and increases were reported among the remainder. Several responses stated that the nature of work for engineers had changed, with comments like: "Employees are project managers, not designers," "30 percent time spent monitoring," and so on. In that regard, 21 states said that engineers handled both in-house work and consultant management simultaneously, while seven stated that the two activities were managed separately. Among those reporting joint functions, one-half said the practice presented no problems. Comments favoring the practice said it resulted in better-rounded project managers. The other group claimed that it did present problems, suggesting that either in-house work or consultant project management suffered at the expense of the other. A few states have technical staff exclusively assigned to consultant management; for example, with 40 percent of its PCE work assigned to consultants, the Nebraska Department of Roads has designated 6 out of 40 PCE staff to manage those projects.

At the technician level, 12 survey responses said that few or no changes had occurred in employment levels, while five said they had declined. Several comments were made about technicians having to assume more responsibility in working with consultants. As for nontechnical staff support, only one case of staff reduction was reported. Small increases occurred in six states and no change was reported in 10 states. One state commented on the need for more administrative support to process audits and invoices.

Relationships Between DOT Staff and Consultants

AASHTO's 1992 survey of consultants summarized one issue as follows: "There were also comments that they would like to be considered as an extension to the agency's professional engineering staff working with the agency to get the job done"*(AASHTO 1998, p.58).* Thus, the present survey included the term "extension of staff" together with the term "partner" in its questions about DOT staff and consultant relationships.

The majority of DOT responses described the consultant relationship as being an "extension of staff," usually without amplification. Six used both terms in their replies and five others used the term "partner" alone. Additional replies included these comments in characterizing the relationship:

> "Mutually beneficial and professionally rewarding."(Hawaii)
>
> "Varies depending on individuals and actual projects. In general, professional relationship with consultants viewed as outsiders." (Massachusetts)
>
> "Businesslike, client/owner relationship." (New Hampshire)
>
> "We must have them to produce the volume of work." (Texas)

The response from Virginia provided a broader view:

> For years VDOT has used consultants to meet the demands of our peak period or for special expertise, however as the program began to expand our reliance on consultants also grew. This was seen as a threat by some employees at the time. There were the usual fears that consultants would cost some employees their jobs. As they began to realize that there was more work than we could possibly handle in-house and as our staff and their consultant counterparts began to work together those fears began to disappear. Today we have an open, honest atmosphere between our staff and the consultants working for us. They are treated as an extension of our staff."

Table 6 lists responses from the consultant survey. About one-third used either or both of the terms "partner" or "staff extension" in their characterizations of the relationship. A similar proportion reported varied experiences, presumably indicating differences from state to state. The last group tended to present one-sided views, some positive and others negative. Less than positive connotations can be seen in many comments. Aspects of liaison and communications between departments and consultants that may bear on these perceptions are discussed in a later chapter.

Other Concerns

The AASHTO Guide reported that 90 percent of states, in the early 1990s, used both state and federal funds for preconstruction engineering, but added that many ". . . would prefer to use state funds only to reduce paperwork and review . . ." *(AASHTO 1996, p.46).* The same proportion

TABLE 6
CONSULTANT PERCEPTIONS OF RELATIONSHIPS WITH DOTs

(A tabulation of selected consultant responses to the question: How do DOTs treat consultants (e.g., as extensions of staff, partners, etc.)?

As Partners:	4 Responses
As Extensions of Staff:	5 Responses
Varied Experience:	Some treat them as a part of the team and others treat them as if they are stealing work from them. They look at hourly rates and get an attitude
	All of the above depending on Project Managers
	Varies widely. Some treat consultants as a threat to their job. Others treat consultants extremely fairly. Average tends to be the former.
	Some good. some bad
	Mixed—at best, extensions of staff, possibly experts in areas DOT don't have—usually with suspicion and lack of trust
	Varies, generally states with small staffs treat consultants as welcome partners. States with larger staffs tend to view consultants as "necessary evils"
	Our experience, for the most, has been as partners and extensions of staff. We have DOT personnel working in our office on a major project. However, in some areas we seem to be a threat and a competitor
	Wide range of treatment, from staff extension and partners to almost adversaries
	Depends on consultant project manager's relationship with DOT staff—at times. Some DOT staff resent consultants performing the work
	Varies by DOT. Some adversarial, others as an extension of staff
Other:	Many times as "Worker bees"
	Getting better, active GQI partnering process ongoing
	Respect and suspicion—50/50
	Usually as partners, but sometimes as cheap alternatives to something they can't do themselves
	"Partnering." We have experienced "hostility" and blaming with individuals. Most recognize value of Team, but effort has been expended to defend decisions. Usually, issue of miscommunication within DOT
	OK, but not as "true partners" or staff. Still a lack of trust
	They demand more of consultants than staff
	Temporary contract employees
	Usually as outsiders
	As subordinates
	Excellent rapport

uses both funding sources today. Percentages of state funds were reported to vary from none (Georgia's Roads Division, Michigan, and South Carolina) to 100 percent (Minnesota). Thirteen states reported using state funds for up to 40 percent of the PCE program, while 10 states use them for 80 percent or more. Explanations for their choices were not offered, but the issue of complying with federal regulations may still be regarded as a burden.

Whether quality of work is comparable between in-house and consultant projects was not addressed by any respondents, as the question was not specifically raised in the survey. Later discussion on consultant evaluations and their uses within departments may provide insights on this aspect.

CONTRACTING PROCEDURES

Considerable flexibility exists in the acquisition of preconstruction engineering services. There are different sources to consider as contractors (consultants, other public agencies, universities, etc.); different choices of procedures for engaging them (sole source, negotiated agreement, etc.); and different options on how payments will be made (lump sum, cost plus fee, cost per unit, etc.). The state of practice in these areas is described next.

Contractor Types

Preconstruction engineering involves a wide array of subordinate activities in addition to the preparation of construction plans, as Appendix D shows. The tabulation also shows the types of contractors normally providing the services. Public agencies, minority businesses, and universities are involved in some specialized areas, notably archeological and biological reviews. General or specialty consultants clearly supply most needs. The primary focus, therefore, is essentially on private sector consultants.

Contract Procedures

The negotiated agreement is the dominant procedure for engaging consultants or other contractors in preconstruction engineering. The use of low bids was occasionally reported for various predesign studies, and sole-source selection was reported by Illinois for wetland and biological studies. Georgia reported using sole-source selection for value engineering and geotechnical studies. Georgia also reported using low bids as well as negotiated agreements for roadway and structural design. Vermont reported the use of low bids on right-of-way and utility work.

Types of Contract

North Carolina's Policies and Procedures Manual describes the typical consultant contract forms and their applications as follows *(NCDOT 1996, p.12)*:

> *Lump Sum*: This type of contract is suitable when the amount and character of required services can be reasonably defined and clearly understood by both the Department and the contracting firm.
>
> *Cost Plus Fixed Fee*: This type of contract is suitable where the general magnitude of services is known but the scope of services or period of performance cannot be defined clearly and the Department needs more flexibility in expediting the work without excessive amendments to the contract.
>
> *Cost Per Unit of Work*: This type of contract is suitable where the magnitude of services is uncertain but the character of services is known and the cost per unit can be determined accurately.
>
> *Limited Services*: This type of contract is suitable where a specialized service is needed on a substantial number of projects over a specific period of time. The character of the specialized service can be reasonably defined and understood by the Department and the contracting firm, but the number of individual projects make the selection of firms and the negotiation and execution of contracts for the service on individual projects time prohibitive.
>
> *Specific rate(s) of Compensation*: This type of contract is suitable where the magnitude of services is uncertain but the character of services is known and a cost per hour can be determined.

The AASHTO survey found that cost plus fixed fee (CPFF) contracts predominated in 76 percent of the states and lump sum contracts in 17 percent. The same proportions prevail in the current survey.

Table 7 shows the distribution for the four contract types. Lump sum contracts are used by all but four of the states reporting, but in most cases they represent 20 percent or less of the total work. CPFF contracts were reported by all but one state, and typically account for 80 percent or more of the consultant contracts. Nine states used CPFF for 95 percent or more of their projects. While

TABLE 7

DISTRIBUTION OF CONSULTANT PCE WORK BY CONTRACT TYPE

	Use of Each Contract Type (by Number of Respondents			
Percent Use	Lump Sum	Cost + FF	Cost PU	Agr. Rt
1–19	19	3	15	9
20–39	5	1	0	2
40–59	2	4	1	0
60–79	0	4	0	1
80–100	3	20	0	0
Total	29	32	16	12

cost per unit of work contracts are used by almost half the states, they generally account for five percent or less of the jobs. Agreed rate contracts are used least of all, and by the smallest number of states.

The consultant survey revealed that most consultants preferred lump sum contracts; only three preferred the CPFF form. Five preferred lump sum contracts when project scopes were well defined but CPFF contracts if they were loosely defined. The summary in Appendix D provides more detail on contract types and areas with which they are associated. For example, the little-used cost per unit of work contract type appears mostly for mapping work.

"On-Call" Contracts

North Carolina's "limited services" contracts are essentially similar to "on-call" contracts, "master" contracts, "indefinite quantities contracts," or "indefinite delivery of services" (IDS) contracts. A description of the last is given in Michigan's "Contract Management Manual" *(Michigan DOT 1998, Ch. 6, p.1)*:

> An *Indefinite Delivery of Services* (IDS) is a particular type of standard format contract. These contracts are multi-year contracts used for the smaller jobs and do not contain any work or funding at the time of execution. The contract establishes a relationship with the consultant and provides a mechanism so that "authorizations" can be issued when work is ready to proceed. The work, and dollars, are added at a later time via an instrument called an authorization. The provisions of the contract apply during the activities initiated by the authorization. . . ."

This contract form appears to be increasingly used and information about its applications in preconstruction engineering came from most states. California uses it for 79 percent of all consultant contracts and Maryland reportedly employs it for 50 percent or more of their contracts. On-call contracts are used for at least 14 special activities, from design surveys and traffic engineering to hydrology and bridge design (as in California's Seismic Retrofit Program). Several states also use them when conditions of overflow work and peak-shedding situations arise. As

described above, the contracts are executed for 2-to 3-year periods and task orders are prepared and negotiated individually as job needs develop. They can be useful, as the Pennsylvania survey response noted, ". . . when we need consultant services for a quick response to unforeseen needs." Michigan has also found that consultant selection times can be cut in half, from 15 to seven weeks, when IDS contracts are used. In most cases, DOT staff handle the contracts the same as other consultant projects, but Georgia DOT recently established a special unit to manage them.

CHAPTER FOUR

CONSULTANT SELECTION PROCESS

This chapter concerns the processes that advance projects from the decision to outsource to negotiating with consultants for their performance. The chapter divides these steps into two stages, preselection and selection. The first stage covers issues of federal and state regulations, quality-based versus price-based selections, prequalification, and solicitation of letters of interest or requests for proposals. The second stage describes steps in selection committee formation, review processes, and documentation.

Figure 3 illustrates, from beginning to end, the Nevada DOT procedures in employing consultants. Steps 1-8 in the chart cover the activities described in this chapter. The remaining steps are covered in chapters that follow.

PRESELECTION

Federal and State Regulations

Federal regulation of contracting procedures for state transportation agencies is not new. For present purposes, the history can begin with the 1972 passage of the Brooks Act. This law called for the following steps to be taken in federal procurement of architectural and engineering services:

1) Review of qualification statements and performance data submitted by consultants;
2) Discussion with no less than three firms on concepts and project approaches;
3) Selection of no less than three firms based on qualifications;
4) Negotiation with the highest qualified firm on compensation.

Subsequent legislation has extended the Brooks Act coverage to state contracts using federal funds. A detailed history of the developments through the late 1980s is included in Synthesis 137: *Negotiating and Contracting for Professional Engineering Services (Sternbach 1988, pp. 6–7).* Along the way, the term "qualifications-based selection" (QBS) came into use.

Later federal legislation introduced other changes. Most recently the Transportation Equity Act for the 21st Century (TEA-21) further extends the applicability of federal regulations. For example, its provisions facilitate the auditing procedures described in the next chapter. It also requires QBS processes and following Federal Acquisition Regulations (FAR) for contract administration and accounting on Federal-Aid projects. It no longer contains a condition that permits states to deviate from federal procedures if equivalent state procedures were mandated by state legislation. However, states with such statutes already in place are permitted to continue their previous practices.

In general, the federal procedures are spelled out in the Code of Federal Regulations (CFR), in 23 CFR, chapter 1, Part 172—Administration of Engineering and Design Related Service Contracts. Section 172.7 outlines three methods of procurement; that of competitive negotiations is most applicable in the typical PCE consulting case. Small contract acquisition is governed by the Common Rule on federally supported projects.

Since the 1970s, many states have enacted statutes (often termed "Mini-Brooks Laws") specifying similar practices. Even where not required by statute, many DOTs have adopted policies extending the applicability of procedures used for Federal-Aid projects to locally funded ones. As Michigan's Design Contract Management Manual pragmatically notes: "It is MDOT's policy and practice to fully comply with federal law and procedures on all projects. The reason for this policy is that federal funds may become available in the future and added to a project that is currently funded 100% with state funds" *(Michigan DOT 1998, Ch. 2, p.1).* Some states have essentially replicated the Brooks Act and its requirements by adopting the use of federal forms. For example, RFP procedures in some states require the use of federal Standard Forms 254 and 255 in consultant Letters of Interest (LOI) or Statements of Qualifications.

Qualifications-Based versus Price-Based Selections

The foregoing suggests that QBS is the only method that can be employed for selecting consultants. The current DOT survey shows that all states subscribe to it, at least in connection with federally funded projects. Seventeen returns specifically noted that statutes prescribed the QBS process and others stated that it was state policy or otherwise practiced. Again as an example, Michigan DOT's Contract Management Manual states:

> The rationale behind this methodology is that the cost of the design of a project is a small percentage of the total cost (usually five to ten percent). Any savings gained by scrimping

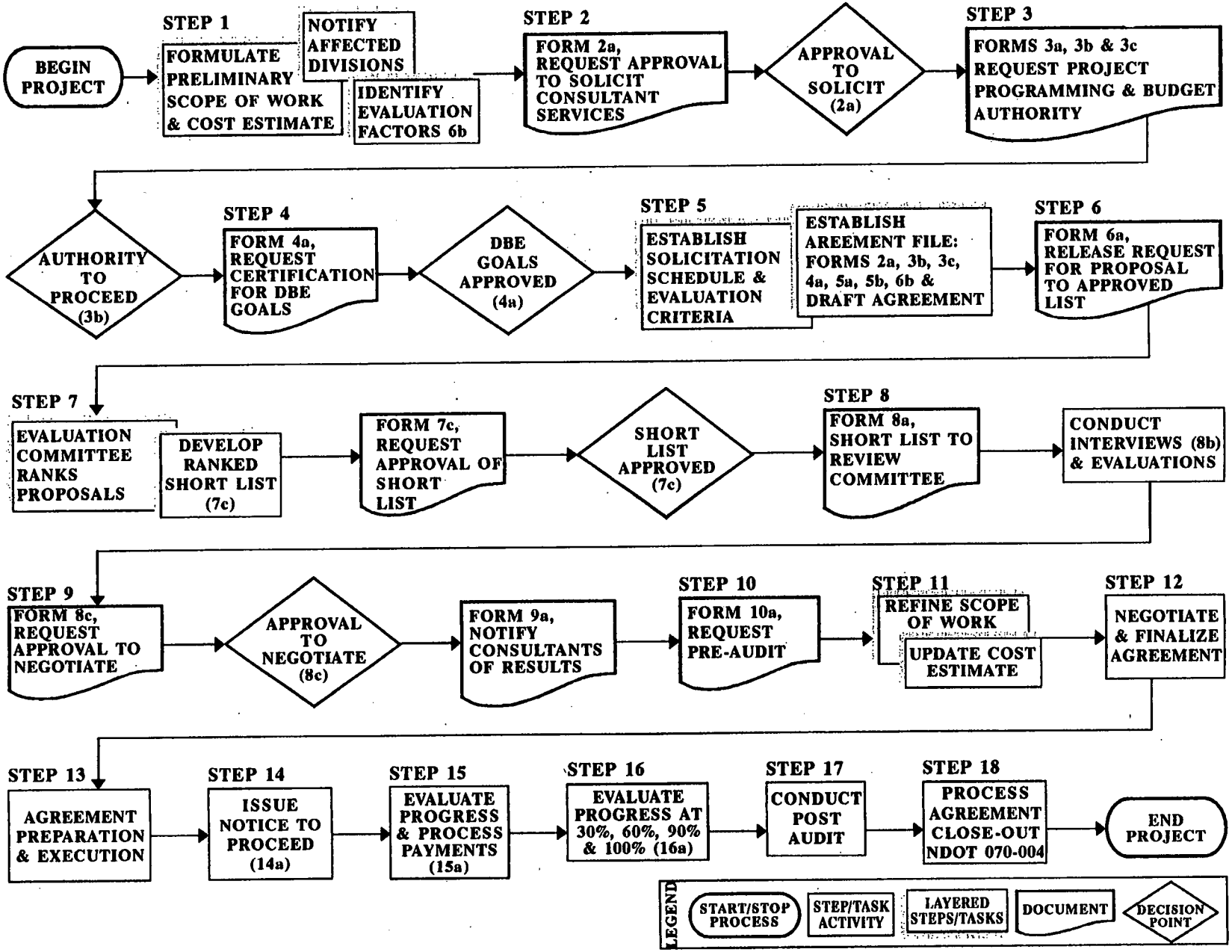

FIGURE 3 Nevada DOT process for employing consultants.

on the design is more than lost by overruns and extras during the construction of the project. This Department's experience has shown that this philosophy has a basis in fact." *(Michigan DOT 1998, Ch. 2, p.1).*

Nevertheless, some states do consider price in selecting consultants for state-funded projects. The responses from Georgia and Vermont made the following comments:

Georgia—(Roads) "State law sets dollar limits for methods of selection. . . ", and "Currently use QBS procedures but can use Low Bid Selection."

Georgia—(Bridges) "Must be based on Qualifications; Price is a primary or dominant criterion."

Vermont—Consultant selection typically based on a combination of qualifications and price.

None of the responses above described how the selection process actually considered price, but Vermont was noted earlier as one of few examples using the low bid procedure for certain studies.

Mississippi has a selection procedure, established in 1990 and used only on nonfederal projects, called time, cost & qualifications (TC&Q) analysis *(TransTech Management 1998, p. 3–9).* With this procedure, each consultant is evaluated on qualifications in the short-listing process. Selected firms submit proposals that include time and cost estimates. The proposals are then evaluated and graded on both time and cost, before scores on all three factors are combined into a final ranking. The system is thus in part qualifications-based, though the highest-ranking firm on qualifications need not necessarily be the first choice in the end.

Minnesota DOT has a procedure instituted in 1998 called the "Best Value" selection process. Consultant proposals submitted in response to RFPs must be accompanied by a cost proposal under separate cover. The selection committee rates proposals with a maximum of 80 points out of a possible 100 being given to qualifications. Cost-based selection follows. The top three consultants from the first stage are then ranked by a formula based on relative costs, assigning proportions of the remaining 20 points. The award is then made to the proposal with the highest combined sets of points.

Price can also enter indirectly into the selection process. Respondents from two other states said that overhead rates could be considered, based on reviews of past project experience. One noted that overhead is "considered in the ability to control cost and efficiency." Twenty-nine replies stated, though, that cost was not a consideration at this stage.

Consultant survey replies on this issue broadly echoed those from the DOTs. Twenty-six out of 30 confirmed that QBS is the primary method for proposal selection. Two said "No" with the following remarks: "No, although it should be;" "No, not always, but they say it's based on qualifications."

There were also these remarks:

"It [QBS] is preferred but for smaller projects ODOT is moving toward price-based solution."

"Yes, however, subjective opinions and home state favoritism happens often."

"In general, Yes, but it varies by state. Many states openly violate the Brooks Bill . . . and request price proposals. In other states, man-hour efforts are occasionally used to calculate rough pricing for consultant services and that enters into the selection process."

It was not clear whether some of these comments might have been directed at selection procedures for state-funded PCE work, like those described above. In any case, the majority of both DOT and consultant responses showed widespread acceptance of qualifications-based selection without regard to price. AASHTO's report of the 1992 survey, incidentally, summarized responses in this manner: "Eighty percent conform to Brooks Bill—twenty percent vary, mostly a modification of Brooks Bill, but none indicated cost was the sole criterion." *(AASHTO 1996, p. 49).*

Prequalification

DOT Practices

AASHTO's 1992 survey reported that two-thirds of the states prequalify consulting firms before short-listing and one process is "to develop and maintain a file of consultant firms by specific work categories or areas of expertise . . . usually updated annually" *(AASHTO 1996, p.12).* An alternative method is to qualify consultants on a project-specific basis. This procedure may be followed for large or complex projects, or when special expertise is required.

In 1998, the same proportion of states called for prequalification. All use standard forms for consultant submissions. Figure 4 shows the instruction sheet from Florida's 45-page Request for Qualification Package, which covers 25 types of work. Six states specifically mentioned incorporating the federal Standard Forms 254 and 255 in their packages. Michigan offered a negative comment about the volume of prequalification materials: "Tons of it. We have created a paperwork monster and are trying to change the process." (Michigan no longer uses Forms 254 and 255 for Letters of Interest). Only two states (Maine, Minnesota) actually reported project-specific qualification procedures, though more probably follow the practice.

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION
INSTRUCTIONS FOR SUBMITTING A REQUEST FOR QUALIFICATION PACKAGE
FOR PROFESSIONAL CONSULTANTS

FORM 375-030-01
CONTRACTUAL SERVICES
OGC - 05/96

Instructions for completing Request for Qualification Package:

1. Each package must represent the capabilities of your firm. Examples of completed projects, and equipment must be completed for the types of work you request.

2. Review the following pages 3 through 45 and determine the Type of Work your firm is qualified to do. Fill out sheet(s) for each Type of Work you selected and send it in with page 1 & 2 of the application package.

3. Personnel you feel qualified to perform various Types of Work must be listed separately for each Type of Work they perform, on each Type of Work sheet (pages 3 through 45), and the resumes you submit on these people must support their ability to do this work. For each group of work requested, attach a set of resumes to each group even though the same people may be listed for several groups.

4. One copy of your overhead audit, if applicable, for the most recently completed fiscal year prepared by an independent C.P.A. or governmental agency must be included in the qualification package if applying administratively for contracts above $250,000. In addition to the overhead audit, the auditor's report must also contain an evaluation of the consultant's accounting system. Rule Chapter 14-75, F.A.C., provides additional information regarding overhead audit requirements as well as the requirements for recently organized firms.

   For types of work 20.1 (Appraisal), 20.2 (Appraisal Review), 22 (Acquisition Business Damage Estimating and Estimate Review), 24 (Acquisition Relocation Assistance) and 25 (Right of Way Clearing and Leasing):

   The existence and evidence of an adequate accounting system that meets the Department's audit requirements, as evidenced by certification by an independent Certified Public Accountant or governmental agency, will not be required for qualification until the beginning of the consultant's fiscal years on or after July 1, 1997.

   An annual overhead audit performed by an independent Certified Public Accountant or governmental agency will not be required for qualification until the end of consultant's fiscal years on or after July 1, 1997.

5. Any additional marketing data that you feel will be helpful in qualifying your firm for various Types of Work should be included with your submittal.

6. A completed Package must be sent to the Contractual Services Office in Tallahassee.

If, after our evaluation, we determine that your firm or personnel listed do not meet our qualification standards, we will notify you in writing of our findings.

FIGURE 4 Cover sheet—Florida RFQ package.

Maryland, a state not requiring prequalification, nevertheless maintains files from interested firms similar to prequalification materials.

The only response referring to the Internet in connection with prequalification came from Texas DOT, but Florida has been encouraging Internet use of its "Home Page" since 1997. Figure 5 exhibits a letter describing accessible material relevant to consultant proposals. (Most states have Web sites that can be accessed either directly or alternatively through linkages from other sites such as those of TRB and FHWA).

All prequalifying states keep their files current and about half use them as a basis for soliciting proposals or Letters of Interest. Connecticut uses these files exclusively, and Colorado and Maryland use them for projects with fees under $100,000. Other states said that projects were advertised.

On the question of certification as part of prequalification—a requirement related to minority, disadvantaged, or small business firms—responses were mixed (perhaps depending on whether the survey forms were completed by administrative or technical staffs). Sixteen replied that certification processes were in use, ten said they were not, and seven provided no information.

Consultant Views on Prequalification

Eighty percent of the responding consultants favored prequalification with annual updates. Most of the remainder

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BEN G. WATTS
SECRETARY

May 20, 1997

TO ALL PREQUALIFIED CONSULTANTS

We now have consultant information on the world wide web. Enclosed is a copy of the FDOT Home Page main menus. You can log on at http://www.dot.state.fl.us/. At the main menu select **"Doing Business with FDOT'**, then select **'Consultant/Contractual Services."** This gets you the following options:

- Doing Consultant/Contractual Services for FDOT This provides general information for firms new to FDOT.
- Current Advertisements. These will be the same ads that appear in the Florida Administrative Weekly (FAW), but they will appear here about ten days sooner and remain until letters of interest are due.
- Selection Results. These also appear sooner here than in the FAW, and should save you the trouble of calling the district.
- Planned Consultant Projects. Next year's complete work program for consultants by district.
- List of Prequalified Professional Consultants Our most frequently requested report. Also includes a separate list of prequalified DBEs. You can look at it, download it and save paper.
- Contractual Services Forms. Our prequalification application forms, invoice forms, DBE/MBE payment certification forms. Not for viewing but can be downloaded.
- Contractual Services Publications. Overhead Audit Guidelines, Negotiations Handbook, Prequalification Information. Also for downloading only.
- Proposal Packages. This will soon contain Requests for Proposals and Invitations to Bid for Contractual Services which are price competitive.

We strongly encourage you to use the Internet as your primary source of information, rather than calling and requesting paper copies. We will still advertise in the Florida Administrative Weekly for the time being, but we plan to eventually phase that out.

Future plans also include consideration of contract development and communications and invoice processing via Internet. We will need an Internet address for the contact person for your firm. Please send this to: george.cole@dot.state.fl.us . We would also welcome any suggestions you might have for improving or enhancing this process.

Sincerely,

Terry J. Cappellini, Manager
Contractual Services Office

FIGURE 5 Electronic access in Florida.

supported prequalification but on a 2-year or multi-year basis. Only the following negative comments appeared: "Proliferating subcategories benefit larger firms" and ". . . most are simply exercises—not real prequalification." The majority found nothing burdensome about the process, but over 20 percent mentioned excessive paperwork (as in "Documenting large numbers of projects with ALL the financial or other stats)," or the need for using different forms for different states.

Half the respondents offered no suggested changes. The most frequent suggestion was to use uniform forms

incorporating Form 254. Others included page limits, biannual updates, and modification of categories. On this last point, one consultant wanted more sharply defined categories while another wanted the number reduced and simplified.

Project Notices

Preliminaries

Several steps are necessary before RFPs or solicitations of LOIs can be issued. These are identified in 23CFR Sections 172.5 and 172.7 of the Federal Regulations applying to Federal-Aid projects. Figures 6 and 7 show the steps followed in South Carolina, first to set up a consultant project (Form 1) and second, to complete the selection process (Form 20). Beginning steps for Vermont's consultant procurement are shown in Appendix E, which outlines procedures from preparing work scopes to contract execution.

Solicitations

The AASHTO Guide noted a tendency toward project-specific solicitations that appears to continue, according to the current survey returns. The federal regulations require that an RFP describe the scope of work and the evaluation factors to be used together with their relative importance, and allow adequate time for proposal preparation.

State notices are framed in varying degrees of complexity. North Carolina has only a three-page set of instructions (See Appendix F), and sets a 15-page limit on interest submissions,. Virginia, on the other hand, has a 22-page RFP package (actually seeking expressions of interest) outlining what must be submitted. Procedural variations are further reflected in the specification of LOI contents. Seven of 29 responses said that LOI content was not specified. Few described contents in detail, but most indicated materials similar to those of North Carolina, which adds the following to the FAR list: a discussion of DBE goals, PE registration requirements, format of submissions, and typical contents relating to the evaluation factors. As noted earlier, some states stipulate the inclusion of either or both Forms 254 and 255.

Consultants favored the LOI approach by a two-thirds majority, with several expressing support for page limits. A few comments were made to the effect that prequalification should make LOIs unnecessary, or that LOIs were not useful because everyone replied to them.

Media Used for Solicitation

The means for reaching the consultant community are as varied as the states themselves. Five kinds of media outlets were reported in the survey:

- Official state bulletins or papers (11—number of times reported),
- Newspapers (15),
- Trade Magazines (6),
- Mail Lists (12), and
- Internet (10).

Thirteen states reported the use of only one outlet; four of these were the mail lists of prequalified consultants; four others were official publications. Florida now uses the Internet exclusively. Nineteen states reported two or more methods. In these cases, the Internet was often an addition to more traditional media.

CONSULTANT SELECTION

The following sections present a picture of current practice in this sensitive area of preconstruction outsourcing. They deal with committee formation and function, evaluation criteria and proposal review, and other relevant considerations.

Committee Makeup and Functions

Part 172 of the CFR does not address the subject of Selection Committees. The AASHTO Guide recommends either of two methods for their establishment: fixed membership and rotating membership. Only seven states reported fixed membership, usually involving high-level staff, while 16 reported membership changing for each project. In the latter case, membership would typically include a higher proportion of mid-level technical staff.

Advantages and drawbacks are cited by AASHTO for each method. Fixed membership, because of familiarity with consultants' work, was claimed to be a speedier process. On the other hand, it could also lead to charges of favoritism and, because of the higher staff level represented, result in a lack of familiarity with project details. An advantage of the project-specific committee is its higher likelihood of relevant technical skills and familiarity with the project. A drawback may be a lack of seasoned judgment.

Committee sizes vary from state to state. Seven states reported membership that varied from three to six, while two states reported more than six members. Ten states described a membership of predominantly mid-level staff, and nine reported high-level groups. Representation of different divisions or units was frequently mentioned, although without reference to the level of staff involved. The typical function of these committees is straightforward: first, review LOI; second, rank them using the advertised evaluation factors; and third, recommend a shortlist of candidates for development of detailed proposals. In some

REQUEST FOR PROFESSIONAL SERVICES

To be Completed by Director of Engineering

Name of Responsible Area _____ Person _____
Road Number _____
Project Name _____
Limits: From _____ To _____
Total Estimated Cost _____ Fiscal Year Pgmmed. _____ Fund _____

Required Documentation Checklist:

Comments:

- Justification for Professional Services (Form 2) ☐
- Scope of Services (Preliminary) (Form 3) ☐
- Preliminary Estimate of Work Effort and Fee (Form 4) ☐
- Project Location Map (Form 5) ☐

Information Reviewed Checklist:

- Appropriation is Available ☐
- Project is in Work Program ☐
- Comments Attached ☐

☐ Recommended for Use of Non-Department Services and Advertisement

_____ _____
Director of Engineering (Signature) Date

To be Completed by Contract Program Manager

Date Received from Requesting Unit _____

☐ Package Contains All Required Forms

_____ _____
Contract Program Manager (Signature) Date

To be Completed by Deputy Director

Additional instructions:

_____
_____
_____
_____
_____

Approved for outside services:

_____
Deputy Director (Signature)

Date: _____

FIGURE 6 Project preparation form 1—South Carolina.

PROFESSIONAL SERVICES SELECTION PROCESS

To be Completed by Contract Program Manager

Project Date

Requesting Unit _____

Project Name _____ Road No. _____

Project Limits From _____ To _____

SCDOT Cost Estimate _____

Services Requested _____

Fiscal Date

Fund _____ Year Programmed _____

Type of Project:

- ☐ Class I Project
- ☐ Class II Project
- ☐ Class III Project

Methods of Selection:

- ☐ Standard
- ☐ Special
- ☐ Modified A
- ☐ Modified B

Date Authorized for Outside Services _____

Advertisement Date _____ Submittal Deadline _____

Number of Responses Received _____

Area(s) Requested _____ _____

Name of Selected Firm _____

Execution Date _____

Type of Agreement _____

Total Agreement Amount _____

- ☐ Quantitative & Technical Analysis
- ☐ Preaward Audit (Report No. _____)
- ☐ Fee Negotiated
- ☐ Terms and Conditions Reviewed

Package Includes:

- ☐ Selection Committee Appointment (Form 21)
- ☐ Draft Announcement (Form 22)
- ☐ Selection Criteria (Form 23)
- ☐ Published Announcement (Form 24)
- ☐ Summary of Responding Firms (Form 25)
- ☐ Initial Evaluation (Form 26)
- ☐ Oral Interview or Additional Information Evaluation (Form 27)
- ☐ Final Recommendation (Form 28)
- ☐ Certification of Nonvoting Member(s) (Form 29)

_____

Contract Program Manager

FIGURE 7 Project preparation form 20—South Carolina.

cases, the selection committee is responsible for the earlier development and weighting of the evaluation factors described in the solicitation of LOIs. Other variations in the activities will be described in the next section.

Five consultants, commenting on problems associated with selection committee make-up, confirmed the drawbacks cited by AASHTO above. Other comments described encounters with inexperienced staff appointees to the committees.

Short-Listing Review Procedures

The AASHTO Guide listed criteria typically suggested for selection evaluations. Table 8 shows these; the associated numbers represent the number of times these factors were mentioned in current survey responses.

TABLE 8

SUGGESTED CRITERIA FOR PROPOSAL EVALUATION

Special expertise and experience of the firm's key employees and their availability and time commitment to the project	26*
Proposed staffing for the project and previous experience of those identified	27
Experience of the firm and their personnel on previous projects similar to the one under consideration	19
Understanding of the project by the firm as demonstrated by their approach to organizing and management of the work	6
Current workload of the firm and their ability to meet the proposed project schedule	17
Location of the firm's office where the work will be done	12
Quality of previous performance by the firm with the agency	18
Disadvantaged Business Enterprise (DBE) participation whether as a prime or as a subconsultant	4
Use of subconsultants to accomplish work on the project	0

*The number of times this criterion was identifed in survey returns.

In addition to LOI, reviews may be based on other information sources, such as prequalification materials, or performance evaluations from previous projects. Eighteen states review only one item; of these, 13 review the LOI, four review prequalification materials and one reviews past performance. Thirteen states review past performance and either or both prequalifications or LOI.

California evaluates technical proposals as follows:

Project Team

a) qualifications and relevant individual experience,
b) unique qualification of key personnel, and
c) time commitment of key members.

Firm's Capabilities

a) demonstrated capability on similar or related projects,
b) management and scheduling abilities,
c) other on-going projects and priorities,
d) quality and cost control, and
e) staff availability.

Project Understanding And Approach

a) demonstrated knowledge of the work required,
b) explanation of the project,
c) knowledge of Caltrans processes, and
d) innovative approaches and internal measures for timely completion of project.

Affirmative Action

a) present level of minority utilization within the firm,
b) active and acceptable affirmative action plan aimed at eliminating all forms of discrimination, and
c) demonstrated compliance with affirmative action plan on previous projects.

Feasibility Of Oversight

a) ability and willingness to respond to state requirements and
b) accessibility to State reviewers.

References

a) record of producing a quality product on similar projects on time and within budget.

Samples of rating forms used by Nevada and Virginia are shown in Appendix G. These show how committee members rate each submission and score it by the various evaluation factors. As one more example of evaluation procedures, the criteria and assigned weighting for North Carolina are shown in its solicitation package (see Appendix F).

The workload factor and its treatment may be one of the more sensitive elements in DOT-consultant relations. The present survey paralleled AASHTO's in asking whether any policy existed to distribute work among the consultant community. Fourteen states had no policy of this kind. Other states, however, suggested that there might be some effect of that kind through the treatment of the workload factor. Virginia's rating form, for example, shows that the higher the workload the lower the rating. Six other states view the workload factor in a similar way. Other relevant remarks included the following:

Connecticut—Consideration is given to dollar volume for the past three years and the number of selections for the past three years.

Illinois—A firm cannot be selected for more than one project in a Selection Committee meeting.

Maine—Try to have no more than five contracts with any consultant at one time.

What may be a unique process of long-listing followed by short-listing is practiced in Florida. The long list, a minimum of 10 firms, is compiled by the Project Manager or Technical Review Committee from lists of prequalified consultants or other respondents. A "short-list profile" from Department data bases is then packaged with other data for review by Committee members either before or during the Selection Meeting. A short-list of no less than three is then chosen.

Michigan DOT short-lists three firms from the LOI packages. In discussing this limit, its "Design Contract Management Manual" *(Michigan DOT 1998)* notes the $30,000 estimated cost to consultants for proposal preparation and presentation, and also notes the Department staff time required for proposal review and evaluation.

The number of consultants chosen for short-lists is not uniform from state to state. Twelve states reported selecting three candidates, and other states range from three to six. Nebraska and North Carolina both reported selecting two or three more firms than the number of projects advertised in a group. Table 9 shows comments made by consultants on the short-listing step; several relate to the workload aspect.

TABLE 9

CONSULTANT COMMENTS ON SHORT-LISTING EVALUATION PROCEDURES

Selection of short-list firms is unknown procedure. No one is ever quite honest enough to say we picked the best or that you had a few less people, etc. Always hear you were "Almost there." Rather know exactly. Distribution of work seems to be an excuse sometimes rather than helping firms.
Selection by project managers seems to overlook distribution of work and includes limited experience by Selection Committee.
Rating criteria not made available.
Do not select based on best proposal. Select short list based on amount of work you currently have with DOT, what phase you are in.
Selection should be based on "Qualifications" and not based on "spreading the work around."
Appears that it is done on rotation. Are you next in line?
Distribution of work has been a problem in the past with SCDOT. This seems to be improving.
Short lists are too long. Three to five should be enough.
Shortlisting too many firms, requesting "sealed" fee proposals from shortlisted firms—this requires extensive effort from firms not selected.
Processes do not take into account previous performance evaluations and does not take into account current workload and ability to complete work.

The AASHTO Guide recommends that an RFP (for a technical proposal) be sent next to the short-listed firms. Not all states do this. At this stage, for example, North Carolina's Policy and Procedures guide calls for the Contract Negotiator to begin negotiations with the first choice firm on the short-list. Florida's more complex procedure is covered in a 46-page manual "Acquisition of Professional Services." The initial step after short-listing is to confirm that those consultants are still interested in the project. An RFP package is prepared for distribution to them and a scope of services meeting is held to ensure that all are starting proposal preparation on the same basis. Written or oral proposals or both may be requested. Then, after the technical review and ranking of proposals is complete, the negotiating officer begins to work with the first choice firm.

California's procedure is described in the following excerpt:

> Caltrans staff prepares a scope of work which they provide to the short listed firms prior to the interview and final evaluation stage of the selection process. The Caltrans staff then finalizes the scope of work to be used during the scoping meeting, which is held with the top-ranked firm just prior to the beginning of cost negotiations. The scoping meeting between Caltrans' Contract Manager and the Consultant's Project Manager is to ensure that the selected consultant has a complete understanding of the work required. Questions concerning the draft contract, the cost proposal, requirements, the person hours required to perform the work, or the consultant's fee are not to be discussed during this scoping meeting.

Variations between states probably explain consultant comments like the following on the selection process:

"Lack of ranking information following short-list, but prior to presentation."

"It would be better if the DOT was more upfront on a consultant's chances in going after a project. It does cost us a considerable amount of money to make a written proposal look good and be comprehensive. This is even more so when you get to the presentation stage."

Procedures may vary once Selection Committees have compiled their short lists. In some cases the firms have been rated and ranked so that a first choice is evident. In most of these cases, necessary approvals within the Department of the committee's short list and first choice are first obtained, and negotiations can be initiated with the first choice firm. In other cases, in Michigan for example, more steps are required. The three selected consultants are notified and requested to submit a "Technical Unpriced Proposal" and also to make an oral presentation. The final choice is then made. Following the "Guideline for the Preparation of Priced Proposals," the selected firm then submits its priced proposal, and negotiations as needed will follow. With the exceptions of priced-proposal cases noted earlier, cost considerations do not enter the picture until after the selections are made.

Interviews and Scope Meetings

Oral interviews with short-listed firms are an option in some states before firms are invited to proceed with technical

proposal preparation. The AASHTO Guide recommends this step and has an eight-item list of suggested agenda requirements:

- Work plan,
- Organization plan,
- Schedule for meeting time frame,
- Available computer equipment and programs,
- Staffing plan and resumes,
- Preaward audit/financial package information (if appropriate),
- Examples of similar work previously completed, and
- DBE, their proposed participation, other related information.

Only seven states reported following this agenda as a regular practice. Virginia DOT, for example, uses the procedure and may solicit questions in advance from divisions with relevant interests for use during interviews. Interviews are documented and firms are then reevaluated. However, responses from 26 states reported that interviews were either not done at all or done only for large, complex, or specialized projects.

The timing for staff preparation of detailed scopes was highly variable. Five states described a two-stage process, the first done to meet the need for soliciting LOIs, and the second to provide more detail for proposals and negotiations. Other replies described this step as being done at any time during the selection stage of the process.

Consultant responses on the value of oral interviews in the selection process were equally wide ranging. Two-thirds said they were useful, but qualified their replies by saying they should only be used for exceptional projects. Six replies said they were not useful. Reactions were about the same with respect to scope meetings for short-listed firms before proposal development. More than two-thirds believed they were useful. Several respondents believe the meetings were not useful on a routine basis; others stressed the importance of adequate preparation by DOT staff. Other problems with the scoping step include scopes too loosely defined to be a reliable basis for estimating work or fees.

Other Considerations

Large Versus Small Projects

The need for informational or other meetings on large or complex projects may lengthen time spans between solicitation and the start of negotiations. However, DOT replies were mixed as to whether project size affected the selection process. More than half said no difference occurred. Several states suggested that smaller project processing could be facilitated; for example, Colorado and Maryland do not have to advertise projects under $100,000 in the newspaper; Vermont has a simplified bid process for projects under $75,000. For large projects, Maine uses project-specific qualification, and Illinois applies "Expert Choice" decision-making software before presenting large project proposals to the Selection Committee. New York has a second committee that "reviews technical and management approval of short-listed firms."

Alternative Selection Methods

When contract costs do not exceed $100,000 on Federal-Aid projects, federal regulations permit "small purchase" procedures. Where neither competitive negotiation nor small purchase procedures are feasible, "Noncompetitive negotiation" may be used. Circumstances warranting the procedure include obtaining services available from a single source, emergency conditions, or when competition is deemed inadequate.

Documentation, Confidentiality, and Debriefings

Federal regulations require that the contracting agency on federal projects shall retain "acceptable documentation of proposal, evaluation and selection of the consultant." All states confirmed that the selection process was documented, though degrees of formality varied. Maryland reported "Full written documentation for each step. Final selection recommendation, with backup, presented to Transportation Professional Services Selection Board." Vermont listed documentation simply as the minutes of the Consultant Selection committee meeting.

Usage of selection committee findings differs among the states. First, the degrees of confidentiality vary. For example, Nebraska replied that copies of voting forms are available. On the other hand, a memo from Nevada states:

> Information generated by the selection committees shall not be available for distribution. Predecisional information and documents, i.e., rating forms, score sheets, memos, and personal opinions shall not be released and shall be considered confidential.

Arizona allows consultants to review winning proposals, but Texas does not permit review of one firm's proposal by another. Florida advertises the results of each meeting in the Florida Administrative Advertiser, including the ranking of consultants.

Overall, while eight states responded that selection process records were either confidential or not open for debriefing or other reviews, 20 states said they were

accessible. California and Virginia, for instance, both cited Freedom of Information Acts in this regard. Although it is not the policy to conduct debriefings, Virginia DOT does permit, in the presence of the Selection Committee Chairperson, reviews of LOIs, proposals, and Selection Committee score sheets and evaluations; exceptions to the policy are items marked as proprietary by offerers. Of the 10 states that evidently offer debriefings, four provide them only on request, two permit reviews of other proposals (the winning proposal only in one case), and at least two provide comments on individual consultant proposals only.

Consultant Comments

Survey questions about the selection process drew comments from consultants on both problems and solutions. Twenty-seven out of 30 responses noted problems, 20 noted solutions. Table 10 lists selected remarks on problems ranging from scoping to selection committee makeup.

Among proposed solutions, four addressed simplification and time-saving:

- Eliminate oral interviews. Do not read scopes to consultants, instead have the individual who wrote the scope on hand to explain the intent of specific elements;
- Limit the responses to 25 pages. Short-list no more than 3 firms per selection.

TABLE 10

OTHER CONSULTANT COMMENTS ON SELECTION PROCESS

Detailing the distribution of work in the LOI is a problem when it's based purely on dollar volume. Additionally, because DOTs keep records of this information, it's wasted space in the proposal.
Too many firms on short list drives up costs for everyone. Ranking information should be available following short list, but before presentation. Information is requested on basis of a loose scope.
Lists have been manipulated after release to add a political favorite even though deemed significantly less than qualified.
Personnel listed in LOI must be certified before the LOI is due. Process seems oriented to disqualify rather than to select.
Political influences, predetermined hidden agendas by some clients.
Young and inexperienced staff delegated authority to serve on selection committees on major projects.
Selection committees can be too familiar with favorite consultants. Selection committees should be made up of high-ranking staff with objective to distribute work.

- Be very timely (no more than 6 weeks) in deciding the awardee;
- Reduce or eliminate multi-step process; and
- If you start with a prequalified list and only invite a minimum number of firms—short-listing is qualification-based and already accomplished.

Among other proposed solutions, some were contrary to others. Regarding membership on selection committees, for instance, two suggested higher levels of staff while two others suggested more technical and district office representation.

CHAPTER FIVE

THE NEGOTIATION PROCESS

The essence of the negotiation process is to prepare an agreement assuring that the scope of services is mutually understood and that the cost of the services is fair and reasonable. An example of the procedures that state DOTs follow to execute this phase is given in Appendix H, which contains excerpts from South Carolina's Engineering Polices and Procedure Memorandum. They describe preparatory steps for both scope and negotiation meetings.

Requirements applicable to Federal-Aid projects are provided in 23CFR Section 172.7 of the Federal Regulations. In brief, these call for the negotiator to use at least the following resources in conducting effective negotiations: work scope, evaluation factors, agency cost estimates, and audit findings. The regulations further require that "The negotiator shall separately negotiate the dollar amounts for elements of cost and a fixed fee except for services normally negotiated on a per unit (includes cost and fees) cost." Last, the regulations require contracting agencies to maintain records of negotiations in accordance with the provisions of 49CFR 18.42.

The importance of properly carrying out the negotiation stage is emphasized in Michigan's Design Contract Management Manual *(Michigan DOT 1998).* Its four-page exhibit, entitled "Synopsis of Negotiating Theory," included as Appendix I, emphasizes that the objective is to obtain a fair agreement in a timely fashion and maintain or improve relationships between the Department's project manager and the consultant. Elsewhere, the Manual notes further: "We should be seeking value, not cut-rate prices. The purpose of qualification-based selection is to select the most qualified firm and then negotiate a fair price." *(Michigan DOT 1998, Ch. 10, p. 2).*

This chapter presents details of the negotiating process, as reported in the literature and survey returns. It covers procedures, team makeup, and scope of work preparations; cost factors and auditing; agreements; and other considerations. It further includes comments from consultants on this stage in the outsourcing of preconstruction engineering work.

NEGOTIATION PROCEDURES

The negotiating process emphasized here is the competitive negotiation method of acquiring consultant services. The survey intent had been to ascertain the proportions of outsourcing done by the three alternate methods of competitive negotiation, noncompetitive negotiation, and other means. Survey responses to a mis-phrased question, however, led to answers relating almost entirely to negotiated agreements. A few replies provided some relevant additional information; California and Georgia noted, for example, that some RFPS called for costed proposals.

The Negotiating Team

Negotiations usually require input from both technical and administrative staffs, typically the design or preconstruction engineering divisions and those from contract services or some similarly named unit. Their involvement varies for different steps. Issues of scope clearly bring in the technical staff, while those of audits, methods of payment, fees, and contracts usually call for administrative staff input. Table 11 shows the roles of different groups in three aspects of the negotiations process, as reported by survey respondents: technical proposal review, cost or staff-hour reviews, and negotiating agreements. Technical units, such as a design division, have sole responsibility for all aspects in more than a third of the cases. Generally, however, the technical units share responsibilities with administrative staffs in some or in all of the three activities.

TABLE 11

STAFF ROLES IN NEGOTIATIONS

Unit or Staff Involved	Number of Responses		
	Technical Data	Cost Data	Negotiate Agreement
Project Manager exclusively	3	2	2
Technical Unit exclusively	17	15	12
District Office	5	3	1
Administration exclusively	1	4	5
Combination of administrative and technical	7	9	13

The DOTs designated project manager was identified most frequently as the principal individual involved, although in Michigan the project manager is sole reviewer of technical and cost data as well as sole negotiator. Survey responses showed the project manager, or consultant coordinator, associated with technical reviews by 12 respondents, with cost data in 11 cases, and with negotiations in

14 cases; he or she is usually also associated with an administrative group. In Virginia, where the project manager coordinates with other technical divisions, the state guidelines note that the ". . . Administrative Services Division will randomly provide oversight in the negotiation process . . . and . . . monitor the use of cost estimates."

Scoping the Work

Most states prepare project scope information early on, frequently before advertising for letters of interest. The task must normally be complete before negotiations begin with the selected consultant, though one state said the scope was jointly developed with the consultant.

Scope Content

> The detailed scope of service describes for the consultant what work will be required, the conditions under which the work must be conducted, how achievements will be assessed, and what the obligations of both the consultant and the agency will be. It enables the consultant to assess its capabilities in light of the contract requirements.
>
> An effective scope of services is written in clear, unambiguous, and precise language. It contains provisions for determining the quality of the services or products rendered *(AASHTO 1996, p. 17)*.

The AASHTO Guide goes on to describe the service types that can be requested. A "term" scope specifies staff or task needs for a specific period, such as survey services. A "completion" scope calls for provision of a completed job, such as contract plans. The guide also distinguishes between projects that have either a "performance/functional" requirement or a "design specification" requirement. The former might request a road design solution to meet traffic needs between two points within broad guidelines, an approach permitting creativity and innovation. The latter may charge the consultant to develop plans using state standards for a multi-lane highway on a specified alignment. The Guide points out that most scopes contain elements of each requirement, and care is required to avoid conflicts between the two.

The importance of the scope is made clear when preparing cost estimates based on specific tasks to be performed during the project. The scope must be defined in sufficient detail for the Department's cost-estimating purposes and to assure the consultant's understanding of the project for use with the firm's cost proposal development. Both sides can then be adequately prepared for negotiations. Scope may influence other aspects of negotiations. Virginia DOT's "Guidelines for the Procurement and Management of Professional Services" notes: "If the contract period does not exceed two years and the project is of definitive scope, the project coordinator should attempt to negotiate a lump sum agreement."

Scope Meetings

Almost all states initiate negotiations with a scope meeting. Only the Vermont response indicated this was not the case; one other state reported holding meetings only if requested. Most respondents said that such meetings formed the basis for developing detailed technical and cost proposals. Connecticut reported the following agenda items:

Assignment of work between the DOT and consultant,
Form of agreement,
Insurance requirements,
Affirmative action provisions,
Proposal procedures,
Design schedules,
Design parameters, and
Available data and plans.

North Carolina's "Policies and Procedures for Major Professional or Specialized Services Contracts" lists items to be covered during negotiations for firms unfamiliar with the Department, as follows:

Copies of examples of work;
Standards, specifications, manuals, etc., to be used;
Policies used by the Department for the type of work involved;
A contract in draft form;
Methods of payment;
Procedures for invoicing;
Standard forms to be used;
Fiscal requirements; and
Items and/or services to be provided by the Department. *(North Carolina DOT 1996)*

Additional agenda topics mentioned by others included consultant approach to project, key personnel, project expectations, project-specific issues, deliverables, and technical assumptions. NCHRP Synthesis 137 pointed out another concern. " . . . ways of ensuring that there is a common basis for both the estimates by the agency and those by its consultants. This common basis provides the ability to quickly discern any significant variations between the state's and the consultant's estimates and, thereby, identify the need for further discussion regarding the work required" *(Sternback 1988, p. 29)*.

Consultant Comments on Teams and Scoping

Administrative and Technical Problems

Eight of 30 consultant responses implied or stated that no problems existed with administrative aspects of the

negotiation process. Six comments described excessive efforts, costs, and time required in the negotiation stage. Five comments involved DOT personnel; they pertained to varying skill levels of negotiators, inadequate understanding of work scope, and inadequate understanding of consultant costs and operations needs.

The same proportion as above reported no problems with technical aspects of negotiating. Comments from others concerned lack of staff involvement in scope preparation or a lack of knowledge of scopes, and poor understanding of consultant concerns about the interrelationship between scope, costs, and fees. Comments about "scope" related to its definition and changes that occurred both during and after negotiations. The following remarks more or less exemplify the list of concerns:

- "DOT personnel sometimes downplay complexity and overestimate the quality and quantity of work being provided by the Department."
- "The most significant problem occurs when the DOT's negotiation team has no involvement during production and their commitments on interpretation of scope items become lost by the DOT. This requires extensive documentation of scope negotiations."
- "Sometimes DOT negotiator does not know what the scope really is or what effort is required. Once their estimate is made they are often reluctant to change scope or fee because of internal justification."

Consultant Suggestions for the Negotiation Process

The recommendation most frequently made on administrative practices was to shorten negotiation times. This could be accomplished, it was suggested, by setting a schedule or a maximum time of four months from solicitation to contract. A second subject mentioned improving staff negotiation skills, or in one case, dedicating staff to the negotiation function.

On the technical side, most suggestions were to strengthen the scoping and estimating processes. The following comment sums them up:

1. Focus on scope definition.
2. Focus on level of effort to do the work fairly and reasonably.
3. After agreement on level of effort, develop price based on fair distribution of labor.
4. Fair treatment of scope changes and supplements.

Last is a comment made on an overriding aspect of the relationship between public agencies and private firms, "Both sides agree that the other is honorable."

COST CONSIDERATIONS

Cost Estimates

The federal regulations (23CFR Section 172.7) stipulate preparation of "A detailed cost estimate, except for contracts awarded under small purchase procedures, with an appropriate breakdown of specific types of labor required, work hours, and an estimate of the consultant's fixed fee . . . ." Most DOT respondents noted that work hour estimates were made, often adding that they were done for negotiation purposes. In some cases, cost estimates were required early in the process, either for initial approvals on contracting out or for the Selection Committee's information and use. For example, South Carolina calls for a preliminary estimate to accompany the initial Request for Professional Services, followed by a detailed estimate in preparation for negotiations.

Supplemental materials provided by states did not include any standard forms for making cost estimates. South Carolina's procedure is outlined in Figure 8. It begins with Department staff: 1) estimating the work hours for different types of personnel required to accomplish each task described in the project scope; 2) summing these to project totals; and 3) converting time estimates to costs by using average rates based on the Department's prior experience. The results are provided to the negotiations team, which consists of the Director of Engineering, the Manager, and the Project Manager. The Department's estimate is then compared with the proposal submitted by the consultant.

NCHRP Synthesis 137 described the typical elements in the consultant proposal, as follows:

- Direct technical salaries (regular plus overtime for assigned employees),
- Premium portions of overtime,
- Direct non-salary costs (travel, reproduction, telephone, equipment charges, possibly subconsultants),
- Payroll burden of salary additives (vacation, sick leave, taxes, etc.),
- Overhead (indirect costs not chargeable directly to project), and
- Fixed or net fee (allowance for profit and other considerations) *(Sternbach 1988, p. 16)*.

A comparison of state project estimates with negotiated contract amounts was reported in Synthesis 137, using data from the 1980s provided by Washington DOT. The ratios of negotiated to estimated amounts for individual projects covered a range from 0.78 to 1.18, but the overall average was 1.005; in other words, on a program basis the difference was only one-half of one percent. The 1992 AASHTO survey sought similar information but showed no results. The present survey also turned up no comparable

B. DEPARTMENT PREPARED ESTIMATE FOR NEGOTIATION:

1 The Project Manager will prepare a schedule of Manpower Requirements (MR) using the Department standard form. The MR will identify the various tasks required along with the man-hours and job classifications required to accomplish the job classifications required to accomplish the services described in the negotiated and accepted SOS.
2 The Project Manager will use the man-hour estimate guide (MEG) maintained by the Manager as an aid in preparing the MR.
3 In preparing the MR, the Project Manager will be assisted by various sections within Department for specialized areas of work such as hydrology, environmental, rights-of-way, bridge design, construction, etc.
4 The Project Manager will partially prepare the CE for use in the negotiations by completing the following information for each item of work:

Column (A)— Enter the number of man-hours summarized on the MR.
Column (B)— Enter the payroll cost based on the job classifications and the average hourly rate for the various classifications. The average hourly rates are based on Department experience and are available from the Manager.
Column (D)— Enter the direct non-salary costs. Estimates should be based on past experience with projects of similar nature and complexity.
Column (G)— Enter the cost of services subcontracted to others. Estimates should be based on past experience with projects of a similar nature and complexity.

FIGURE 8 Calendar for PCE project—Michigan.

data. Two states that reported having made studies said the results were not available. Several others reporting such comparisons on a project-by-project basis also did not share their findings. Confidentiality requirements concerning internal department estimates may govern such disclosures.

Caps on Costs

Federal regulations prohibit ceilings on salary or overhead rates for Federal-Aid projects, but they do recommend a limit to fixed fee rates of 15 percent. They also require that project costs and fees be negotiated separately. These requirements do not preclude, in so-called "opt-out" states, a number of different options in state practice with regard to either salary and overhead caps or fixed fee limits on state-funded work.

NCHRP Synthesis 137 *(Sternback 1988)* quoted allowable fixed fee figures of between 8 and 35 percent, and overhead limits varying from 100 to 180 percent. Ranges have narrowed since. The AASHTO survey found that more than 40 states limited fees, with the predominant range being 10 to 15 percent. Also, almost a quarter of the states had established hourly rate caps on direct wages.

Practices appear to have changed somewhat in the past decade. Table 12 summarizes data on overhead limits, including additional data from a 1997 survey made by Illinois DOT (not all states are represented). The present survey found that 18 states reported no limits on overhead rates, while 14 did. Maine quoted three different rates: 120 percent for fieldwork, 150 percent for design and general consulting, and 170 percent for environmental studies. Rates varying from 130 to 154 percent were reported by other states. Louisiana has a formula based on "District average plus one standard deviation," and New York reported "Overhead and Salaries—combined limit called 'bottomline' based on industry rates." Florida's cap on overhead rates (currently 162 percent) is based on the average of experience over a 3-year period. Salary caps are applied by 13 states, but not by 12 others. In some cases they were variable: Louisiana adjusts as cited above, Wyoming "evaluates for reasonableness," and Georgia limits to "normal rates." Six states impose limits from a low of $35 per hour to a high of $55 per hour. Four others specified annual figures, from $87,000 to $114,000, or "not to exceed the salary of the state's top executive."

With respect to fixed fees, none reported figures higher than the recommended federal maximum of 15 percent. Two states did not specify values, indicating "varies with project size" or use of a fixed formula. Two-thirds cited specific values, from a low of 9 percent to a high of 15 percent. But three of these said the fees could vary, depending respectively on whether 1) overhead rates were above or below 150 percent, 2) project construction estimates were above or below $2 million, or 3) contracts were cost plus fee or lump sum.

Several other limits were mentioned in state responses. One state restricts CADD costs to a maximum of $10 per hour and two other states reported ceilings on travel costs.

Pre-Award Audits

The survey results regarding pre-award audit practices indicate that they are predominantly driven by federal

TABLE 12

MAXIMUM OVERHEAD RATES FOR DESIGN, BY STATES

State	Maximum Overhead Rate (%)	State	Maximum Overhead Rate (%)
Alabama	–	Montana	–
Alaska	(150)[3]	Nebraska	155
Arizona	None (150)	Nevada	None
Arkansas	None	New Hampshire	150
California	None	New Jersey	None
Colorado	None	New Mexico	150
Connecticut	(145)[1]	New York	–[1]
Delaware	(123)	North Carolina	154
Florida	162	North Dakota	–
Georgia	150	Ohio	–
Hawaii	150	Oklahoma	–
Idaho	–	Oregon	–
Illinois	None	Pennsylvania	140
Indiana	(160)	Rhode Island	(125)
Iowa	None	South Carolina	135
Kansas	None	South Dakota	–
Kentucky	(150)	Tennessee	145
Louisiana	–[1]	Texas	None
Maine	150[2]	Utah	–
Maryland	130	Vermont	None
Massachusetts	135	Virginia	148[3]/None
Michigan	None	Washington	165[3]/None
Minnesota	None	West Virginia	150
Mississippi	–	Wisconsin	None
Missouri	None	Wyoming	None

[1]Data derived by formula. [2]Data derived by variable methods. [3]Data from 1997 Illinois DOT Study.

regulations. 23CFR 172.5 outlines these requirements, specifying audits for projects costing over $250,000 and, when certain conditions prevail, for those under that amount.

The general purposes of pre-award audits for negotiations are basically twofold. The audit verifies that the consultant has adequate accounting methods and that the consultant can justify rates associated with the project work. On projects using subconsultants, auditing may also extend to them.

To the question on whether pre-award audits were required, most states provided a conditional response. Only Louisiana, Maryland, and Virginia reported that audits were required on all projects. Maryland was one of the states reporting a long duration (six months) for completing the audit process. Additionally, Illinois said that audits were required for all projects with new firms.

Audits can often be waived, however. Consistent with federal regulations, 11 states said they could be waived for projects less than $250,000 in cost. Projects under $75,000 can be waived in New Hampshire, and those under $50,000 in four other responding states (Georgia, Iowa, Minnesota, and Wisconsin). Georgia indicated more qualifying conditions for audit waivers than any other state. Its projects between $50,000 and $250,000 can receive a shortened process. It also audits cost plus fee projects, but not lump sum projects. In contrast, Maine audits lump sum projects, and also all projects whose construction costs are expected to exceed $10 million dollars. Wyoming permits a shortened process for "smaller projects" (undefined). Minnesota and New Jersey (and probably others) waive audit requirements for emergency projects. Missouri and Nevada waive audits if recent information showing acceptable overhead rates can be provided. Some other situations are listed below:

Arizona—Required audits can be waived only when consultant overhead rate is negotiated.

Arkansas—Follows FHWA requirements for acceptance of audits.

Florida—Audits required for contracts over $1 million. Below that, a sample have pre-award audits.

Texas—Can accept audits by accounting firm or other agency as long as it is done in accordance with FAR.

Vermont—Audits can be waived when procuring certain types of services from vendors that may not normally provide required information.

Washington—Waivers may be requested in other instances (less than $250,000) if project manager requests.

The foregoing suggests the varied treatments among the states, and the reasons for some concern on the national level. The positions of AASHTO and ACEC are close on the subject of audits, both pointing toward the need for simplifying and speeding the process. The AASHTO Guide says:

> It is recommended that agencies give consideration to accepting audits of firms performed by other government agencies during a designated time frame, rather than pursuing individual prea-ward audits. This would save time and resources for both the agency and the consultant. Most agencies use approved federal auditing procedures (known as Generally Accepted Accounting Principles, or GAAP); therefore, the results of an audit should be acceptable to all user agencies. *(AASHTO 1996, p.23).*

The position of ACEC is given in a 1997 publication.

> Under the "Quality Through Competition" provision [in the 1995 Act] state and local recipients of federal highway and transit funds must accept audits prepared by other appropriate federal and state agencies as a basis for establishing interim pre-contract overhead rates, and to use the Federal Acquisition Regulations as a basis for negotiating, contracting, and paying engineering fees without the use of arbitrary ceilings on salaries or overhead rates *(ACEC 1997).*

Consultant Comments

Caps on Costs and Fees

Consultants were invited to comment on the impact of caps on costs and fees with respect to project staffing and proposal submissions. One-third of the respondents said that caps posed no problems, but more than half said that caps did present problems. In this group, half said they were limiting with respect to the assignment of staff to projects. Other specific comments were:

"They prohibit innovation and creative solutions. They maintain the status quo."

"Lends to lower performance and to job problems in the field."

"They limit where we choose to do business."

The last comment was from a firm with work in 20 states.

Consultant Comments on Other Cost Issues

An issue frequently cited was that cost negotiations were not negotiations at all, merely a process for reaching a bottom line fixed in advance by the DOT. Another cost concern was fee related. Several comments indicated that: they were not negotiated at all, or at least not separately from costs; fees had caps, 12 percent being cited in one case; and last, they were not related to effort.

Consultant Comments on Audits

The variation in auditing requirements illustrated earlier probably explains the large number of consultant comments. They reflect diversity in practice among the states providing the projects, in the types and scale of work, and the sizes of firms responding. As to whether pre-award audits were a routine experience, replies can be summed up as follows: not required (4); sometimes (3); usually or always (20). Amplifying comments indicated that audits might be required only on large projects or waived if the firm was recently audited for a previous contract.

More illuminating were the suggestions, made by two-thirds of the consultants. Most often recommended was uniformity or standardization; among them, five recommended the federal regulations as a model. Additional remarks are listed in Table 13.

AGREEMENTS

When negotiations on scope and costs are complete, contracts are typically prepared by contractual services units. The AASHTO Guide lists the elements usually included *(AASHTO 1996, p.18).* These are itemized in Table 14,

TABLE 13

SELECTED CONSULTANT COMMENTS—AUDIT PROCEDURES
(Note: Comments Regarding Desirability Of Uniformity Not Included)

Process should be streamlined to require less time.
Have procedure outlined so consultant can have work prepared for DOT auditor to come in and work efficiently.
Allow DCAA audits.
'Auditing always seems to be a time-consuming issue—maybe provisional audits so the job can get started.
Yes, consultant should use an independent auditor to conduct a FAR audit within 6 months of the prior year closing.
Have annual provisional audits based on previous year. When pre-award audits do take place the auditors must be consistent.
Improved and more clearly defined dispute resolution procedures or systems relative to audit findings.
A sampling process would be less time-consuming than the audit of every project.
There has been a significant upgrade in the procedures in the recent past.
Use lump sum contracts and eliminate all audits.
Begin the process early on, once award is made, rather than waiting for signed contract.

TABLE 14

CONTENTS OF CONSULTANT AGREEMENTS

AASHTO Guide Elements	Nevada DOT Sample Agreement	Minnesota DOT General Provisions
Definitions	Scope of services	Term of agreement
Errors and omissions	Performance	Government law
Indemnity	Termination	General conditions
Insurance	Fee	Terms of payment
Key personnel	Schedule of payments	Processing of payment
Dispute resolution	Personnel	Condition of payment
Disadvantaged businesses	Design references	Key personnel
Extensions	(Miscellaneous provided below)	Assignment
Modifications	Liability and PDI	Subcontracts
Terminations	Property of state	Amendments
Subconsultants	Project meetings	Affirmative action
Special consideration	Licenses, permits, fees	Compliance with regulations
(Boilerplate below)	Independent contractor	Audits and inspections
Additions or Delitions	Certificate of insurance	Intell. property
Assistant of funds	No brokers	Liability
Independent contractor	Disputes	Workmens compensation
Laws to observe	Non-discrimination	Insurance
Legal jurisdiction	Patents	Deliverable stds.
Patents	Copyrights	Printing
Permits, licenses, taxes	Subcontractor provision	Antitrust
	Hold harmless	Publicity
	Tax ID	Offic. not to ben.
	Inspection and audits	Cancellation
	Vehicles	Errors and omissions
	Expert witness	Quality assurance
	CADD submissions	Disputes
	Other	Federal clauses

which also lists the articles in a sample Nevada DOT contract, and the General Provisions used by Minnesota. The Nevada contract covers 27 pages and Minnesota's General Provisions (Articles 11–38) cover 12 pages. In addition to the items shown, Minnesota's Articles 1–10 presumably cover project-specific items. One additional article concerns "Year 2000" software adequacy. While certain parallels exist among states for their contracts between public agencies and private firms, the laws of each state can clearly add unique requirements.

The AASHTO Guide notes that proposed contracts are submitted to legal review before approvals and signatures are obtained. Because such reviews can be time-consuming, the Guide further recommends that as much standard terminology as possible be employed. One of its appendixes offers suggested wording for what could be considered "boilerplate" provisions.

The present survey did not ask about agreement preparation, but did request information on selected items such as amendments, liability, errors and omissions insurance, and project termination procedures. These items are covered under administrative issues in the next chapter.

Few consultant respondents had problems with agreements; one comment was "Legal language in agreement is typically biggest issue," and another "Onerous contract language—do you walk away or accept it?"

OTHER CONSIDERATIONS

Table 14 listed many more elements in the negotiations and agreements phase than have been discussed so far. Some (such as insurance, CADD usage, and terminations) are addressed in the next chapter. Other items follow.

Failure to Complete Negotiations

No recent data have been obtained on the frequency of breakdowns in the negotiation process. A decade ago, one survey found that 80 percent of the states succeeded in their first-firm negotiations. "Most of the remaining states report negotiation failures with the first firm selected on about one percent of their projects, or less" *(Sternbach 1988, p.34)*. Despite so few occurrences, routine procedures must be in place to deal with them. The short list, with its ranking of firms, provides the solution. The AASHTO Guide suggests that negotiations be terminated if an agreement cannot be reached ". . . in a predetermined reasonable period of time. New negotiations are then started with the next highest ranking firm." *(AASHTO 1996, p.16)*.

Documentation of Negotiations

The need for proper records of the negotiation stage is obvious. NCHRP Synthesis 137 points out ". . . there is a

deep concern by state agencies regarding future federal and state audits of the procedures and the need to respond to potential complaints by political and public groups or other consultants" *(Sternbach 1988, p.50).* Federal regulations specify that records are to be maintained in accordance with the provisions of 49CFR18.42. South Carolina's "Engineering Policies and Procedures Memorandum" spells out documentation requirements on negotiations for that state, as follows:

> The Project Manager will be responsible for maintaining documentation of the modification of scope and schedule, and shall furnish to the Manager the original scope and project schedules prepared by Department and the consultant along with the revised Scope of Services and Project Schedule. The Manager shall maintain on file all documentation related to the negotiation process.

Processing Time

Three state responses noted that when proposals came in at reasonable costs or with work hours below state estimates they could be processed immediately. The number of proposals generally in this category varied from 5 percent (Pennsylvania) to 50 percent (Wyoming). Nevertheless, the length of time required for negotiations has been a concern to AASHTO, as noted with regard to audits, as well as to consultants responding to the current survey.

TABLE 15

PROCESSING TIMES FOR CONSULTANT CONTRACT DEVELOPMENT TIME IN MONTHS, BY STAGE

Stage	Minimum	Maximum	Average
1	< 1	6	2.6
2	< 1	6	2.1
3	< 1	4	1.1
Total Time	< 3	13	5.8

Stage 1—From requests for letters of interest to consultant designation.
Stage 2—From designation to agreement on scope and cost.
Stage 3—From agreement to start of work.

Present survey results do show that procedures are now executed more promptly than they were in the past. Table 15 indicates the duration in months to complete individual stages and the time required to complete the entire consultant contracting process. Stage One, from initial RFP's to selection, takes an average of 2.6 months, with ranges from less than one week to six months. Stage Two, from designation to agreement, averages 2.1 months, with extremes of less than one month and up to six months. Stage Three, from agreement to start of work, averages 1.1 months, with a range from several days to as long as four months. Overall, the process ranges from 3 to 13 months, and averages 5.8 months.

In its 1987 survey, NCHRP Synthesis 137 discovered that the entire process required a minimum of 2.8 months, a maximum of 12 months, and an average of 7 months. Results for 26 states could be compared between the two surveys conducted about 10 years apart. Data from five states evidenced no significant change in times, seven now take longer to get to contract and 14 now take less time. New Hampshire and New York both currently reported wide ranges in time requirements for one or more stages; total times for these two states ranged from 5 to 13 and 7 to 13 months, respectively. In contrast, Michigan reported the following minimum total processing times for projects of different sizes: small projects (up to $100,000), less than three weeks; medium ($100,000–$400,000), less than five weeks; large ($400,000–$1 million), seven weeks; those over $1 million, 14 weeks. Figure 9 shows the calendar for a major urban reconstruction project, totaling approximately 14 weeks from "draft scope" to contract execution.

Several states reported that larger projects took more negotiating time than smaller ones. Extra time needs were attributed to working out scope agreements, differences in cost estimates, and auditing requirements. The greater likelihood of subconsultants on large projects is probably another contributing factor.

Many actions have been taken or are being considered to shorten the contracting process, according to 24 states. Many of the actions are exemplified by the Massachusetts list of procedural changes shown in Figure 10. New York's survey response mentioned development of a new selection process and consideration of changes in the negotiation stage. Illinois and Washington reported "quality teams" reviewing procedures. Colorado and Hawaii reported using more standard contract language to expedite the process. Colorado was the only respondent to identify the auditing process as having time-saving potential. Massachusetts and Nevada are making more use of "on-call" contracts, and Arizona is using more lump sum contracts. Hawaii and Iowa both mentioned changes in the approvals process. Other comments included the following:

- Minnesota: One-step process RFP eliminates shortlist steps.
- New law on "Best Value" for price and a one-step QBS plus price process means 15-week saving.
- Pennsylvania: Annual LOI's, electronic data transfer, negotiation by videoconference. Scope of work and cost estimate data bases, proposal templates.
- Tennessee: Using newly developed man-day forms and agreements between consultants and DOT.
- Texas: Proposals now mandatory for those on shortlist. Considering making that optional and going straight to interviews (save 5-6 weeks).
- Wisconsin: Do more master contracts, put solicitations on Internet, and have consultants respond electronically.

Clearly, the issue of processing time for the negotiation and other stages is receiving attention in many agencies.

Sample Calendar with Dates from the I-75 Reconstruction in the City of Detroit

	Typical Time Required:	Actual Dates:
Draft Scope Available		9/5/97
Final Scope Available		10/10/97
Contact for Interest		9/5/97
Letters of Interest Due	two weeks	9/26/97
MDOT Selection team review complete	one week	10/3/97
Obtain approval of Selection	one week	10/10/97
RFP sent [technical un-priced] (1)	same day	10/10/97
Response due	two weeks or three if complex	10/31/97
Oral Presentations south training room	one week later	11/7/97
Make final selection (same day)		11/7/97
Obtain approval	one week	11/12/97
Notify winners and losers		11/12/97
Request priced proposal		11/12/97
Priced proposal due	one week	11/17/97
Project manager review and acceptance		11/24/97
Submit to Commission Audit	two weeks	11/24/97
Submit to State Admin. Board	parallel to XCA	11/26/97
State Admin. Board approval		12/2/97
Execute contract provided: commission audit & SAB have approved and the document has been prepared, mailed out, signed and returned.		12/2/97
ACTUAL EXECUTION		12/18/97
Elapsed time of twelve to fourteen weeks		

(1) must have final Scope of Design Services to issue RFP

FIGURE 9 Calendar for PCE project—Michigan.

Action by the Massachusetts Highway Department past 24 months	Complete	Underway	Continually Updating
PRE AWARD AUDITS:			
Increase waiver on subconsultants to $25,000 ('95)	x		x
Increase waiver on subconsultants to $50,000 ('97)	x		x
Increase waiver on all consultants to $250,000 ('98)	x		x
Eliminate 135% Overhead Caps on Fed Aid contracts	x		
Adopt Single Audit Policy	x		
Adopt first time waiver policy for small/new firms	x		
Audit Director meets w/counterparts from other Agencies (T-WRA-Pike, etc.)		x	x
CONSULTANT CONTRACTS/SELECTION/PREQUAL/A&E BOARD			
Reduced original contract process from 15 months to 12 months	x		
Reduced contract process from 12 months to 6 months	x		
Reduced contract process to less than 3 months (30 days if needed)	x		
Revise handbook for consultant contracts		x	
Revise standard contract provisions for consultant contracts		x	
Reduce contract attachments from 20 to 12 ('95)	x		
Reduce contract attachments from 12 to 8 ('97)	x		
Introduce Lump Sum Contracts	x		x
Update/Improve/Issue prequal form ADM-016	x		x
Udate/Improve/Issue new prequal definitions	x		x
Update/Improve/Issue ADM-016 on website	x		
Establish Access database for Consultant Prequal/Evaluations/Ratings	x		
Introduce Cost Recovery Program for Consultant Errors or Omissions		x	
Established a single format for all consultant contracts	x		
Established a single format for compensation through uniform PV format	x		
Establish revised consultant evaluation process	x		
Partnering on six major design initiatives/projects		x	

FIGURE 10 Procedural changes—Massachusetts.

CHAPTER SIX

MANAGING CONSULTANT PROJECTS

This chapter explores the administrative and technical issues DOTs consider when contract work begins. Comments from surveyed consultants on the quality of their interactions with DOTs provide a context for discussion. Chapter 3 reported suggestions that DOT staffs saw the interactions in a better light than did many consultants. This chapter provides insights that may help to explain differences in the two viewpoints.

States are not alike in assigning the responsibilities for administrative and technical management of consultant projects in preconstruction engineering. One difference is where responsibilities are housed; they may be in central offices, in districts, or both. In six states, central offices controlled both functions. In five states, regional offices managed both. And in four other states, both central and regional offices were involved; central offices typically handled administrative concerns, while regions handled technical issues. A 1998 survey by Texas DOT on in-house design functions found similar patterns. Twenty-one states performed all in-house design at central offices; seven did it all at the regional or district level; 19 states used a combination of central and regional offices.

The other major difference between states on project management related to staff roles. Eight states reported that responsibilities were shared, with the project manager handling technical aspects, and a contractual services or similarly named unit handling administrative affairs. Three states assigned both roles to a consultant coordinator (or administrator) who received technical support as needed. Seven states reported that the project (or contract) manager, a person with technical expertise, had total responsibility.

ADMINISTRATION

"Administrative monitoring of the contract includes verification that the consultant is: (1) complying with the terms and conditions of the contract, (2) processing requests for payment, (3) processing modifications to the contract, and (4) responding to requests for assistance" *(AASHTO 1998, p.27).* The AASHTO Guide goes on to list the contents of project files that should be kept. The list, which illustrates the tasks of contract administration, is shown below:

- Original contract and amendments,
- Documentation of the procurement history, including technical analysis and cost evaluation,
- Authorization of funding availability,
- Work orders and correspondence,
- Local authorizing resolutions,
- Billings,
- Claims,
- Performance evaluation reports,
- Monitoring (progress) reports,
- Documents referenced in the contract (debarment certification, lobbying certification, civil rights compliance),
- Insurance certificates, and
- Audit reports.

Not all of these tasks were covered in the survey. Issues that were dealt with include risk management, contract modifications, payments, terminations, acceptance, training and liaison activities. As Table 14 showed, many of these matters are contractually covered in consultant agreements.

Risk Management

"Consultants are generally required to carry two types of insurance: (1) general liability insurance, which provides coverage for negligence of the contractor or its agents and employees and (2) errors and omissions insurance, which provides coverage for the consultant's poor performance (malpractice)" *(Harp 1996, p.6).* This review goes on to say that requirements for errors and omissions insurance vary widely from state to state, and further, that "Several states require that consultants agree to indemnify and hold them harmless from any damages and claims." The present survey confirmed the variations in practice, although it did not specifically address the "hold harmless" issue.

Consultants were asked about insurance requirements and whether they influenced decisions on proposing for PCE work. Two-thirds of the respondents said they were influenced either not at all or very little. Several indicated difficulties, as the following comments manifest:

"DOTs many times dictate and assume no risk. This is troubling."

"DOTs usually dictate language in contract which is not fair to consultant."

"Insurance and most liability on consultant—very difficult for consultant to litigate the DOT."

"Restricts the type of work we pursue in those states that require uninsurable indemnification clauses."

There were several more positive comments:

". . . these issues have been 'worked out' between DOTs and state societies and the insurance industry."

"In comparison with private clients the public agencies are the better of the two. It's a consideration but a tolerable one."

"Consistently used [factor] in GO/NO GO decisions. Project-based, not client-based."

The following sections briefly discuss liability, errors and omissions, and requirements regarding deficiencies that turn up after design contracts have been completed and accepted.

Liability

Variability in requirements for consultant's liability insurance was characteristic of responses from state DOT staffs. While several respondents provided no information, some gave general replies, five said there were no set limits, and 15 cited specific requirements. Among these, for three states the limit was less than $1 million dollars, for 11 states it was $1 million (per occurrence, usually $2 million aggregate), and for two states it was over $1 million. Figure 11 shows a typical requirement.

Errors and Omissions Insurance

Hawaii's reply to the question on requirements for errors and omissions insurance was to cite the state's "hold harmless" clause. Vermont's was "Maybe, if in RFP." Among the other states, one-third had no requirement, although several noted that it would be good practice for consultants to carry it. Among the remaining 20 replies, four said that a certificate of insurance must be produced. Although the amount of coverage was not usually quoted, the lowest figure mentioned was $250,000 and the highest was $1 million. The figures above are consistent with those found in the previous AASHTO survey.

For what may be a typical example of errors and omissions requirements, Appendix J presents Article 34 in Minnesota's standard agreement.

Duration of Errors and Omissions Coverage

The time period for which errors and omissions coverage applies to a particular project is as varied as the liability requirements above. Ten states said the time was not specified, or, in one case, varied. Fifteen named specific coverage periods. For three states, it was through completion of the agreement or contract. For five states, coverage applied through the completion of construction. For four states, it was from 1 to 6 years after the completion of design, and for two states 3 and 5 years, respectively, after construction completion.

All responding states but one apparently require consultants to bear the cost of plan corrections and costs to the state of correcting deficiencies found during construction, if the consultants are found responsible. The following is an excerpt from North Carolina's agreement on "Engineer's Responsibility During Construction:"

> The Engineer shall be fully and totally responsible for the accuracy and completeness of all work performed by them and their subconsultants under this contract and shall save the State harmless and shall be fully liable for any additional costs and all claims against the State which may arise due to errors, omissions, or negligence of the Engineer in performing the work.

Figure 12 shows departmental procedures to be followed in Nebraska for handling the discovery of an errors and omissions situation.

Contract Modifications

"While well-detailed scopes of services will reduce the need for modifications, design is a discovery process and changes will occur"*(AASHTO 1996, p.28).* Federal regulations note the need for contract changes and specify conditions and applicable procedures. The following sections describe the occasions that call for them, the procedures followed, and the issue of fee adjustments.

Need for Modifications

Federal regulations require contract modifications when the cost of the contract is going to be changed for some reason. It describes the kinds of circumstances as follows: when the character, scope, complexity or duration of work are changed; or when the conditions under which the work is done are changed. The AASHTO Guide counsels that the changes should be related to the original scope of work and "the agency should guard against unrelated and/or major changes" *(AASHTO 1996, p.28).* Minor changes may not necessitate modifications, but project managers should keep a record of them in case an accumulation of them becomes substantial.

No current data are available on the treatment of cost increases (decreases are also possible) incurred with amendments. A decade earlier, NCHRP Synthesis 137 reported that increases of 10 percent were the median amount, and only 8 percent of states experience average increases of more than 20 percent.

(1) The CONSULTANT shall maintain the following types and limits of commercial insurance in force until such time as all work under or incidentals to the contract have been completed.

Type of Insurance	Minimum Limits required *
(a) Commercial General Liability Insurance; shall be endorsed to include completed operations and blanket contractual liability coverage.	$1 Million Combined Single Limits per Occurrence, may be subject to an Annual Aggregate Limit of not less than $2 Million.
(b) Worker's Compensation and Employer's Liability Insurance	Worker's Compensation: Statutory Limits Employer's Liability: Bodily Injury by Accident - $100,000 Each Accident Bodily Injury by Disease $500,000 Each Accident $100,000 Each Employee
(c) Commercial Automobile Liability Insurance; shall cover all CONSULTANT owned, non-owned and hired vehicles used in carrying out the contract.	$1 Million - Combined Single Limits per occurrence
(d) Architect's and Engineers Errors and Omissions Insurance **	$1 Million - Each Claim, may be subject to an Annual Aggregate Limit of $1 Million

* *These requirements may be satisfied either through primary insurance coverage or through excess/umbrella insurance policies.*

** *This insurance requirement applies only to engineering services and is waived for non-engineering services. Engineering services are defined as project management, construction management and inspection, feasibility studies, preliminary engineering, design engineering, surveying mapping and architectural related services.*

(2) An Insurance Certificate, (or Certificates) showing the CONSULTANT is covered by the above required types and amounts of insurance shall be furnished to the DEPARTMENT prior to the performance of any services under this CONTRACT.

(3) A 60 day notice of cancellation or change in coverage will be required. All coverage shall be placed with insurance companies licensed to do business in the Sate of Wisconsin with an A.M. Best rating of A - or better. The DEPARTMENT reserves the right to require other coverage and limits as described in the special provisions of this CONTRACT.

(4) The above insurance requirements shall apply with equal force whether the work under this CONTRACT is performed by the CONSULTANT, a subcontractor of the CONSULTANT, or by any entity employed directly or indirectly by either party.

FIGURE 11 Insurance requirements—Wisconsin.

Modification Procedures

The staff and procedures involved in processing modifications are usually similar to those related to initial agreements. Typically, the project managers or district offices proceed with negotiations on technical details. Contract processing is carried out by contractual services or central office staff. Some states vary the procedures depending on the degree of change. For example, Iowa reported that while major changes require Audit and Approval processes,

B. CONSULTANT PLANS:

1. The District, upon discovering an error or omission, will contact the Construction office in Lincoln and make them aware of the problem.
2. Construction will contact the responsible Section Head.
3. The responsible Section Head will immediately contact the consultant. It is imperative at this point that the consultant be included in the discussion of the problem and be a part of the solution. We do not want Department staff spending time making changes to plans prepared by a consultant so the consultant needs to be involved in the very beginning.
   It is very difficult to charge the consultant for errors or omissions if they are not involved in the beginning. They have a different and less costly solution. They should at least be afforded the opportunity of offering solutions since they prepared the plans and we will be charging them for the solution.
   In addition the Section Head should contact the Agreements Engineer and make him/her aware there is a potential problem with consultant plans.
4. Every effort should be made to have the consultant make the necessary revisions to the plans. Our agreements state that upon notice by the State of an error or omission, the consultant shall respond within 24 hours and give immediate attention to the revisions, at no cost to the State, to minimize any delays to the construction contractor. This may involve visits by the consultant to the project site, if so directed by the State.
   If time will not allow the consultant to make the plan revisions, the consultant should at least be contacted by the Section Head and be made aware there are errors or omissions in the plans, be a part of the discussion concerning a solution and be made aware the Department will determine if the consultant should be charged for the errors.
5. The District or Section Head should send a memo to Construction with a copy to the Agreements Engineer detailing the problem and proposed solutions and potential costs of the solution, if any. In many cases we may not know the exact costs until a change order has been completed, but we should make the consultant aware there will be costs incurred.
6. The Agreements Engineer will have the appropriate Division review the material submitted by the District and request approval of the Deputy to charge the consultant for the errors. We will consider $250 as the minimum we would charge the consultant. If less than $250, the consultant should still be involved in the solution and make plan changes, but we would not charge them.
7. The Agreements Engineer will prepare a letter for the appropriate Deputy or Director State Engineer's signature to the consultant detailing the problem, solution, the potential costs and the Department's intent to charge the consultant for the changes. In most cases a contractor change order will be the documentation for the charges to the consultant.,
8. The District will supply the Agreements Engineer with a copy of the "Contractor Change Order" and the Agreements Engineer will send a bill to the consultant.

FIGURE 12 Errors and omissions policy—Nebraska.

minor changes are usually done within the original contract. Maryland said that amendments of less than 10 percent of the contract amount received internal approvals, but those greater than 10 percent needed State Board of Public Works approval.

Twenty states said that amendment processing caused no delays in executing the project. Others acknowledged some delays, but several noted that if potential changes were anticipated none would occur. Several states indicated that "notice to proceed" could be given ahead of negotiations in any case, particularly in emergency situations.

A rationale for amendments and procedures for dealing with them are given in Appendix K, which excerpts a section from Nevada DOT Consultant Agreement Procedures.

Fixed Fee Adjustments

Section 172.11 of the federal regulations states that overruns in the costs of the work do not warrant a change in the fixed fee for cost plus fixed fee contracts. But "Significant changes to the scope of the work may require adjustment of the fixed fee portion in a cost plus fixed fee contract or in a lump sum contract." Neither the present survey nor the earlier AASHTO survey provided any information on state practices in this matter. The survey of selected states for NCHRP Synthesis 137 did offer some insights. Half the surveyed states "renegotiate the fee based on the revised total agreement amount, whereas the other half apply a percentage equivalent to the original fee/total contract relationship" (*Sternbach 1988, p.47*). Furthermore, "Half retain the original negotiated fee regardless of work reductions other than termination, and the other half make appropriate modifications" (*Sternbach 1988, p.47*).

Payment Procedures

Invoice Submissions

At least two-thirds of the responding states receive invoices from consultants on a monthly basis, generally in conjunction with progress reports. Two-thirds of this group require a review by the project manager or other staff to verify that work completion is consistent with the billing. Only Kansas reported a procedure for withholding progress payments for projects behind schedule, but the practice may be more widespread.

Among the consultants, one-half responded with an unequivocal "Yes" to a question about whether progress and final payment procedures were fair. Most of the remainder were generally satisfied, some pointing out that conditions varied between project managers and between states. Twenty percent of respondents were dissatisfied with payment procedures they found burdensome and overextensive.

Retainages

Holding back part of the contract amount is practiced by two-thirds of the responding states. There is much procedural variation in the percentages retained and in the methods or periods of retention.

Amounts varied from 10 percent of the fixed fee in one case to 2 to 10 percent of the contract amount. The most common practice (10 states) was 5 percent. Hawaii holds back 5 percent of each progress payment. Virginia holds back 5 percent of the first 50 percent of the contract. New York usually retains 5 percent of billings up to $20,000, or requires a cash or securities deposit of $50,000 for several projects. Arizona was the only state to report that 10 percent of billings can be withheld due to unsatisfactory performance. In other states, payments are made up to 90 or 95 percent of the contract and the remainder is retained, for varying periods.

Few states provided information on the time period of the retention. Some noted that payments were withheld until completion of the work or project acceptance. At least four states retain funds until audits are completed; in one of these states funds will be released one year after completion of the contract. Within these variations, some states allow for partial releases as design or construction phases are completed.

The most significant finding regarding retainage is evidence of a trend to discontinue the practice. While the early 1990s AASHTO survey found 80 percent of states using retainages, the present survey rate is 67 percent. The current Texas response noted that the practice of retainage had been deleted by the State Legislature. Georgia's response stated that reducing or eliminating the procedure was being considered. Michigan reported in 1999 that retainages on contracts under $1 million were being discontinued.

Termination Procedures

Consultant contracts for preconstruction engineering can come to an early close for one of two reasons: a change in state programs, or unsatisfactory performance by the consultant. In either case, terminations are rare events. When initiated at the convenience of the state, the causes are likely to be an unexpected shortage or delay in program funding, or delay caused by lack of clearances of an environmental or similar nature. Terminations for unsatisfactory performance are few. Kansas noted, "We have never done this." Michigan responded, "We usually work with them to finish the project."

Nevertheless, provisions must exist for these events, and they are normally covered in agreements. Several elements are found in such articles. One is the amount of notice to be given. It may be different for termination at the state's convenience than it is for poor performance. California provides 30 days for the first, but notice can be immediate for the latter. Minnesota's notice can be immediate for both situations, and Missouri's is two weeks for poor performance. Agreement clauses for terminations also provide for handling project deliverables, adjustments in payments, and resolution of disputes.

No formal or specific procedures appear to be documented for processing terminations for poor performance. Some state responses briefly described their procedures. Connecticut, for example, first advises the consultant orally, then in writing, and last in meetings before termination is initiated. Nebraska noted that if evaluations have consistently demonstrated poor performance, upper management is informed and a decision made whether to terminate. Several states require approval from the director, state highway engineer, deputy secretary, or other executive management levels before terminations are implemented.

Acceptance and Completion

Several steps are required at project completion. First, the project manager verifies that all needed work has been done and that all deliverables have been provided. Final payment processes can then be initiated. Consistent with federal requirements, and as agreements normally stipulate, all deliverables become the property of the state. Final audits can then begin, to verify that costs are consistent with the contract and are recorded through proper accounting methods. Then, depending on local practice, retained funds can be released and the project files closed.

Training

The need for staff training in contract management skills has been identified at several stages in the consultant procurement and management process. This section explores DOT practices in training and offers related comments by consultants.

More states are recognizing the importance of staff competence in consultant management. Half the responding states have policies aimed at providing skills through training, and the remainder said that skills are improved informally or through on-the-job training. At least five states are developing more or better training programs. Of the 23 states conducting training activities for their own staff, 15 also offer consultant training. A course given by Florida DOT, to which consultants are invited, is outlined in Appendix L. The two-day program on Project Management is one of four modules regularly scheduled around the state.

In contrast to this level of training opportunity, however, there are almost as many states that do not provide any training for consultants. Seven consultants commented that DOTs (presumably the ones they worked for) did not provide useful training. About half the remaining comments said that training was "somewhat useful" or "could be better." The balance said the programs were good.

The AASHTO Guide emphasizes the importance of training, providing a series of Appendixes with suggested training outlines, one of which is for a four-day course. Its discussions conclude with this statement:

> "When a transportation agency's program calls for a mixed workforce of consultants and in-house staff, emphasizing and encouraging training and education of both will create an environment in which continuing improvements in quality will occur" *(AASHTO 1996, p.37).*

Communication and Liaison

Liaison activities between state DOTs and consultant organizations, typically local affiliates of ACEC, are reported by 29 out of 33 responding states. AASHTO's 1992 survey had indicated that slightly over half of the states were involved in liaison processes. Thus, the current figures represent significant change in emphasis.

States used one or more methods for keeping in touch with the consultant community, as follows: 13 meet regularly with consultant groups, most on a quarterly basis; 11 states are involved with joint working committees; 16 states conduct workshops, jointly with consultants, at annual or more frequent intervals. At least five states used their Web pages and the Internet as a communications medium. In describing their liaison activities, five states used the term "partnering."

Four less-involved states reported communications in a mainly project-specific mode. They cited project meetings, for example, as a communications medium. They also identified the posting of information on electronic bulletin boards, use of prequalification mail lists, invitations for letters of interest, and training opportunities as examples of communication and liaison.

On the same subject, more than half the consultants reported that the quality of DOT communications ranged from good to excellent. Seven responses could be construed as "Fair" ratings, and only six fell in the "Poor" category. The following examples may be representative of the whole:

"Some very good, other states are improving."
"Generally good, annual forums to review the upcoming year's programs are helpful."
"Excellent for Seismic Retrofit Program."
"Usually one way, DOT to consultants."

Various comments singled out regular meetings and joint committees with ACEC groups as particularly beneficial.

TECHNICAL ISSUES

The requirements cited in federal regulations for project management warrant attention, as so many preconstruction activities concern Federal-Aid projects. Section 172.13 spells out requisites for three points. First is the designation of a project manager, together with an outline of that individual's responsibilities. These include: scheduling and attending progress meetings; being familiar with consultant staff roles and skills; visiting consultant offices as appropriate; assuring that billing is consistent with effort.

Second is the requirement for making final performance evaluations. Third is providing a contract clause allowing for additional work to be done later if necessitated by errors in the original project. The regulations go on to say: "However, in general, a consultant should not be held responsible for additional costs in subject related construction resulting from errors or omissions which are not a result of gross negligence or carelessness." Such language suggests not only the potential for disputes, but also reinforces the need for ongoing documentation and evaluation by the project manager.

The AASHTO Guide amplifies the federal requirements in its description of technical monitoring. It lists 11 methods, from computerized project management systems to procedures for dealing with errors and omissions, that the project manager can use to facilitate monitoring *(AASHTO 1996, p.26).* Some have been mentioned above. The practices of the states with respect to others follow.

Project Manager Roles

Project managers have varied titles and responsibilities, their roles differing from state to state. Some have complete responsibility for both administrative and technical aspects; others have administrative responsibility with

- The same reviewer will be utilized by NCDOT if at all possible for the life of the project for each discipline.
- Designs will be evaluated for the function, safety, constructability, economics and meeting established design criteria. Personal preference comments will not be made. Plans must be in accordance with practices, policies, form and presentation established by the Highway Design Branch.
- Submittal requirements are defined in the guidelines. They should be followed carefully. Submissions will not be accepted by NCDOT until all conditions are met and checklists completed and turned in with plans. This includes assigned statement by the firm that the plans have been checked by an engineer for that particular submission.
- There will be two levels of comments for plan reviews: 1) Red comments pertaining to the current or previous review and 2) Blue comments pertaining to information not critical to the current review but desirable on future submissions.
- Major comments pertaining to the review will be summarized in a letter and presented to the firm along with the plans at or as soon after the review as possible.
- NCDOT's Project Engineers will review all comments for consistency and adherence to procedures listed above.
- All comments should be addressed, whether implemented or not.
- If the PEF does not address a comment, an explanation needs to be made why it was not addressed.
- NCDOT's contract section will not check plans with distant letting schedules. These plans will be checked by Engineering Coordination, sealed and delivered by the PEF, and put on shelf.
- Plans on shelf for considerable length of time will be reviewed and updated in accordance with current specifications and standards prior to letting. NCDOT may elect to use purchase order to hire PEF to perform this work.
- If the PEF feels they are being treated unfairly, or do not agree with instructions or comments, they should contact the Engineering Coordinator—Design Services if the matter cannot be resolved with the Project Engineer.
- Incomplete plans will not earn credit for meeting schedule. Complete plans turned in on time will earn an "expected (7)" rating for ability to meet schedule. Plans turned in early (weeks) and complete will earn extra credit and will earn a rating of better than "expected" in ability to meet schedule (8, 9, or 10 depending on plan quality and number of weeks earlier than that established in the schedule).
- Evaluations at the various milestones are indicators of performance. Past performance is the major factor in the selection process used by NCDOT for Design contracts.

FIGURE 13 Plan review procedures—North Carolina.

technical support provided by other units. The most common practice appears to be that the project manager has a technical background and is supported by contract services or other administrative staff. Two-thirds of the states make project managers responsible for both in-house and consultant projects. In some cases, on-the-job training for managers of consultant projects means experience they have gained on in-house design projects.

Figure 13 outlines one aspect of the project engineer's monitoring role, that of plan reviewer, in North Carolina. Michigan DOT's Design Contract Management Manual specifically identifies another responsibility of the project manager: to review the Quality Assurance/Quality Control plan that consultants must submit for each project or maintain in connection with Indefinite Delivery of Service contracts. Appendix M, from South Carolina's Engineering Policies and Procedures Memorandum, illustrates the technical monitoring obligations of the Project Managers in that state.

Meetings and Visits

Answers to the 1992 AASHTO survey implied a high frequency of personal contacts between project managers and consultants. For example, 70 percent of DOT staffs met with consultants between major milestones, 40 percent made unannounced visits to consultants, and 45 percent had monthly meetings. While all states currently responding said that such technical review opportunities were provided, few offered details. The milestones varied, from being project-specific to various completion stages, such as 30–60–90 percent complete. California reported meetings on a biweekly basis, Washington "regularly." New York and New Jersey both reported visits made to consultant offices, but neither reported unannounced visits. Wyoming meetings are usually at the DOT, and New Hampshire's are only at the DOT offices.

Consultant respondents implied that more meetings might be useful. Two-thirds suggested regular intervals, ranging from weekly to quarterly, with most preferring monthly meetings. The remainder suggested that the meeting frequency should depend mainly on the duration or complexity of the project or the project manager's requirements. One reply said "As necessary and milestone meetings, not monthly just for the sake of meeting." Only two indicated that meetings should be scheduled at the consultant's office; otherwise, there were no references to location.

Progress Reports

Monthly progress reports are the norm, required by three-quarters of responding states. One state's practice is either two weeks or four weeks, and two others described project milestones as the reporting intervals. Most states also receive invoices from consultants on a monthly basis. Joint submission of progress reports and invoices facilitates verifying that work progress is commensurate with billing charges. On this point, five states said no such review was required (one said it was optional, and another said "not for progress reports"). Thirteen states explicitly stated that such reviews and approvals were usually by the project manager and were prerequisites to payment. As noted earlier, only one state (Kansas) volunteered that "payment is withheld if project is behind schedule."

Evaluations

Performance evaluation is an essential part of monitoring. It can occur both during the life of the project and at its completion.

Interim Evaluations

Many states evaluate consultant performance during the life of a project, to provide guidance and feedback leading to improved work. The reviews may be at regular intervals, like six months (Connecticut) or one year (Tennessee), or at project milestones (Nevada). New York described the intervals as "Annually, or when there is a change in performance and at completion of work." California's procedure is to evaluate the consultant at least twice or as frequently as necessary. Standard forms are used by some states, and others said they were in the process of developing forms. New Jersey uses a summary form but appends a complete narrative. Virginia's evaluations come "every six months, when plans are completed, and when construction is done . . . [evaluations are] taken seriously by both sides." The procedures can be comprehensive. Colorado's report form lists 11 factors with a grading system and detailed guidance on rating selections. Appendix N is a copy of the form.

Final Evaluations

At least six states do not make interim evaluations but wait until the project is complete. As noted, consultant work on federal projects must be evaluated at its conclusion. At least the following factors are reviewed: timeliness of completion; cost conformity; and quality of work. Performance reviews by states reflect these factors among others. Survey returns provided the following general criteria for evaluations (numbers represent the frequency of mention): timeliness (14); technical performance (12); administrative performance (8); quality of work (10). Also mentioned as criteria were: cooperation/human relations (10); budget conformity (4); professionalism (2); DBE considerations (2), and report quality (1).

Most states share evaluation results with consultants. Wisconsin's Evaluation form (Appendix O) emphasizes the value of this kind of feedback. Some states encourage, if not require, a response or at least obtain an acknowledgement signature. For example, New York said, "Evaluations are provided confidentially to the rated consultants who are able to respond in writing." Virginia enters any comments of disagreement by consultants into its records. Michigan routinely schedules a "post evaluation conference" within two weeks of receiving the consultant's project evaluation report.

The other use of evaluations is typically in the selection process. At least two-thirds of responding states place evaluations in the file for use by selection committees in short-listing. Arkansas and New Hampshire respondents reported that evaluations are not entered in data bases, and California said that evaluations are not used in prequalification.

Consultant Views on Evaluations

A question to consultants as to whether evaluation procedures were fair and reasonable drew 27 responses. More than half rated the practices as "Fair" or "Good." Two noted that the states they worked in did not perform evaluations; these may be states that did not share evaluation results with consultants. Negative comments pertained mostly to the subjectivity of the evaluation process and evidence of negative bias on the part of DOT staff. Other comments identified the lack of uniformity (presumably between states) and a lack of feedback processes. At the other extreme was the following remark: "Very fair and reasonable. Reviews are conducted yearly by Delaware project managers and consist of a 2- to 3-page questionnaire. The consultant signs the form and returns it."

OTHER ISSUES

Computer Aided Design and Drafting (CADD)

Extent of Use

AASHTO's 1992 survey reported that 35 percent of the states required consultants to use CADD systems for DOT preconstruction engineering. Results from the present

survey showed that 25 out of 30, or over 80 percent, require it. Most of the same states, but not all, also provide electronic access to state standards and other material for use with CADD. While CADD may not be required in five states, it was noted to be a major selection factor in one of them. Several states noted that better Web sites were required or were under development to meet the needs for CADD operations. Little additional information was available from the state survey on this topic.

Variations in Practice

A consultant survey question, "How are CADD charges treated on PCE work," brought out the variations between states on administrative practices with respect to CADD. Out of 30 responses, six reported that CADD charges were treated as a direct expense. Fifteen, or 50 percent, said that CADD costs were absorbed in overhead charges. Several others, presumably firms working in more than one state, noted that practice varied. "Some states want them separate while others want them as part of overhead." For firms working in states with different billing procedures, the treatment of CADD costs for auditing purposes can clearly present problems.

CADD Submission Procedures

Consultants were asked about technical problems in submitting CADD work to state agencies. Out of 26 responses to the question, 14 or more than 50 percent reported no problems. The principal problem, again for consultants working in more than one state, was incompatibilities between states in both standards and software. Other comments pertained to "ever-changing standards" and DOT failure to keep current on software. The following comments illustrate such concerns:

"Sometimes DOTs are slow to adopt new CADD features (in their CADD application of choice) that help consultants be more productive (i.e. [sic], microstation custom linestyles). Also the more stringent the CADD-submitted specifications, the more it costs the consultant in productivity losses."

"The state DOT is slow in updating technology and this can vary between districts and/or depts. At times we cannot deliver data using the latest and most expedient methods. Overall this has not been a major problem. We do experience occasional glitches in the system."

"Incompatibility of systems among state DOTs impedes consultant's ability to achieve economy of scale."

Last, communications and liaison inadequacies are suggested by this example of problems with CADD applications: "Recent CADD changes were not discussed with consultants as to why changing. [They were] just changed without regard to how much it cost consultants."

Contract Closeout and Acceptance

Technical staffs typically play an important role by carrying out the final evaluations. As noted earlier, project managers (usually technical staff) are often required to convey their acceptance and approval of the consultant's work to contract administrators closing out the project. In other cases, the technical staff role was described by six states as evaluating the consultant's product, as in the North Carolina technical review procedures shown in Figure 13. Six other states described the technical staff as being involved, without citing specific roles, in the acceptance process.

CONSULTANT COMMENTS

Some consultant input on project management has been included already under selected topics. The following sections summarize other suggestions they offered for improvements in project management and communications.

Project Management Suggestions

Developing better project manager skills was the primary recommendation of consultants for obtaining improved consultant management within DOTs. The emphasis on providing better-trained project managers echoed the findings in AASHTO's earlier consultant survey. Next most frequently suggested was an increased emphasis on the "partnering" approach. Other suggestions were avoiding micromanagement and petty revisions, more use of monthly meetings and evaluations, and weeding out unqualified or nonperforming consultants.

Communication

The AASHTO survey had found that the issue of improved communication and access was a low priority for consultants at that time. The present survey found that one-third of responding consultants had no suggestions in this area. Suggestions for improvements from the remainder were almost evenly divided among the following topics:

- Electronic access (e-mail for DOT staff, upgraded Websites),
- Human relations (partnerships, inclusive approaches),
- Meetings (monthly, quarterly, workshops, seminars, forums), and
- Document transfer (newsletters, technical information updates).

One comment suggested training for DOT staff on how consultants work. Another noted positively, "The trend appears to be an ever-improving dialogue."

CHAPTER SEVEN

CONCLUSIONS

This synthesis examines current practice among the state departments of transportation in their use of consultants for preconstruction engineering work. Information was collected by surveys of both DOTs and consultants, and by reviews of the limited available literature. This chapter presents the principal conclusions that can be drawn, following essentially in the order of preceding chapters. Additionally, it identifies those areas where questions remain and where further investigation may prove fruitful.

The first observation is that there has been significant growth in the use of consultants during the past decade. More states are contracting out preconstruction work, in greater amounts. Half the states are now contracting out half or more of their design activities. The growth trend is expected by most states to continue, for several reasons. First, in the present political climate, many states have been directed to downsize staffs or to contract out a variety of activities. Second, these and other states are limited in their ability to obtain or retain the technical staff and expertise needed to keep pace with workloads and schedules. Third, new funding sources such as TEA-21 are expected to increase the volume of preconstruction work, thereby generating additional emphasis on contracting out.

States do not treat the preceding issues in a uniform manner. For example, great diversity exists in the dollar volumes of work that is contracted. Among the few states with annual construction programs amounting to $1 billion or more, the yearly amount of design work contracted to consultants varies from a low of $50 million to a high of $190 million. The variations in the volumes of work may explain differences in the way that states and consultants view their relationships. The prevailing view of state agencies is to regard consultants as extensions of staff. A few states employ the term "partnering" to characterize the association. In general, the consultants' views are similar. Yet the views of approximately half the consultants also carried some negative connotations with regard to the quality of the relationship.

Because of the forces that drive the DOT need for consultants, no special processes are required in selecting the projects that are contracted out. Projects demanding special skills not available in-house are obvious choices; overflow projects left after in-house staffs are fully occupied by the work program are another source; needs for independent views on controversial situations are another; pressures arising from changes in schedules or emergencies can be others. In any case, most states desire to retain enough work in-house to maintain "core competence" in their technical staff and to meet at least the "valleys" in the up-and-down variations in annual program size. These conditions vary from state to state, but contracting out in the range of 50 percent of the program appears to be generally accepted as a reasonable balance.

Cost is not usually an issue. Studies on the comparative cost of consultant versus in-house design have not been conclusive, in a collective sense. Some have shown DOT work to be more efficient, others have shown consultants to be more cost-effective, and still others have been inconclusive. The accuracy of overhead representations by public agencies has been one source of dispute. Assigning values to the consultant contribution of skills and availability in the context of overall program delivery is another issue.

By either legislation or department policy, all states recognize that qualifications-based selection is the principal method by which consultants are to be chosen. Nevertheless, comments suggest that decisions on short-listing may be influenced by knowledge of previous overhead rates or other past cost experience. Priced proposals, or selection processes that include a cost factor, are selection methods that can be practiced in several states.

Selection committee makeup and practices vary from state to state, depending on considerations such as the roles of central and district offices in consultant procurement and management. Committees may vary in size and in what they review to rate consultants for shortlists. Any or all of the following may be used: prequalification records, letters of interest, consultant workload, and past performance. The principal concern of consultants in the selection process was the level of effort required of them to compete in the process versus the probabilities of success in getting the work. The effort can vary, depending on prequalification requirements, short-listing practices, proposal requirements, and so on. In general, consultants lean toward simplifying and shortening selection procedures.

Agreement between parties in interpreting the project scope is a critical element in successful negotiations. One important use of scope statements is to facilitate cost estimates made by both state DOTs and consultants. The

state project managers may be key in this regard; their responsibilities vary from one state to another. Project managers may be charged with preparing scope statements. Sometimes the project manager may be the sole negotiator. More frequently, the project manager will be part of a negotiating team, involved in reviewing cost and technical data. Consultant comments on the negotiation stage revealed two principal concerns. First, some have experienced situations where negotiations appeared to be less a process of reaching acceptable terms than a means for states to achieve their preset objectives. Second, they have encountered state project managers who need more training in conducting negotiations. The premise suggested by one respondent that, "both sides should recognize the other as honorable," might be a good starting point.

Pre-award audits are a common element of the negotiation stage and are often the cause of protracted proceedings. Both AASHTO and ACEC have expressed interest in shortening these procedures. Overhead rates and the percentages of fixed fees vary to a smaller degree than in the past, possibly as a result of federal legislation. Overhead rate caps, ranging between 120 and 170 percent, apply in more than half the states. Fixed fees vary also, but in a narrower range than they once did.

Variability in handling CADD charges is another complication in auditing. The lack of uniformity in such practices creates difficulties, at least for consultants who practice in more than one state. Whether these costs should be treated as direct expense or part of overhead in order to streamline or expedite procedures is a question that might bear investigation.

The time required from first advertising a project to the actual start of consultant work is somewhat less now than it was a decade ago. One state reportedly can accomplish the process for even the largest projects in only seven weeks. Yet the average time is 5.8 months, and it can amount to one year or more in some cases. Opportunities for time saving can probably be found.

With respect to projects underway, all states have the common objective of obtaining acceptable project results within the predetermined time and budget limits set by consultant agreements. But variability between states is still the essence of the detailed administrative and technical procedures used to accomplish the objective. It begins in the varied roles of central offices and districts. The personnel involved can also vary; the project manager may handle either or both areas with appropriate support from other units. Evaluations may be made during the life of a project or at the end; most but not all states share evaluations with consultants. A final element of variability is in the practice of retaining partial payments or fees for different periods after project completion.

A need for more staff training, especially in project management techniques, was pointed out by consultants and is recognized by many states. The majority of consultants apparently benefit from participating in joint training programs initiated by the DOTs. States have increased and improved their communications and liaison activities with consulting firms in recent years. Annual or more frequent joint meetings are common, and the Internet is used increasingly as a communications medium. Most consultants rate DOT communication practices as being good, and clearly improved over those of past years.

In the broadest sense, DOT procedures for working with consultants in preconstruction engineering projects seem to present no major problems for either party. Practices vary from state to state, as the states themselves vary in size of programs, different management practices, and different external influences affecting their policies. Under these circumstances, a search for uniformity or preferred models for consultant management may be unrewarding. Thus, consultants seeking to broaden markets into new states may simply have to accept the conditions that prevail and whatever additional burdens may result from the variability in practices.

Many states recognize the need to maintain adequate in-house staff skills. While the concept of maintaining "core competency" was rarely if ever mentioned, it is a clearly a consideration for most agencies. They take measures to assure it by keeping in-house enough work of sufficient diversity and technical interest to keep staff challenged. The need for enhanced training and other educational opportunities is evidently recognized by some states. Additionally, direct rewards and incentives to maintain or acquire skills are offered. Related to this issue, investigation might be made into whether there are optimum levels for the proportion of work done in-house versus that contracted to consultants.

Several opportunities for further investigation can be identified. First, the types of quantitative data asked for in the DOT survey and listed in Appendix D were reportedly difficult if not impossible to assemble, according to some respondents. Inasmuch as one private organization (Zweig Reports) is collecting data on DOT expenditures useful for consultant marketing purposes, some investigation into the types of information useful for the public record might be worthwhile. Possible areas include: data on the dollar volumes and nature of work contracted out annually; contract methods employed (e.g., on-call, lump sum, sole source, etc.); percent of all PCE work that is contracted out; number of consultants engaged; and so on. A committee formed by representatives of interested organizations such as AASHTO, ACEC, and FHWA could identify areas

of interest, mechanisms for data collection and analysis, and methods for disseminating findings.

Examining the specific needs for and the existing methods of training for DOT staff in consultant management practices could be useful. As workloads increase, and as experienced staff members retire and are replaced, the demand for adequate training will continue if not increase.

The apparently growing application of "On-call" or "Indefinite Delivery of Service" contracts suggests that dissemination of information on how they are being used might be helpful to state agencies. Aspects of interest include the proportion of all PCE consultant work, topics of work, size of contracts, work authorization methods, and quality assurance/quality control issues.

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GLOSSARY

The sources for these definitions are the Code of Federal Regulations (23 CFR Section 172.3 Chapter 1), AASHTO's "Guide For Contracting, Selecting, and Managing Consultants" (AASHTO 1996), and various state manuals.

Advertisement A public announcement that appears in local, state, or national newspapers, magazines, state publications, or publicly accessible electronic bulletin boards announcing interest in obtaining consultant services.

Agreement The written document between the transportation agency and the consultant that sets forth the obligations of the parties thereunder for the performance of the prescribed work.

AASHTO American Association of State Highway and Transportation Officials.

ACEC American Consulting Engineers Council

Brooks Bill Federal law requiring that all applicable contracts be awarded pursuant to a fair and open competitive negotiation process on the basis of demonstrated competence and qualifications.

CADD Computer-aided drafting and design.

CFR Code of Federal Regulations, written and promulgated by federal agencies.

Consultant A business, educational institution, individual or public agency providing engineering and design related services as a party to the contract.

Contract Manager State employee assigned the responsibility of managing, administrating, and monitoring the consultant work.

Contract Modification An agreement modifying the existing contract, such as an agreement to accomplish work beyond the scope of the original contract.

Contracting Agency The state transportation agency or local governmental agencies that have responsibility for the procurement.

Core competence A policy that assures the retention of an adequate staff with sufficient expertise to carry out the fundamental elements of an agency's mission.

DBE, MBE A small business concern owned and controlled by one or more socially or economically disadvantaged individuals who have been certified under the Small Business Administration 8(a) program or by the transportation agency.

Extra Work Any services or actions required of the consultant above and beyond the obligations of the original or modified contract.

FAR Federal Acquisition Regulations. Includes cost principles to be followed in negotiating consultant agreements.

Fixed Fee A dollar amount established to cover the consultant's profit and business expenses not allocable to overhead.

Letter of Interest (LOI) The package submitted by a consultant in response to the agency project advertisement. Also **Statement of Interest**.

Notice to Proceed Written notice to the consultant to begin the contract work.

On-Call Services A contract established with a consultant for a fixed period of time for completion of projects that are normally smaller in scope, unanticipated or of an urgent nature where requests for proposals are inappropriate or not cost-effective. Also termed "**Master**" contracts or "**Indefinite Delivery of Service**" (**IDS**) contracts.

OJT On-the-job training

Outsourcing Contracting with either private or public sector vendors or service suppliers to obtain services that have traditionally been, or would otherwise be, performed by DOT staff.

Overhead The accumulation of costs not directly charged to a project; also called indirect costs or burden.

PCE	Preconstruction engineering.
PPM	Policies and procedures memorandum.
Partnering	Transportation agency/consultant relationship with emphasis on up-front team building, clear definition of common objectives, synchronized systems for rapid issue resolution and frequent joint evaluation of effectiveness. Key is involvement of all interested parties in the early development stages.
Peer Review	An independent review by one professional of another professional's work.
Pre-award audit	An examination of a consultant's records made in accordance with generally accepted auditing standards.
Prequalification	The process by which a consultant seeks to become eligible to compete for the award of agreements or on-call agreements through submittal of prescribed forms.
Priced Proposal	A statement or document by the consultant indicating the proposed cost to perform the required service.
Project	A fixed capital outlay study or planning activity described in the public notice or advertisement.
Project Manager	Individual assigned the responsibility for managing project scope, budget and schedule (also see **Contract Manager**).
QBS	Qualifications-based selection.
RFP	Request for (Technical) Proposal.
Scope of Work	All services and actions required of the consultant by the obligations of the contract.
Shortlist	Several consultants chosen by a selection committee and invited to submit proposals for a specific project in order to be considered for final selection.
Supplemental Agreement	A negotiated agreement modifying the originally executed agreement.
TEA-21	Transportation Equity Act for the 21st Century.

APPENDIX A

DOT Survey Form

NCHRP PROJECT 20-5, TOPIC 29-06

"CONSULTANTS FOR DOT DESIGN WORK"

Questionnaire

(PART ONE - DOT CONSULTANT PROGRAMS)

*Organization:*_____
*Name of Respondent:*_____
*Title:*_____
*Telephone No:*_____

I. BACKGROUND AND PRE-SELECTION PROCEDURES

A. CONSULTANT WORK VOLUME

What is the annual dollar volume of the state's contracted highway construction program (average of past 3 years if highly variable)?_____

What percentage of the total pre-construction engineering (PCE) effort (see part two of the questionnaire for an indication of breadth) is contracted to consultants?_____

What is the annual dollar volume of PCE work (average of past 3 years if highly variable)? _____

What percentage of PCE services are supported by state funds only?_____

Has there been a trend to increased volume of consultant work and is it expected to continue?_____

Please check the contract types by which consultant services are obtained and indicate what percent each represents of contracted dollar volume:

Lump sum _____
Cost plus fee _____
Cost per unit of work_____
Agreed rates _____

Please indicate the relative importance or impact of the following factors with respect to the use of consultants in PCE:

legal or policy requirements_____
shortage of in-house staff _____
workload peak shedding _____
special skill needs _____
other (please describe) _____

B. IN-HOUSE STAFF EFFORT

How has the use of consultants affected the numbers and mix of DOT employees engaged in PCE?
Engineers_____
Technicians_____
Other support staff_____

Please describe policies, if any, aimed at the following:
Maintaining in-house PCE expertise_____

Retaining young engineers_____

Providing skills for consultant management (e.g., scope development, estimating, negotiating, and contract administration)_____

C. INTERACTION FACTORS

How are "On-Call" contracts used in retaining consultants? Please describe. _____

How would you describe the relationship between DOT staff and consultants (e.g., consultants are viewed as an extension of staff, "partnering")?_____

Please describe briefly the procedures (e.g., cost or manpower analyses) used to determine whether specific projects will be done by in-house staff or given out to consultants? _____

What liaison or communication methods (workshops or meetings) does the DOT use to maintain contact with the consultant community?_____

II. CONSULTANT SELECTION

A. PREQUALIFICATION

Are consultants prequalified for PCE work?
Always _____; For selected projects _____; Not required _____.

Do consultants supply pre-qualification data on standard forms? _____

56 Are certification processes used for individuals or firms?_____

_____

Is a general file of prequalified consultants kept up-to-date annually by areas of interest and qualifications?_____

Is a general file of prequalified consultants used to solicit project-specific letters of interest?_____

_____

B. FACTORS AFFECTING SELECTION

Are state-funded PCE projects covered by a mini-Brooks law or other statutes that prescribe consultant selection procedures? Please describe:_____

_____

Please describe whether state law or policies require "Quality-based selection" as the primary criterion for choosing consultants or if price is sometimes a primary or dominant criterion? _____

_____

What media are used to advertise for letters of interest or proposals?_____

_____

If selection procedures vary between large and small projects, or between Federally-funded and state-funded projects, please describe._____

_____

What is the typical makeup of a Selection Committee? Does the membership vary by project or year? _

_____

Are contents for project-specific letters of interest specified? Please describe._____

_____

What documents are reviewed in compiling a short list of consultants? _____

_____

What criteria are considered in compiling a short list? _____

_____

How many consultants are typically selected for a short list? _____

_____

Does "cost" enter into consideration for short listing?_____

_____

Please describe any policy that may be implemented through the selection process to distribute work among the consultant community? _____

_____

C. SELECTION PROCESS

Is a "scope meeting" held with short-listed consultants before proposals are invited and, if so, what issues are addressed?_____

_____

At what point does DOT staff prepare a detailed scope of work for the project?_____

Does the DOT staff estimate costs for PCE projects in order to assess consultant proposals?_____

Are procedures standardized for technical and cost evaluation of proposals? Please describe._____

What procedures are used to document the selection process and reasons for making a particular selection?_____

Are records of the selection process available for debriefing consultants or for other reviews? _____

III. NEGOTIATION STAGES

A. GENERAL CONSIDERATIONS

What percent of consultant contracts are negotiated and how are others handled?_____

Have studies been made to compare final negotiated cost with either original state estimates or original proposals? If "Yes," can such data be made available?_____

What time (in months) is typically required to complete the following stages:
From Request for Letters of Interest to Consultant Designation_____
From Designation to Agreement on cost and scope _____
From Agreement to Start of work _____

How does the time involved vary by size of project?_____

Please describe measures taken, or being considered, to shorten the contracting process? Please describe._____

B. NEGOTIATION PROCESS

Are scope meetings held with selected consultants? What issues are covered? Are they the basis for obtaining detailed cost proposals?_____

Are pre-award audits required? Can they be waived under certain circumstances? Please describe._____

What limits, if any, are placed on the following:
Overhead costs_____
Salaries_____
Fees_____
Hourly rates_____
Other_____

Which DOT units or staff members carry out the following tasks:
Review technical data in proposals?_____
Review man-hour or cost data? _____
Negotiate agreement with consultant? _____

Please describe whether CADD is a prerequisite for design projects, and if electronic access to DOT standards, etc., is provided to consultants? _____
_____

IV. CONTRACT MANAGEMENT

A. ADMINISTRATIVE ISSUES

How are contract amendments (changes in scope, supplemental work, and costs) handled and do they cause significant delays to project schedules?_____
_____

What provisions and limits are required for consultant public liability insurance?_____
_____

Are consultants required to demonstrate that they have insurance coverage for errors and omissions?___
_____

What time periods apply to liability and errors and omissions coverage? _____
_____

Are consultants held responsible for deficiencies discovered during construction? If so, how?_____
_____

Are certain percentages of payment withheld until project completion? Please describe:_____
_____

B. TECHNICAL ISSUES

How are project management responsibilities divided between administrative and technical personnel, or between central offices and districts?_____
_____

Do project managers simultaneously handle both in-house and consultant projects and, if so, does this present problems? _____

What schedules of progress reports are typically followed?_____
_____

Are progress payments scheduled in conjunction with reporting? If so, is technical review and approval of completed work a prerequisite?_____

_____

Are other technical review opportunities provided, such as meetings and visits to consultant offices?___

_____

Is consultant performance during the life of the project documented on standard forms?_____

_____

What are the criteria and procedures for termination of a project due to poor performance?_____

_____

_____

By what criteria is consultant performance formally evaluated at the completion of work?_____

_____

Are evaluations routinely provided to consultants and are they made available for pre-qualification or other databases?_____

_____

How does the contract completion and acceptance procedure involve technical staff for project evaluation and approval?_____

Does the DOT provide training in state practices and/or project management for staff_____? For consultants_____? Please describe:_____

_____

_____

****

THANK YOU FOR YOUR VALUABLE ASSISTANCE

PLEASE RETURN YOUR RESPONSES BY MAY 29, 1998 TO:

David K. Witheford
11423 Purple Beach Drive
Reston, VA 22091

If you have any questions of Mr. Witheford during the process of responding to this survey, please contact him on (703) 860-5017.

****

NCHRP PROJECT 20-5, TOPIC 29-06

"CONSULTANTS FOR DOT DESIGN WORK"

Questionnaire

(PART TWO - DOT CONSULTANT ACTIVITY MEASURES)

This part is designed to provide information on consultant work that is more quantitative. Activities known to be contracted to consultants are listed on the form, which seeks data on the related history, volumes of work and contracting procedures.

We recognize that a great amount of information is being requested and that considerable work will be required to respond completely. If it will be impossible to go into such depth of detail, it will still be helpful to receive partial information. This might be grouped, for instance, by the three subheads (Pre-design, Design, and Other). In such cases, please circle those activities listed under each subhead that are performed by consultants.

The notes below refer to the form's column headings. The abbreviations are suggested for convenience.

Notes for Column Headings - Part Two

NOTE 1. The year or decade (e.g., 70's) that the activity was first contracted.

NOTE 2. The proportion of the activity typically contracted out, in the following groups: 0-19, 20-39, 40-59, 60-79, 80-99, 100 percent.

NOTE 3. The approximate annual dollar volume contracted for the indicated activity (in million $).

NOTE 4. The consultant type principally used: general consultant (GC), specialty consultant (SC), minority or disadvantaged business (MB), another public agency (PA), nonprofit private organization (NO), university (U), or other (O).

NOTE 5. Procedure used for selecting consultants: negotiated agreement (NA), sole source (SS), low bid (LB), other (O).

NOTE 6. Basis of payment principally used for the activity: lump sum (LS), cost plus fee (CP), cost per unit of work (CU), specific rates (SR).

NOTE 7. Factors influencing decision to contract for the activity: legal requirement (LR), policy direction (PD), staff constraints (SC), cost comparisons (CC), specialty skills or equipment (SS), other (O). Please list as many as are appropriate.

If you have any questions while responding to this request, please call Mr. David Witheford on (703) 860-5017.

NCHRP PROJECT 20-5, SYNTHESIS TOPIC 29-06

"CONSULTANTS FOR DOT DESIGN WORK"

PART TWO - CONTRACTED ACTIVITY CHARACTERISTICS

Respondent: _____ ***Telephone No.*** _____

Activity	Year Begun	Percent To Contract	Annual Volume	Contract With	Selection Process	Payment Basis	Decision Factors
	Note 1	Note 2	Note 3	Note 4	Note 5	Note 6	Note 7
PRE-DESIGN							
Mapping							
Value Eng'g							
Transportation Planning							
Hazmat Studies							
Archaeological							
Asbestos Abatement							
Permit Prep.							

Activity	Year Begun	Percent To Contract	Annual Volume	Contract With	Selection Process	Payment Basis	Decision Factors
	Note 1	Note 2	Note 3	Note 4	Note 5	Note 6	Note 7
Recon Studies							
Feasibility & Prelim. Eng'g							
Environmental Studies							
Public Involvement							
Wetland Investigations							
Biological Reviews							
Partnering Facilitation							
Develop Alternatives							
Other							

Activity	Year Begun	Percent To Contract	Annual Volume	Contract With	Selection Process	Payment Basis	Decision Factors
	Note 1	Note 2	Note 3	Note 4	Note 5	Note 6	Note 7
DESIGN							
Surveys							
Value Engineering							
Soils, Geotech							
Hydraulics & Hydrology							
Right Of Way Plans							
Roadway Design							
Structure & Bridge Design							
Architectural							
Landscaping Design							

Activity	Year Begun	Percent To Contract	Annual Volume	Contract With	Selection Process	Payment Basis	Decision Factors
	Note 1	Note 2	Note 3	Note 4	Note 5	Note 6	Note 7
Utility Design							
Right Of Way Acquisition							
Peer Review							
Project Management							
Other Expertise							
OTHER							
Proj. Mgmt System Design							
CADD Software							
Bridge Studies							
Manual Development							
Training Courses							

APPENDIX B

Consultant Survey Form

NCHRP PROJECT 20-5, TOPIC 29-06

"CONSULTANTS FOR DOT DESIGN WORK"

Questionnaire

(SURVEY FORM FOR CONSULTANT INDUSTRY)

---

*Organization:*_____
*Name of Respondent:*_____
*Title:*_____
*Telephone No:*_____

A. BUSINESS WITH STATE DOT's.

What annual dollar volume of Pre-construction Engineering (PCE) work does your firm do with state Departments of Transportation?_____

Does this represent a significant proportion of the firm's annual revenue?_____

For how many states does the firm do PCE work?_____

What percent of the work is done under each of the following contract types? Lump Sum _____; Cost plus Fee _____; Cost per unit of work _____; Agreed rates _____.

What is the preferred type of contract?_____

What percent of the work is done through the following methods? Negotiated agreement _____; Sole Source _____; Low bid _____; Other _____.

B. CONSULTANT SELECTION PROCESS

PREQUALIFICATION

Is prequalification with annual updates a desirable procedure? _____

Please describe what if any prequalification procedures you find to be burdensome? _____

What changes, if any, in prequalification procedures would you suggest? _____

Are project-specific requests for "Letters of Interest" a preferred way of initiating the selection process? _____

SHORT LISTING

What problems, if any, have you experienced with short-listing procedures (e.g., Selection Committee makeup, review procedures, project scope details, criteria for selection, confidentiality, distribution of work)? _____

Are oral interviews useful in the selection process? _____

Do scope meetings provide adequate detail for proposal development? _____

What suggestions, if any, do you have for changes in these procedures? _____

PROPOSAL HANDLING

Is adequate time provided for proposal development? _____

Do you find that Qualifications-based Selection is the primary method of proposal selection? _____

Does experience suggest that price may be a dominant criterion, based on the project type or for some other reason? _____

Are technical proposal review procedures reasonable and fair? _____

Are debriefing procedures on non-selected proposals adequate? _____

Do you have any suggestions for change in the selection process? _____

C. NEGOTIATIONS

Are pre-award audits a routine procedure for PCE projects? _____

Do you have any suggestions to facilitate auditing procedures? _____

What problems, if any, have you experienced with administrative aspects of the negotiation process? __

What negotiation problems, if any, have you experienced with technical aspects such as project scope details? _____

Do caps on costs or fees limit opportunities to submit proposals, or are they a problem in assigning qualified staff to projects? _____

What lengths of time are typically experienced between "letter of interest" and agreement on contract? _

What suggestions do you have for improving the negotiation process? _____

D. DOT MANAGEMENT OF CONSULTANTS

ADMINISTRATIVE ISSUES

How do DOTs treat consultants (e.g., as extensions of staff, partners, etc.)? _____

How do risk management requirements (liability, errors and omissions,etc.) influence decisions with respect to proposing on DOT PCE work? _____

Are progress and final payment procedures fair and reasonable? _____

How are CADD charges treated on PCE work? _____

TECHNICAL ISSUES

What DOT/consultant meeting frequency for progress reviews is desirable during the life of a project? _

What sort of problems exist in receipt from or delivery to DOTs of CADD materials? _____

How fair and reasonable are performance evaluation procedures? _____

Do you have any suggestions for changing DOT consultant management procedures? _____

OTHER

Do DOTs provide a useful service in training consultant staff about DOT practices? _____

What is the quality of DOT communications with the consultant community with respect to program awareness and other needs? _____

What suggestions do you have regarding improvements in the communication process? _____

****

THANK YOU FOR YOUR VALUABLE ASSISTANCE

PLEASE RETURN YOUR RESPONSES BY **MAY 29, 1998** TO:

David K. Witheford
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Reston, VA 22091

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****

APPENDIX C

Survey Response Summary

State	Part I Reply	Part II Reply	Supplements
Arizona	X	–	–
Arkansas	X	X	–
California	X	–	X
Colorado	X	–	X
Connecticut	X	–	–
Florida	X	X	X
Georgia	X	X	–
Hawaii	X	–	–
Illinois	X	X	–
Iowa	X	X	–
Kansas	X	X	–
Louisiana	X	–	–
Maine	X	X	–
Maryland	X	X	–
Massachusetts	X	(Due)	X
Michigan	X	X	X
Minnesota	X	X	X
Missouri	X	X	X
Nebraska	X	–	X
Nevada	X	–	X
New Hampshire	X	X	–
New Jersey	X	X	–
New York	X	X	–
North Carolina	X	–	X
Pennsylvania	X	X	–
South Carolina	X	X	X
Tennessee	X	–	–
Texas	X	X	–
Vermont	X	X	X
Virginia	X	X	X
Washington	X	–	–
Wisconsin	X	X	X
Wyoming	X	–	–
Total	33	20	14

APPENDIX D

DOT Survey—Part Two Summary

NCHRP PROJECT 20-5, TOPIC 29-06

"CONSULTANTS FOR DOT DESIGN WORK"

Questionnaire

(PART TWO - DOT CONSULTANT ACTIVITY MEASURES)

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If you have any questions while responding to this request, please call Mr. David Witheford on (703) 860-5017.

NCHRP PROJECT 20-5, SYNTHESIS TOPIC 29-06

"CONSULTANTS FOR DOT DESIGN WORK"

PART TWO - CONTRACTED ACTIVITY CHARACTERISTICS

Respondent: _____ *Telephone No.* _____

ACTIVITY	YEAR BEGUN	PERCENT TO CONTRACT	ANNUAL VOLUME	CONTRACT WITH	SELECTION PROCESS	PAYMENT BASIS	DECISION FACTORS
	NOTE 1	NOTE 2	NOTE 3	NOTE 4	NOTE 5	NOTE 6	NOTE 7
PRE-DESIGN MO	90'S	75	$3M	GC	NA	CP	SC & SS
NH	70'S	20-39	$5M	GC	NA	LS,CP	SC
TX	70'S	30	$40M	GC	NA	CP	SC
WI	80'S	20-39	$10-20M	(ALL)	NA	CP	SC,SS
PA	70			GC	NA	CP/CS	SC
MN	60'S	20	$9M	GC	QBS	CP	SC
KS		40-60		GC	NA	CP	SC
FL	70'S	60-79					
MAPPING IL	50'S	0-19	0.5	SC	NA	CP	SC
IA	80'S	40	0.3M	GC	NA	CP	SC
NY	60'S	-	-	SC	NA,LB	CV,SR	SC
SC	60	100	$50K	SC	NA	LS	SC
ME	-			SC	CB	CU	SS
PA	70			GC	NA	CP/CS	SC
MN	60'S	20		SC		UP	SC
FL				SC	NA	CP	SC
VALUE ENG'G PA	80			GC	NA	CP/CS	SC
MD	80			GC/SC	NA	CP	SC/SS
KS	97	50		SC	NA	CP	SS
FL				SC	NA	CP	SC

ACTIVITY	YEAR BEGUN	PERCENT TO CONTRACT	ANNUAL VOLUME	CONTRACT WITH	SELECTION PROCESS	PAYMENT BASIS	DECISION FACTORS
	NOTE 1	NOTE 2	NOTE 3	NOTE 4	NOTE 5	NOTE 6	NOTE 7
TRANSPORTATION PLANNING NY	60'S	-	-	GC	NA	CP	SC
	60	2	$50K	GC	NA	CP	SC
SC				GC	NA	CP	PD,SC
ME							
PA	70			GC	NA	CP/CS	SC
MD	70'S			GC/SC	NA	CP	SC/SS
MN	70'S	20		GC		CP	SC
FL				SC	NA	CP	SC
HAZMAT STUD. IL	1988	100	PH 1-$1M	PH1 - PA&U	NA	PH1 - LS	PD,SC,CC,
			PH2- $1M	PH2 - SC		PH2 - CP	SS
NY			$0.3	SC	NA	SR	SS
SC	80'S	100					
ME	80	50	$200K	GC	NA	CU	SS
PA	80			SC	NA	CP	SC
MN	1980'S	90		SC		CP	SC
FL				SC	O	CU	SC

ACTIVITY	YEAR BEGUN	PERCENT TO CONTRACT	ANNUAL VOLUME	CONTRACT WITH	SELECTION PROCESS	PAYMENT BASIS	DECISION FACTORS
	NOTE 1	NOTE 2	NOTE 3	NOTE 4	NOTE 5	NOTE 6	NOTE 7
ARCHAEOLOGY IL	1957	100	1.2	U	SS	CP	SS & SC
NY	70'S	100	-	PA, SC	SS	CP	SS
SC	70'S	50	$100K	GC	NA	CP	SS, SC
VT	80	60	$3M	SC,MB,U	LB	CP	LR,SC,SS
AR	70's	0-19	0.01%	SC,MB,PA	NA	LS, SR	SC,SS
ME				PA	SS	CP	LR
PA	80			SC	NA	CP/NS	SC
GA	93	40-59	$0.23M	SC	NA	CP	SC
MD	80			GC/SC	NA	CP	SC,SS
MN	80'S	100		SC	O	CP	SS
FL				MB		CP	SC
ASBESTOS IL	1991	100	$0.1	SC	NA	CP	LR
ABATEMENT NJ	1991	100	$0.15	SC	NA	CS	LR,SS
NY	80'S	100	$0.3M	SC	NA	SR	SS
ME				PA	LB	LS	PD
PA	80			SC	NA	CP/LS	SC
MN	80'S	100		SC		CP	SS
FL				SC	O	CU	SC
PERMIT PREP. NY	70'S	-	-	GC	NA	CP	SC
SC	70	10	$50K	GC	NA	CP	SC
VT	94	20	$1.5M	SC,MB	LB	CP	SC,SS
PA	80			GC	NA	CP/LS	SC
MD	70'S			GC/SC	NA	CP	SC,SS
MN	60'S	5		GC		CP	SC
FL						CU	SC

ACTIVITY	YEAR BEGUN	PERCENT TO CONTRACT	ANNUAL VOLUME	CONTRACT WITH	SELECTION PROCESS	PAYMENT BASIS	DECISION FACTORS
	NOTE 1	NOTE 2	NOTE 3	NOTE 4	NOTE 5	NOTE 6	NOTE 7
RECON STUD. NY	60'S	-	-	GC	NA	-	SC
MD	70'S			GC		CP	SC
MN	60'S-70S						
FEASIBILITY IL	60'S	40-59	20	GC&SC	NA	CP	SC & SS
& PRELIM. ENG.NY	60'S	50		GC	NA	CP	SC
SC	80	20	$12M (INCL	GC	NA	CP	SC
ME			7BELOW)	GC	NA	CP	SC
PA	80			GC	NA	CP/LS	SC
MD	70'S			GC/SC	NA	CP	SC,SS
FL				SC	NA	CP	SC
ENVIR. NY	70'S	-	-	GC	NA	CP	SC,SS
STUDIES AR	90'S	20-39	1.33%	GC,SC,MBW	NA	CP,SR	SC,SS
ME				SC	NA	CP	SC,SS
PA	70			GC	NA	CP/LS	SC
GA	93	20-39	$1.1M	GC	NA	CP	SC
MD	70'S			GC/SC	NA	CP	SC,SS
FL				SC	NA	CP	SC
PUBLIC NY	60'S	50	-	GC,SC	NA	CP	SC
INVOLVEMENT ME				GC	NA	CU	PD
PA	70			GC	NA	CP/LS	SC
KS	96			SC	NA	CP	SC
FL							

ACTIVITY	YEAR BEGUN	PERCENT TO CONTRACT	ANNUAL VOLUME	CONTRACT WITH	SELECTION PROCESS	PAYMENT BASIS	DECISION FACTORS
	NOTE 1	NOTE 2	NOTE 3	NOTE 4	NOTE 5	NOTE 6	NOTE 7
WETLAND IL	1990	100	1	PA/U	SS	CP	SS & SC
INVESTIG. NY	70'S	-	-	GC,SC	NA	CP,SR	SS
ME				SC	NA	CP	SC
PA	80			SC	NA	CP/LS	SC
GA	93	0-19	$0.1M	SC	NA	LS	SC
MD	80'S			GC/SC	NA	CP	SC,SS
FL				SC	NA	CP	SC
BIOLOGICAL IL	1984	100	1	PA/U	SS	CP	SS & SC
REVIEWS NY	70'S	-	-	GC,SC	NA	CP,SR	SS
ME				SC	NA	CP	SC
PA	80			SC	NA	CP/LS	SC
GA	93	40-59	$0.15M	SC	NA	CP	SC
MD	80'S			GC/SC	NA	CP	SC,SS
FL				SC	O	CP	SC
PARTNERING SC	90	95	$20K	SC	NA	LS	SC
FACILITATION ME				SC	NA	CU	PD
PA	90			GC	NA	CP/LS	SC
MD	90'S			GC/SC	NA	CP	SC,SS
FL				SC	O	CU	SC
DEVELOP NY	60'S	50	-	GC	NA	CP	SC
ALTERNATIVES SC	80	20	-	CG	NA	CP	SC
ME				GC	NA	CP	SC
PA	70			GC	NA	CP/LS	SC
MD	70'S			GC/SC	NA	CP	SC,SS
FL				SC	NA	CP	SC

ACTIVITY	YEAR BEGUN	PERCENT TO CONTRACT	ANNUAL VOLUME	CONTRACT WITH	SELECTION PROCESS	PAYMENT BASIS	DECISION FACTORS
	NOTE 1	NOTE 2	NOTE 3	NOTE 4	NOTE 5	NOTE 6	NOTE 7
OTHER VT (SCOPING)	94	80	$1.5M	GC,MB	LB	CP	PD,SC
DESIGN NH	60'S	20-39	$6.0M	GC	NA	LS,CP	SC
TX	70'S	35	$80M	GC	NA	CP	SC
WI	80'S	20-39	$10-20M	(ALL)	NA	LS,CU,CP	SC
AR	60'S	40-59	$8M	GC	NA	CP	SC
MN							
KS	60'S		$5M	GC		CP	SC
VA	-	40-60	$18M	GC	NA	CP	SC
FL	50'S	60-79	$68M	GC	NA	CP	SC
	70'S	60-79					
SURVEYS IA	70'S	40	$1.8M	GC	NA	CP	SC
NY	PRE70'S	-	-	GC,SC	NA	CP,CU	SC
ME				SC	O	SR	SC
PA	80			GC	NA	CP/LS	SC
MD	70			GC/SC	NA	CP	SC,SS
MI	1990	70	$7M	SC	NA	CP	PD,SS
VA	1985	40-59	$19M	GC	NA	CP/SR	SC
FL				SC	NA	SR	SC

ACTIVITY	YEAR BEGUN	PERCENT TO CONTRACT	ANNUAL VOLUME	CONTRACT WITH	SELECTION PROCESS	PAYMENT BASIS	DECISION FACTORS
	NOTE 1	NOTE 2	NOTE 3	NOTE 4	NOTE 5	NOTE 6	NOTE 7
VALUE NY ENGINEER PA GA MD MI FL	1997 80 96 80'S 1997	- 100 100	- $0.075M $1M	GC,SC SC SC GC/SC SC SC	NA NA SS NA NA NA	CP,CU CP/LS LS CP CP CP	LR,SC SC LR SC,SS PD,SC SC
SOILS, IA GEOTECH NY ME PA GA MD VA FL	80'S PRE70'S 70'S 80'S 80'S 1984	20 - 0-19 40-59	$1.5M - $0.1M $2M	GC - SC GC SC GC,SC SC SC	NA - NA NA SS NA LB NA	CP CP,CU CU CP/LS SR CP CU CU	SC SC SC,SS SC SS SC,SS SC SC
HYDRAULICS & ME HYDROLOGY PA GA MD FL	70 94 70'S	5	$0.1M	GC GC SC GC,SC SC	NA NA NA NA NA	CP CP/LS LS CP CU	SC SC SC SC,SS SC
RIGHT OF WAY NY PLANS ME PA MD FL	PRE70'S 70 70'S	-	-	GC GC GC GC,SC SC	NA NA NA NA NA	CP CP CP/LS CP CP	SC SC SC SC,SS SC

ACTIVITY	YEAR BEGUN	PERCENT TO CONTRACT	ANNUAL VOLUME	CONTRACT WITH	SELECTION PROCESS	PAYMENT BASIS	DECISION FACTORS
	NOTE 1	NOTE 2	NOTE 3	NOTE 4	NOTE 5	NOTE 6	NOTE 7
ROADWAY DES. IL	60'S	40-59	33	GC	NA	LS & CP	SC
IA	70'S	40	$7.3M	GC	NA	CP	SC
NY	PRE70'S	-	-	GC	NA	CP	SC
ME				GC	NA	CP	SC
PA	60			GC	NA	CP/LS	SC
GA	80'S	20-39	$20M	GC,SC	NA&LB	CP/LS	SC,SS
MD	70'S			GC&SC	NA	CP	SC,SS
MI	1987	40	$15M	SC	NA	CP	PD,SC
FL				SC	NA	CP	SC
STRUCT. IL	70'S	60-79	10-12	SC	NA	LS & CP	SC
& BRIDGE DES IA	70'S	35	$1.0M	GC	NA	CP	SC
NY	PRE70'S	-	-	GC	NA	CP	SC
ME				GC	NA	CP	SC,SS
PA	60			GC	NA	CP/LS	SC
GA	50'S	20-39	$7.0M	GC	NA&LB	CP/LS	SC
MD	70'S			GC,SC	NA	CP	SC,SS
MI	1987	40	$15M	SC	NA	CP	PD,SC
VA	-	60-79	$17.3M	SC	NA	CP	PD,SC,SS
FL				SC	NA	CP	SC
ARCHITECT. IL	60'S	100	0.1	GC & SC	NA	CP	SS
ME				GC	NA	CP	SS
MD	80'S			GC,SC	NA	CP	SC,SS
FL				SC	NA	CP	SC

ACTIVITY	YEAR BEGUN	PERCENT TO CONTRACT	ANNUAL VOLUME	CONTRACT WITH	SELECTION PROCESS	PAYMENT BASIS	DECISION FACTORS
	NOTE 1	NOTE 2	NOTE 3	NOTE 4	NOTE 5	NOTE 6	NOTE 7
LANDSCAPING NY DESIGN ME PA GA MD FL	PRE70'S 70 80'S 70'S	- 40-59	- $0.1M	GC,SC SC GC SC SC SC	NA NA NA NA NA NA	CP CP CP/LS LS CP CP	SC SC SC SS SC,SS SC
UTILITY DESIGN VT PA FL	80 70	10	$500K	GC,MB GC SC	LB NA NA	CP CP/LS CP	SC,SS SC SC
RIGHT OF WAY SC ACQUISITION TX VT PA GA FL	90 90'S 80 80 70'S	20 5 0-19M	$2M $15M $100K $3.0M	GC SC GC SC SC SC	NA NA LB NA NA NA	CP CP CP CP/LS LS LS	SC SC SC SC SC SC
PEER REVIEW AR FL	90'S	I JOB		SC GC	NA NA	CP LS	SS SC
PROJECT AR MANAGEMEN PA MD FL	90'S 80 70'S	1 JOB		SC SC GC,SC GC	NA NA NA NA	CP CP/LS CP LS	SS SC SC,SS SC
OTHER EXPERTISE							

ACTIVITY	YEAR BEGUN	PERCENT TO CONTRACT	ANNUAL VOLUME	CONTRACT WITH	SELECTION PROCESS	PAYMENT BASIS	DECISION FACTORS
	NOTE 1	NOTE 2	NOTE 3	NOTE 4	NOTE 5	NOTE 6	NOTE 7
OTHER WI KS	80'S	0-5	$1-5M $5M	SC SC	NA NA	CP CP	SS,SC SS
PROJ.MGMT SC SYSTEM DES. ME MI	80 1990	100 100	$3M	GC SC SC	NA NA NA	CP CP CP	SC PD PD,SC
CADD SOFT TX ME MD FL	90'S 90'S	-	-	SC SC SC SC	NA O NA O	CP LS CP LS	SC SS SC,SS SS
BRIDGE IL STUDIES TX ME PA GA MD FL	50'S 90'S 70 BEFORE 70 70'S	100 - 5	1.5 - $0.10M	SC SC GC GC GC GC,SC SC	NA NA NA NA NA NA NA	CP CP CP CP/LS LS CP CP	SC & SS SC SS SC SC SC,SS SS
MANUAL IL DEVELOPMENT TX ME PA MI FL	90'S 80'S 90 90	100 10 90	0.2 $2M $400K	SC SC SC GC SC SC	SS NA NA NA NA O	LS CP CP CP/LS CP	SC & SS SC SS SC PD,SC SS

ACTIVITY	YEAR BEGUN	PERCENT TO CONTRACT	ANNUAL VOLUME	CONTRACT WITH	SELECTION PROCESS	PAYMENT BASIS	DECISION FACTORS
	NOTE 1	NOTE 2	NOTE 3	NOTE 4	NOTE 5	NOTE 6	NOTE 7
TRAINING COURSES TX ME PA MD FL	90'S 90	50	$1M	SC SC GC SC SC	NA NA NA SS O	CP CU CP/LS HC	SC SS SC NEED/AVAI

APPENDIX E

Vermont Procurement Process

Edna Martineau, Contract Administration-2641 . Sept. 24, 1997

CONTRACT PROCUREMENT PROCESS

STEP 1: Project Manager writes DRAFT Scope of Work (SOW).

STEP 2: Distribute DRAFT SOW for technical review and comments.

STEP 3: Revise DRAFT SOW and/or address review comments.

STEP 4: Return to STEP 2 if necessary for another round of review.

STEP 5: If a specific short listing meeting is desired the project manager schedules a meeting of the Consultant Selection Committee (CSC). At a minimum, representation for short listing meetings must include the Division Director (Chair), Progect Manager and Contract Administration, Audit is not needed at this point.

STEP 6: CSC develops a "short list" from list of qualified consultants (NOTE: all Divisions have this). If there is an insufficient number of firms on the qualified list for the services to be performed, the CSC may develop a short list based on technical contacts, and queries of other State DOTs.

or

If an adequate list of qualified consultants is not available the progect manager may also request that Contract Administration advertise for Letters of Interest (LOI). Upon receipt of letters of interest, the CSC reviews submissions and then develops short list to receive RFPs.

STEP 7: Draft memo (attach SOW) from Division Director to Contract Administration requesting RFP preparation. In addition to the SOW, the memo should include the following information:

A. Project name & number, ea/subjob number and any other pertinent information from programming.
B. Short list (initial list of consultants to receive RFP).
C. An Agency cost estimate (should be as detailed as possible).
D. Desired evaluation criteria (along with desired weights).
E. Any specific wording which the program manager desires to convey to the consultant in the RFP letter, such as:
- desire to have proposal formatted a certain way
- the desired term of the contract, if needed

F. Who will comprise the CSC. For any non-Agency CSC members, please provide address and phone number.
G. Desired cost basis of contract (cost plus fixed fee, fixed price, labor hour)
H. If this will be a retainer contract, need to know:
- total dollar value of contract (1 million is maximum allowable)
- time contract will be in effect (3 years is maximum

allowable)
- how many consultants does progect manager intend to have on retainer.

STEP 8: Contract Administration prepares the RFP package (including SOW and other attachments). Depending on nature of funding, the RFP package may need to be sent to FHWA for approval.

STEP 9: Contract Administration mails the RFP package to consultants on the initial short list.

STEP 10: All solicitations (if they exceed $10,000.00) are placed on the Electronic Bulletin Board (Vermont Bidding Opportunities).

STEP 11: All consultants requesting proposals during the solicitation period are sent RFPs.

Note: **From the time the RFP package is mailed out through the processing and execution of a contract, all direct communication between the Consultant and the Agency is with the Contract Administration Section.**

STEP 12: On the date specified in the RFP, proposals are received by Contract Administration. All submittals are reviewed by Contract Administration to determine compliance with the requirements of the RFP. The financial information submitted with the proposal package is reviewed by the Audit Section for compliance with the requirements of the RFP. A two week grace period may be extended for those firms not submitting complete financial packages.

STEP 13: Upon determination of compliance with the RFP, Contract Administration delivers technical proposals to those on the CSC and notifies the CSC of date for a CSC meeting.

STEP 14: Technical proposals are reviewed and evaluated by the CSC members individually in accordance with the evaluation criteria stated in the RFP.

STEP 15: After individual review and evaluation, the technical proposals are discussed by the whole CSC at the Selection meeting. Individual scores are compiled to form a composite score and ranking of all proposals. Committee members are asked to give their reasons for how they scored each proposal. The appropriate Division Director chairs the meeting and designates someone to take notes.

Step 16: Audit presents cost analysis.

EP 17: The CSC may come to a decision at the initial meeting. If a decision is not reached, one of two things may occur: A) a meeting or interview may be held with those firms in the competitive range to seek clarification of issues in each individual proposal as it pertains to the SOW. If interviews are held, questions are prepared in advance and forwarded to the consultants along with notification of date and time of

interview. All contact with the consultant is through Contract Administration. B) The CSC may wish to negotiate with one firm.

If so, issues to be negotiated are prepared and forwarded to the Chief of Contract Administration. The Chief of Contract Administration is responsible for all negotiations, and may call on individuals on the CSC for technical support.

STEP 18: Upon reaching a decision, minutes of the CSC meeting are prepared by the Director or designee. The minutes, which include the CSC's recommendation are forwarded to the Secretary for his/her approval. The decision of the CSC remains confidential until the Secretary approves the recommendation.

STEP 19: Upon the Secretary's approval, Contract Administration notifies all proposers of the Agency's decision.

STEP 20: Contract Administration prepares the contract, oversees the processing of the contract to execution.

STEP 21: Upon execution, the Progect Manager takes over administration of the contract.

NOTE: IT TAKES APPROXIMATELY 4 TO 6 MONTHS FROM THE TIME CONTRACT ADMINISTRATION RECEIVES THE SCOPE OF WORK TO OBTAIN A FULLY EXECUTED CONTRACT.

APPENDIX F

Request for Letters of Interest—North Carolina

WORD (FLET195)

DEPARTMENT OF TRANSPORTATION
HIGHWAY DESIGN BRANCH
REQUEST FOR LETTERS OF INTEREST

THE NORTH CAROLINA DEPARTMENT OF TRANSPORTATION DESIRES TO ENGAGE A PRIVATE ENGINEERING FIRM FOR THE _____

The plans for the work listed above shall be prepared in electronic format. All electonic files shall be in Microstation format using Geopak software.

The method of payment for these/this project(s) will be LUMP SUM.

The Engineers performing the work and in responsible charge of the work must be registered Professional Engineers in the State of North Carolina and must have good ethical and professional standing. Any firm wishing to be considered must be properly registered with the Office of the Secretary of State, and if required, with the North Carolina Board of Registration for Professional Engineers and Land Surveyors. Any firm proposing to use corporate subsidiaries or subcontractors must include a statement that these companies are properly registered with the NC Board of Registration for Professional Engineers and Land Surveyors and/or the NC Board of Licensing of Geologists. It will be the responsibility of the prime firm to verify the registration of any corporate subsidiary or subcontractor prior to submitting a Letter of Interest. The firm must have the financial ability to undertake the work and assume the liability. The selected firm(s) will be required to furnish proof of Professional Liability insurance coverage in the minimum amount of $1,000,000. The firm(s) must have an adequate accounting system to identify costs chargeable to the project.

The Department of Transportation is committed to an annual goal of 10% for Disadvantaged Business Enterprise participation in federally funded projects and, for state funded projects, annual goals of 10% for minority participation and 5% for Women's Business Enterprises participation.

North Carolina firms qualified to do the required work will be given priority consideration. A North Carolina firm is a firm that maintains an office in North Carolina staffed with an adequate number of employees judged by the Department to be capable of performing a majority of the work required.

The evaluation of firms submitting letters of interest for this work will be based on the following considerations and their respective weights:

1. The evaluation of the performance on any previous contracts with the North Carolina Department of Transportation. 35%

2. The firm's experience and staff to perform the type of work required, to include any designated subconsultants. 30%

3. The firm's outstanding workload with the Branch; 20%

4. Percentage of the work to be performed in North Carolina. 10%

5. Percentage of MBE/WBE participation; 5%

The Highway Design Branch maintains a file on each qualified firm that has expressed an interest in preparing designs for the Branch. Included in this file is a company brochure or Form PEFQUAL—1 listing personnel and their qualifications for performing desired work, company's present activities and financial qualifications. At the time this initial information is submitted, a sample of recent work plans (roadway design, structure design, geotechnical, hydraulic, photogrammetry, route surveys, etc.) will be needed for evaluation. The firm must have a Private Consulting Firm Questionnaire (current conflict of interest assessment) on file. If you have not submitted this data or if it needs to be updated, please send the new data to the State Design Engineer prior to, or along with, your letter of interest. Having this data on file in the Design Branch eliminates the need to resubmit it with each letter of interest.

FORMAT FOR SUBMISSION OF A
HIGHWAY DESIGN BRANCH LETTER OF INTEREST

All letters of interest are limited to fifteen (15) pages inclusive of cover sheet and shall be typed 8½" x 11" sheets, single spaced, one side. In order to reduce costs and to facilitate recycling, binders, dividers, tabs, etc. are prohibited. One staple in the upper left hand corner is preferred. Letters of interest containing more than fifteen (15) pages will not be considered.

Section I – Cover/Introductory Letter

The introductory letter should be addressed to Mr. R. L. Hill, P.E., State Design Engineer. Said letter is limited to two (2) pages and should contain the following elements of information:

- Expression of firm's interest in the project(s);
- Statement of whether firm is on register or submitting information with letter of interest;
- Date of most recent private engineering firm questionnaire;
- Statement regarding firms possible conflict of interest for this project; and
- Summation of information contained in the letter of interest.

Section II – Evaluation Factors

This section is limited to five (5) pages and should contain information regarding evaluation and other factors listed in the advertisement such as:

- Identify project personnel/subconsultants qualifications and experience as related to this project;
- Unique qualifications of key team members;
- Identify type and location of similar work performed within last three (3) years;

- Present projects with N.C. Department of Transportation and percentage complete;
- Understanding of project approach;
- Any innovative approaches to be used;
- DBE status of Firm/Subconsultants - Note: Any firm/subconsultant claiming WBE/MBE status must be certified by the North Carolina Department of Transportation. The Department of Transportation has no reciprocity with other state, federal or local agencies with respect to WBE/MBE status; and
- Percentage of work to be performed in North Carolina.

Section III – Supportive Information

This section is limited to eight (8) pages and should contain the following information:

- Capacity chart/graph (available manpower);
- Organizational chart indicating personnel to be assigned by discipline;
- Resumes of key personnel;
- Names, classification, and location of the firm's North Carolina employees to be assigned to the advertised project(s); and
- Other information.

Private engineering firms are invited to have letters of interest for furnishing _____ services to the Highway Design Branch (Entrance A1, Building 1, Century Center) by 4:30 p.m. on _____, _____. Letters of interest received after this deadline will not be considered. Nine (9) total letters of interest are required. Firms submitting fewer copies will not be considered.

The mailing address is:

Mr. R. L. Hill, P.E.
State Design Engineer
NCDOT—Century Center
1000 Birch Ridge Drive
Raleigh, NC 27610

The firms selected will be notified by _____. Notification will not be sent to firms not selected. The firms selected will be listed on the Internet at http://www.doh.dot.state.nc.us/ by _____. Any questions concerning the scope of this work should be directed to Charles Casey, P.E., telephone number (919) 250—4128.

Project Information is on display at the Engineering Coordination Section of Design Services at the Century Center. No appointment is necessary.

APPENDIX G

Consultant Selection Scoresheets—Nevada and Virginia

{Sample}

CONSULTANT EVALUATION FORM

PROJECT DESCRIPTION:_____

CONSULTANT:_____

	EVALUATION ITEMS	*MAX SCORE*	*SCORE*
1.	Professional excellence, demonstrated competence in the service to be provided, and specialized experience of the prime consultant and subconsultants.		
2.	Staffing capability, workload, and ability to meet schedules, including an assessment of the consultant's ability to handle NDOT work in view of the consultant's work load.		
3.	Principals to be assigned, and education and experience of the Project Manager and other key personnel to be assigned.		
4.	Past performance in terms of cost control (i.e., budget), quality of work, and compliance with performance schedules.		
5.	Location in the general geographical area and knowledge of the locality of the project.		
6.	Nature, quality, and relevance of work completed within last five (5) years.		
7.	Equipment, software, etc. to complete the project.		
8.	Other factors deemed relevant to the agreement effort.		
	TOTAL	100	

COMMENTS:

_____ _____

COMMITTEE MEMBER DATE

Source: NEVADA DOT

Form 6b
08/97
NV

LOCATION AND DESIGN DIVISION

FIRM: -

CONSULTANT SELECTION SCORE SHEET
(FOR PROFESSIONAL SERVICES)

SUBS: -

OJECT: -
)ISTRICT
DESCRIPTION: -

		NUMERICAL VALUE	-	-	-	AVG.	WEIGHT	WEIGHTED EVALUATION
A. EXPERIENCE IN TYPE OF WORK (Expertise, experience and qualifications in providing services as related to the Scope of Work)	FIRM 1 - Least Experience 10 - Most Experience	1 - 10					20%	
	Personnel 1 - Least Experience 10 - Most Experience	1 - 10					35%	
B. ORGANIZATIONAL CAPABILITY (Ability to complete work in a timely manner. Size of firm relative to size of project. Location with respect to project site.)	1 - Least Capable 10 - Most Capable	1 - 10					20%	
C. PRESENT WORKLOAD (Dollar Value of Present Outstanding Fee Agreements Including Estimated Pending Contracts Under Negotiation) ıly Category B Workload is ounted on this selection*.)	ABOVE 8,000,000 7,000,001 - 8,000,000 6,000,001 - 7,000,000 5,000,001 - 6,000,000 4,000,001 - 5,000,000 3,000,001 - 4,000,000 2,000,001 - 3,000,000 1,500,001 - 2,000,000 1,000,001 - 1,500,000 500,001 - 1,000,000 0 - 500,000	0 1 2 3 4 5 6 7 8 9 10					10%	
D. PARTICIPATION OF SMALL, WOMEN, AND MINORITY OWNED BUSINESSES	0 1 - 2 3 - 4 5 - 6 7 8 9 10 11 12 13	0 1 2 3 4 5 6 7 8 9 10					15%	
PAST/CURRENT PARTICIPATION								
Small Businesses 0 - 1								
Women Businesses 0 - 1								
Minority Businesses 0 - 1								
PLANNED INVOLVEMENT **								
Disadvantaged Business Enterprise 0 - 10								
SUB -TOTAL								
							TOTAL	

ΓATEGORIES OF WORKLOAD:
- ON-CALL SURVEYING CONTRACTS
- PRELIMINARY ENGINEERING CONTRACTS - includes transportation planning and environmental studies, utility relocation and design, and roadway and bridge design.
C - INSPECTION CONTRACTS - includes construction inspection and bridge and traffic structure safety inspection.
D - OPERATION AND MAINTENANCE CONTRACTS - includes operation and maintenance of traffic management systems.
*PLANNED INVOLVEMENT - FIRMS MUST BE CERTIFIED BY VDOT AS D.B.E. or W.B.E.
- D.B.E or W.B.E. FIRMS SUBMITTING AS PRIMES WILL RECEIVE FULL CREDIT

OURCE: VIRGINIA DOT

APPENDIX H

Excerpt from South Carolina DOT's Engineering Policies and Procedures Memorandum

IX. NEGOTIATIONS

The negotiations are a critical phase of the process leading to execution of an agreement and authorization to proceed with the work. The negotiation process begins upon 1) receipt by the Director of Engineering of SCDOT Form 28 from the Manager indicating the Deputy Director's approval to enter into negotiations based on the approved order of negotiation, or 2) approval to negotiate a contract modification. The chairperson of the selection committee will inform the selected consultant and all other consultants of the Deputy Director's approval to begin negotiations. The Project Manager will furnish the selected consultant with copies of the following data and forms:

1. Standard Agreement for Consultant Services (SACS) including Attachment C, Estimate of Engineering Fee
2. Scope of Services (SOS)
3. Manpower Requirements (MR)
4. Project Schedule (PS)
5. Cost Estimate (CE)

Negotiations will be conducted by a team composed of the Director of Engineering, the Manager, and the Project Manager. The Director of Engineering will chair the team. The negotiation team will be responsible for negotiating the scope, schedule, man-hours, job classifications, hourly rates, direct non-salary costs, and fixed fee (profit). Resources to be used in the negotiations will include but not be limited to the scope of services, the cost estimates, and the audit opinion issued as a result of the pre-award audit.

THE STEPS TO BE FOLLOWED IN THE NEGOTIATION PROCESS ARE AS FOLLOWS:

A. SCOPE OF SERVICES

1. PREPARATION FOR SCOPING MEETING:

a. The Project Manager, if necessary, will arrange for a meeting with the consultant for the purpose of negotiating and refining the scope and schedule, and providing information to the consultant regarding the negotiation process.

b. The Project Manager will furnish the firm any preliminary data as may be available such as location and design reports, aerial photography, mapping, studies, traffic data and other items currently in the possession of Department.

c. The Project Manager will direct the consultant to prepare a general scope and a schedule using Forms SOS and PS and to bring six copies of the same to the meeting. The consultant will prepare the scope and schedule independent of Department based on the preliminary scope, any preliminary data, and the consultant's understanding of the project.

d. The Project Manager will develop a general scope and schedule for the project by completing the SOS and PS, making any necessary revisions as may be required by the particular project. This scope and schedule will be prepared independent of the scope and schedule prepared by the consultant. The Project Manager will seek assistance from various sections within Department for specialized areas of work such as hydrology, environmental, rights-of-way, bridge design, and construction. The Project Manager may hold an internal scoping meeting of Department personnel for large or unusual projects.

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2. SCOPING MEETING (DEPARTMENT/FIRM):

a. The Project Manager will call a scoping meeting if necessary, and will record attendance, distribute information, and request the consultant to keep minutes of the meeting and distribute the minutes to those in attendance. The Manager will answer the firms' questions regarding the agreement and the negotiation process.

b. A review and comparison of the scopes and schedules prepared by Department and the consultant will ensue. Differences will be discussed for the purpose of refinement and mutual agreement. When general agreement of the scope and schedule is reached, the Director of Engineering will request the consultant to revise and resubmit the SOS and PS if necessary.

c. After appropriate Department review and acceptance of the revised SOS and PS, the firm will be advised to prepare the Manpower Requirements form (MR) and the Cost Estimate form (CE). Final scope details that are generally minor in nature will be completed at a subsequent meeting to negotiate man-hours and cost.

3. DOCUMENTATION:

The Project Manager will be responsible for maintaining documentation of the modifications of scope and schedule, and shall furnish to the Manager the original scope and project schedules prepared by Department and the consultant along with the revised SOS and PS. The Manager shall maintain on file all documentation related to the negotiation process.

B. MAN-HOURS AND COST:

1. PREPARATION FOR MEETING:

a. The Project Manager will direct the consultant to prepare and submit to the manager independent estimates of man-hours and cost based on the agreed and approved scope and schedule. Department standard forms will be used.

b. The Project Manager will prepare independent estimates of man-hours and cost based on the agreed and approved scope and schedule. Detailed instruction for the preparation of estimates is given in Subsection X. The Department prepared MR and CE are confidential and the information thereon shall not be shared with the consultant prior to the negotiation meeting.

c. Initially the Project Manager will arrange a time and place for a meeting with the negotiation team for the purpose of reviewing the man-hours and the cost. If the negotiation team finds the estimate and scope to be appropriate, the contract can be recommended for approval. If not, the Project Manager will arrange for a meeting of the negotiation team and the consultant. The consultant will be notified of the meeting in writing by the Director of Engineering, advised to provide six copies of the completed MR and CE to the Manager two weeks prior to the meeting. The purpose for the meeting is to reach agreement on the total scope, man-hours, direct non-salary costs, and fixed fee by negotiation. The consultant's completed MR and CE shall be sent to and held by the Manager until the Project Manager presents the Manager with the MR and CE completed by Department.

d. The Project Manager will distribute the consultant's completed MR and CE to the appropriate sections within Department for review and comparison with the Department completed MR and CE prior to the negotiation meeting.

e. The Project Manager will be responsible for providing sufficient copies of MR and CE completed by Department for all participants in the negotiation.

2. NEGOTIATION MEETING:

a. The negotiation team will compare the man-hours, job classifications, and hourly rates proposed for each task of work for the purpose of ascertaining the appropriateness of the same and will discuss with the consultant at the meeting those items that are unacceptable or in question. Acceptance will be by mutual agreement of the negotiation team and the consultant. It is anticipated that the approved scope will be refined as a result of these discussions and minor revisions may be made.

b. The negotiation team will also compare direct non-salary costs on a task by task basis and make any revisions as agreed on by negotiation. Subconsultant fees will be negotiated based on Department experience on other projects with consideration given to those items listed in paragraph 3 below for negotiation of fixed fee (profit).

c. After agreement on other costs, the negotiation team will negotiate the fixed fee (profit) with consideration of the financial and professional

94 investment required, the extent, scope, complexity, character, and duration of services, the degree of responsibility to be assumed by the consultant, the pre-award audit opinion, and other factors as may be considered at the time of negotiation.

3. DOCUMENTATION OF THE NEGOTIATIONS:

a. The Project Manager will be responsible for documenting the negotiations including preparation of the RECORD OF NEGOTIATION (RN) Form. The Project Manager will record attendance at the man-hour and cost meeting, distribute information, and request the firm to take minutes and provide all participants a copy of the minutes.

b. The Project Manager will provide the Manager with copies of the Department and consultant prepared MR and CE with notes and comments from all Department sections involved in the review process along with all comments and revisions made during the negotiation meeting.

c. The Project Manager will also furnish the Manager a copy of the mutually agreed on MR and CE along with the agreed upon SOS with any revisions resulting from the man-hour and cost meeting.

d. The Project Manager will prepare for the Director of Engineering's signature a brief statement as to why the negotiation team finds the firm's final estimate to be acceptable. This signed statement will be forwarded to the Manager.

e. The Manager will prepare an agreement for consultant services to include the mutually agreed decisions resulting from the negotiations.

X. ESTIMATING

The cost estimate for consultant services is one of the most important resoures available to Department in the negotiation process. The accuracy and completeness of the cost estimate is vital to the successful negotiation of the agreement for consultant services.

THE STEPS TO BE FOLLOWED IN THE PREPARATION OF COST ESTIMATES ARE GIVEN BELOW:

A. PRELIMINARY ESTIMATE:

The Project Manager will make a preliminary estimate of the cost of consultant services when consultant services are desired. This preliminary cost estimate

APPENDIX I

Synopsis of Negotiating Theory Used in Michigan

Exhibit 10 B

Synopsis of Negotiating Theory

Why do we negotiate? What is the intended purpose? Obviously, we negotiate because we have two parties that have different points of view on a subject and we would like to resolve the difference. There are other objectives that must be considered though. Some of these are as follows. The negotiations should:

1. Reach a fair and practical agreement, if possible.
2. Be efficient in elapsed and consumed time.
3. Maintain or improve the relationship.

Negotiating Styles:

There are two basic styles for negotiating, most others would fall within these two styles. These two styles are as follows:

1. Positional negotiations
2. Negotiations on the Merits

Positional negotiations

This is the most common form of negotiations. In positional negotiations each party takes a position, such as the price, and tries to bargain the other to move toward their own position. The objective becomes winning rather than finding a fair solution. In order to improve the chance of reaching a final position that is favorable to your side, each side begins with an extreme position. Each side become reluctant to concede or move towards the other position because this often produces pressure to yield further. This process provides little incentive for the negotiators to move quickly. Stonewalling and walkouts become the tactic of choice.

Positional bargaining often becomes a test of wills. Each side takes a position and attempts to stand firm. Conceding becomes a sign of weakness and each side will try to "save face" and not yield. To be friendly and to negotiate "soft" is to place the relationship ahead of the agreement and to take the chance of being overrun by a "hard" negotiator. The result of this type of process is a lengthy, time consuming battle that will probably damage the relationship. The goal in this process is to "win", not to reach a fair agreement. The side that has been the more intransigent is likely to have won a more favorable end position. In the short run positional negotiations provide the Department with an inefficient mechanism to achieve un-fair solutions. In the long term, they will damage or end the working relationship with our Consultant client.

Negotiations on the Merits

There is alternative to positional negotiating. The other process is negotiating on the merits and is sometimes called "Principled Negotiations". The four principles of this process are:

1. Separate the **people** from the problem
2. Focus on the **interests** behind the positions
3. Invent **options** for mutual gain
4. Use **independent standards**

1. Separate the people from the problem

The are two aspects of the people part. First we must consider the person who we are dealing with, the motives, values, etc. that they bring to the table. Second, we must consider the long term relationship with the person and firm. One principle of negotiation is that the ongoing relationship is far more important than the outcome of any one negotiation.

There at least three considerations when attempting to separate the people from the problem, these are perception, emotion and communication. In all of these, it is not only important to perceive and be sensitive to their perceptions, etc., but also to our own.

Perception

People often see just what they want to see or expect to see. This characteristic increases when people are under stress. When stressed, people tend to filter information and narrow the focus for their thinking. If we want to alter another's point of view, we must first understand that point of view.

Emotion

We must also deal with the emotions that come as a part of the people who are negotiating. Decisions and positions are often derived from emotion as well as intellect. First, attempt to identify the emotions present in the negotiators, including ourselves, and then try to determine the underlying cause. Given the circumstances in MDOT Design as the purchaser of services from the Consultant client, the outcome of the negotiations may be more important to them than to us. Their jobs may be on the line depending on the results of these negotiations or this project. Sometimes it is necessary to let the other side ventilate (let off steam). Whether you believe it is an emotional outburst or posturing for a third party, it is usually best not to interrupt or react to it. Let them get it all out, even ask questions, but let them finish and go on with the negotiations.

Communication

Communication is one of the more difficult arts. Consider how often a mis-communication can occur with someone you have worked with for a long time. With a person you have just met, it is sure to happen much more often. Remember that good communication is the responsibility of both parties to the dialogue. Be an active listener, ask questions and re-phrase to ensure that you understand. When communicating ask questions to verify that your counterpart is hearing and understanding.

Let your counterpart know that you understand their point of view. Understanding a position is not the same as agreeing to it. There is value in doing this. If they believe that you understand

them, they are more likely to be more open to your explanation of your point of view. Additionally, letting them know that they have been heard is an inexpensive concession that can pay large dividends in establishing a dialogue.

Seek mutual goals, approach the negotiations as two people working together to mutually solve a shared problem. Don't square off as adversaries, sit with your counterparts on the same side of the table and put a chart of diagram of the problem on the other side so you can face it together..

2. Focus on the interests behind the positions

Look beyond the position that your counterpart has taken. Find the reasons that they have taken that position. Those reasons are their interests. Ask them what their interests are, what their reasons for those interests are. Seek common interests, usually there are more shared interests than opposed interests. Make a list of your interests and a list of the interests of your counterpart. You have to know where they are coming from and where they are going before you have a hope of changing their direction. As an example, a Consultant may be reluctant to agree on a project schedule or may be pressing for what seems to be an exorbitant price to meet that schedule. Unless you find out that the Consultant has prior obligations that conflict with your schedule or staff shortages at certain critical times, you are not likely to resolve the difference.

It is just as important to make your interests known to you counterpart; however approach these as a problem to solve and not as an attack. The reason you are in negotiations is to advance your interests, how can you convince your counterpart of the merits of your interest if they do not know what they are? Convince them that your interests are importance and legitimate. In doing this, it is important that you do not portray this as an attack, but instead that there is a problem that requires attention.

3. Invent options for mutual gain

Remember that it takes two to make an agreement. If you and your counterpart spend all of your time pushing your own point of view and trying to get the other to changes their point of view, you are not likely to reach an agreement. You need to find areas that you are in agreement, search for options and common ground. Separate the process of developing options (brainstorming) from the act of deciding on the merits of the options. In the above example of the schedule problem, once you know what the Consultant's constraint is, it is possible to look for solutions such as having a sub-Consultant fill in for the staff shortage, relief on the conflict which may be due to another MDOT project, or a change to the project schedule.

Consultants worry about the unknown. Where there is risk they will charge extra to cover that risk. If the amount of work that may be required of the Consultant is not well defined, they will increase the price the project in order to cover the highest possible perceived price. The lack of definition may be due to an inadequate scope of services or unknown field conditions. Once you have determined that Consultant's concern, you can look for solutions. Examples might be breaking the project into phases so that further information gathering takes place before the project proceeds into the areas that are not well known. After further information is obtained and

the scope is further defined, the project will proceed to subsequent phases.

Alternatively, the less than optimally defined work can be priced as a defined amount of work. This separate pricing does not reduce the unknowns, but it reduces the risk to the Consultant by shifting the responsibility for increased costs due to additional work to MDOT. With this method of defined pricing, if the Consultant exceeds the amount that was agreed to, the Consultant will receive additional compensation. For example, if the Consultant bid to do the geo-technical work for set price, they are obligating to do all the necessary work for that price. If they agree to bore a set number of holes to a set depth for an agreed amount, that is all they are required to do for that amount. If it is later determined that a higher number of or depth of holes is needed, the Consultant would receive additional compensation for the additional work.

4. Use independent standards

Differences of opinion, interests etc. will occur during negotiations. Many negotiators will begin by establishing their position, that is, what they are willing or unwilling to accept. They then attempt to move the other side closer to their position. If the negotiations are run on such a contest of wills, one of the two sides will have to back down in order to have the negotiations reach an agreement. This process is not likely to improve the relationship of the parties and the resulting agreement may or may not be a fair one. A better approach is to settle the differences independent of the wills of either side. Instead, settle the differences on merit. De-personalize the debate. Use precedent and industry standards as the basis of the settlement. This is a far more productive and amicable method to solve an issue than attempting to get the other person to back down.

This alternative approach to negotiations is called principled negotiations. To begin this process you first jointly develop the criteria and the method to use that criteria. The criteria should apply to both sides and must be arrived at free of either sides will. Just as the issue of the negotiations should not be settled on the basis of will, the criteria and their use should also not be chosen on the basis of will. Once the two sides have settled on criteria and methods, they have an objective course of action to follow for the negotiations. At this point the negotiators may still have conflicting interests but they now have a common interest, to reach a fair price.

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APPENDIX J

Errors and Omissions Clause from Minnesota DOT

Mn/DOT Agreement No. _____

ARTICLE 34 ERRORS OR OMISSIONS

A. CONTRACTOR will be responsible for the accuracy of the work and must promptly make necessary revisions or corrections resulting from CONTRACTOR's errors, omissions, or negligent acts without additional compensation. Acceptance of the work by STATE will not relieve CONTRACTOR of the responsibility for subsequent correction of any errors or omissions or for clarification of any ambiguities.

It is understood by the parties that STATE will rely on the professional performance and ability of the CONTRACTOR. Any examination by STATE or the Federal Highway Administration, or any acceptance or use of the work product of the CONTRACTOR, will not be considered to be a full and comprehensive examination and will not be considered an approval of the work product of the CONTRACTOR which would relieve the CONTRACTOR from any liability or expense that could be connected with the CONTRACTOR's sole responsibility for the propriety and integrity of the professional work to be accomplished by the CONTRACTOR pursuant to this Agreement.

B. At any time during construction or any phase of work performed by others based on data provided by CONTRACTOR, CONTRACTOR must confer with STATE when necessary for the purpose of interpreting the information secured and/or to correct any errors and/or omissions made by CONTRACTOR. CONTRACTOR must prepare any and all plans or data needed to correct the errors and/or omissions without added compensation, even though final payment may already have been received by CONTRACTOR. CONTRACTOR must give immediate attention to these changes so there will be minimal delay to the construction or other work as referenced.

C. If errors, omissions and/or negligent acts are made by CONTRACTOR in any phase of the work, the correction of which may require additional field or office work, CONTRACTOR will be promptly notified by STATE and will be required to perform such additional work as may be necessary to correct these errors, omissions and/or negligent acts without undue delay and without additional cost to STATE. If the CONTRACTOR is aware of any errors, omissions and/or negligent acts made in any phase of the work, the corrections of which may require any additional field or office work, CONTRACTOR must promptly perform such additional work as may be necessary to correct these errors, omissions and/or negligent acts without undue delay and without additional cost to STATE.

D. CONTRACTOR will be responsible for any damages incurred as a result of its errors, omissions, and/or negligent acts and for any loss or cost to repair or remedy CONTRACTOR's errors, omissions and/or negligent acts. Acceptance of the work by STATE will not relieve CONTRACTOR of the responsibility for subsequent correction of any such errors, omissions and/or negligent acts, or of liability for loss or damage resulting therefrom.

E. CONTRACTOR must respond to STATE's notice of any errors and/or omissions within 24 hours and give immediate attention to these corrections to minimize any delays to the CONTRACTOR. Notification will be by telephone, followed by Certified Mail. CONTRACTOR may be required to make a field review of the project site, as defined in the Special Conditions, if directed by STATE's Authorized Agent and CONTRACTOR may be required to send personnel to the appropriate STATE district office as part of correcting any errors and/or omissions.

APPENDIX K

Nevada Amendment Process AMENDMENTS

When the Division Head/District Engineer determines that the scope of work of an existing agreement requires modification, the development of a consultant agreement amendment will be accomplished. This section will apply to all agreements, including task orders to on call agreements.

When significant changes in the scope of work, contract duration, character, or complexity of the work occur, an amendment may be negotiated if it is mutually agreed that such changes are desirable and necessary. An amendment shall clearly outline the changes made and determine a method of compensation.

It is up to NDOT to determine if a cost increase is justified. If so, necessary approvals must be obtained and funds allocated through the development of an amendment. A cost increase cannot simply be approved without providing the funds and making appropriate modifications to the agreement budget. Written documentation is crucial for the post-audit and agreement file.

Overruns in the cost of the work shall not warrant an increase in the fixed fee portion of a cost plus fixed fee agreement. Significant changes to the scope of work may require adjustment of the fixed fee portion in a cost plus fixed fee or lump sum agreement. **Reference 23 CFR 172.11.**

An amendment should not attempt to add unrelated work to an existing agreement. Care should be taken to ensure that the amendment does not contradict information in the original agreement and that all changes needed are specified. Example: An appropriate amendment would be a design project which is in progress by the consultant and NDOT requests them to expand the scope of work to include: mapping, right of way engineering, lighting design, or drainage design which was *not* in the original scope of work but is within the project limits. An inappropriate amendment would be a design project which is in progress by the consultant and NDOT requests them to expand the scope of work to include: designing a bridge or signing, striping, and lighting on a project not related to the original project, not within the project limits, different route, etc.

Major changes affecting costs of the original agreement could affect the STIP/TIP. The Project Manager must coordinate with Financial Management and Planning.

An amendment should be requested through Agreement Services as soon as the need for it is identified. In most cases, an amendment must utilize the same procedures and be processed through the same internal and external approvals as the original agreement as follows:

AMENDMENT PROCEDURES

1. FORMULATE SCOPE OF WORK AND COST ESTIMATE

A preliminary scope of work and cost estimate for the amendment is prepared. This should completely cover the work to be done, time frames involved and possible cost increases. Functional units within the Department must be involved as soon as the need for an amendment has been identified.

2. DIRECTOR'S APPROVAL TO AMEND AGREEMENT

When the preliminary scope of work and cost estimate has been developed, approval to proceed with the issuance of an amendment must be secured from the Assistant Director and Director or designated representative **(Refer to FORM AM2a)**. The request must be accompanied by a brief synopsis of the history of the amendments to the original agreement. The synopsis will begin with a very brief description of the project for which the original agreement was executed and a brief statement to recap the purpose and amount of each amendment to date. Please refer to DIRECTOR'S POLICY 95-4.

3. FINANCIAL REVIEW OF AMENDMENTS

One copy of the preliminary amendment, which includes the additional scope of work and cost estimate, shall be sent to Financial Management by the Project Manger for financial review to determine if the amendment needs programming.

4. REVIEW DBE GOAL

The DBE goal set forth in the original agreement shall be carried through the full term of the agreement, as amended. (IF APPLICABLE)

If no (-0-) goal was assigned to the original agreement, the amendment will be reviewed by Contract Compliance for DBE goal possibilities **(Refer to FORM AM4a)**.

5. REFINE SCOPE OF WORK

The Project Manager may meet with the Consultant to review the project to ensure that the selected consultant has a complete understanding of the work required. Representatives with special understanding of the project should be invited to attend this meeting. The Consultant should be shown as much material as is available regarding the project and any questions regarding the project should be answered completely. Questions regarding the draft amendment, the cost proposal

requirements, person hours required to perform the additional work, the Consultant's fee will not be discussed during the scope of work meeting; these will be handled during negotiation.

A. The Consultant shall submit to the Project Manager a time schedule broken down by phases and a draft scope of work for review.

B. After the consultant and NDOT agree on the scope of work, the Project Manager shall prepare a detailed ***confidential*** updated cost estimate for the consultant's services. The estimate is to be based on the scope of work and other requirements specified in the draft amendment. The estimate must be completed and available before the cost is negotiated.

C. After B above is complete, the Project Manager shall request the Consultant submit a detailed cost estimate.

D. The Project Manager will forward to Agreement Services a draft amendment for review. Agreement Services will obtain draft approval from Legal.

6. AMENDMENT NEGOTIATION

A date and time shall be arranged to begin negotiations regarding the cost of the work to be accomplished which will include the refined scope of work and the updated cost estimate. Negotiations will be conducted by the Project Manager and may include an employee from the Internal Audit Division and Agreement Services. Records of the negotiation process and results shall be documented and included in the original agreement file. Amendment procedures will be accomplished as referenced under Agreement Procedures (Section 12 - Negotiations).

The negotiated amendment and its attachments are sent to Agreement Services, which prepares the final amendment and returns it to the Project Manager for review and approval.

7. AMENDMENT PREPARATION AND EXECUTION

Agreement Services will insure that the amendment is complete and all backup documents are provided. The following approvals must be submitted at this time for inclusion in the agreement file:

1. Director's approval to issue amendment **(FORM AM2a).**
2. DBE goal from Contract Compliance **(FORM AM4a).**
3. Negotiation documentation.
4. Agreement Summary Sheet **(Refer to Agreement Section of Manual)**
5. Draft Amendment

The Project Manager shall obtain the signature from the Consultant and documentation applicable to the amendment. Upon receipt of the signed agreement, Agreement Services will obtain signatures from Legal and the appropriate Assistant Director.

8. AMENDMENT NOTICE TO PROCEED

The consultant may be authorized to proceed with the work after all the required approvals have been received. The Project Manager will provide the consultant a copy of the fully executed amendment and issue the written "Notice to Proceed" **(Refer to FORM AM8a)**. A copy of the Notice to Proceed will be forwarded to Agreement Services for inclusion in the file. Consultants may not be reimbursed for costs incurred before being authorized to proceed.

Agreement Services will provide a copy of the amendment to everyone who received the original agreement and any others added by the amendment.

Consultants may not be reimbursed for costs incurred before being authorized to proceed. In unusual circumstances, the consultant may be authorized to proceed with work prior to agreement on the amount of compensation and execution of the amendment, provided FHWA has previously approved the work and has concurred that additional compensation is warranted (Federal projects only). **(Reference 23 CFR 172.11(d))**.

9. AGREEMENT CLOSE OUT

Close out procedures will be accomplished during the close out of the agreement as referenced under Agreement Procedures (Section 19 - Agreement Close Out).

APPENDIX L

Sample Training Module Brochure from Florida DOT

FDOT/CONSULTANTS PARTNERS

"Excellence & Quality In Project Management"
A Program For Production Enhancement

MODULE III - Sessions A & B, REGISTRATION PACKAGE

PRODUCTION ENHANCEMENT PROGRAM: The production enhancement program, "Excellence & Quality in Project Management" is designed to provide FDOT and Consultant project managers alike with the latest up-to-date requirements of managing the Department's projects. The program will benefit new as well as experienced project managers.

This program consist of four (4) individual modules. Each module is broken down into two (2) separate sessions for a total of eight (8) sessions. The program will be offered at each of the five (5) locations. ***This registration is only for Module III***. Information/registration for future modules will be mailed out as soon as details have been finalized.

PROGRAM BENEFITS:
> Formal Training on Project Management skills and practices.
> Interaction between FDOT and Consultants.
> Better understanding of FDOT processes in Project Management responsibilities and plans development.
> Enhanced awareness of resources available (i.e., personnel, software, manuals, training, etc.).
> Continued professional education and development.

Topics of Module III - Session "A" - Development of DOT Highway Projects - Roadway Design and Structures Design

Session "A" of Module III is designed to provide project managers with the following information:

Roadway Design

- Plans Preparation Manual Organization/Contents (Volume I and II)
- Design Criteria
- Plans Development
- Design Process

Structures Design

- Overview (Organization/Relationships, Project Development and Environmental Study Negotiation for Final Design, Bridge Development Report/30% Plans, and Final Plans)
- District Operations and Perspective (Project Development and Environmental Study, Category 1 and 2 Bridges, Central Office, Federal Highway Administration Involvement, Design Review and Approval, Review by Construction, Permits, Variances and Exceptions, Utility Coordination, Roadway/Bridge Coordination, Post-Design Services)
- Production of the Work (Consultants Perspective, Subconsultants, Negotiations, Project Development and Environmental Study, and Bridge Development Report/30% Plans)
- Final Design (Peer Review, Design Complexities, CADD, Retaining Walls, Widenings - Special Considerations and Post Letting Activities)

Topics of Module III - Session "B" -Project Reviews, Public & Media Involvement, Contract Estimating System, Computation Book Preparation and Specifications

ession "B" of Module III is designed to provide project managers with the following information:

Public and Media Involvement
- Tips for Dealing with Reporters and the Public
- Community Awareness Plan and Public Involvement

Project Reviews
- Office Reviews
- Field Reviews

Contract Estimating/Computation Book/Specifications

Estimates
- Realistic up-to-date cost estimates
- Strung Projects
- CES Features - Alternates
- Use of Propriety Items

Design
- Pay Item Request Process
- Automated Computation Book
- Revisions

Specifications
- How the Package is Prepared
- Technical Specifications
- Availability

egistration and Fee: Registration must be made in advance by completing and submitting the registration form with the appropriate fee to Jim Cunningham/Herrika Lovett at the address on the form. Attendance at the program will be limited, so registration should be made as soon as possible. There will be NO registration at the door. You may register for either the complete module or individual sessions. Fees applicable only to non-FDOT employees.

Please make checks payable to: **FICE**

Registration Fee(s): $125.00 - Module III Session "A & B"
$ 75.00 - Module III Session "A" or "B"
Fees applicable only to non-FDOT employees.

Written cancellations must be received ten (10) working days prior to the begin date of each session. A twenty-five dollar ($25.00) processing fee will be retained. Substitutions will be allowed up to the beginning day of a session. NO daily substitutes will be allowed. If a firm is paying fees for more than one employee, please attach a list of the employees, module/session(s) and location that the fee is to include with the payment.

Registration will be honored on a first come first serve basis. Registration forms and fees must be received no later than the individual Program Registration Cut Off date for each session and location. NOTE: Only those registrations that are not accepted will be notified. If you do not receive a notification of rejection, you should report on the date and time at the selected location.

Please mail registration forms and fees to: Herrika Lovett/Jim Cunningham, FDOT, Roadway Design, Project Management, 605 Suwannee Street, MS - 32, Tallahassee, FL 32399-0450
Telephone: 850/414-4344 or 4343 Suncom: 994-4344 or 4343

APPENDIX M

Project Manager Role—South Carolina

A. MANAGER:

1. Maintain a contract file which includes as a minimum:
   - copies of the original contract and contract modifications
   - documentation of selection process
   - documentation of the negotiation process
   - claims
   - insurance information
   - audit reports
   - performance evaluation (SCDOT Form Y)

2. Advise the consultant regarding progress reports, payment requests, insurance, audit results, interpretation of contract terms and conditions, contract modifications, evaluations, and other related items.

B. PROJECT MANAGER:

1. Maintain a project file which will include:
   - original agreement
   - original of all contract modifications
   - authorization of funding
   - project correspondence
   - documentation of all decisions affecting the work
   - minutes of all progress meetings
   - progress reports
   - monitoring reports
   - consultant invoices

2. Provide and coordinate the technical review of work by functional areas of expertise such as roadway design, bridge design, hydrology, constructon, maintenance, etc. to ensure completeness, accuracy, and consistency with the terms, conditions, and specifications of the contract.

3. Schedule and attend progress meetings with consultant to assure that the milestones established in the project schedule are met. Review and monitor project progress as reported on consultant's monthly progress reports. If the progress of work is behind schedule, the Project Manager will determine the cause of the delay. If the delay is due to no fault of the consultant, the Project Manager will make every effort to resolve the cause of delay and restore the normal execution of work. If the delay is due to factors under the consultant's control, the Project Manager will issue written notification to a principal of the firm with remedial instructions.

4. Be familiar with the qualifications and responsibilities of the consultant's staff. Personnel specifically identified in the consultant's proposal or contract as assigned to the project should be performing those tasks for which they have been identified. Ensure that if substitution of personnel has taken place that the substitute has comparable qualifications.

5. Visit the project and/or the consultant's offices on a frequency commensurate with the magnitude, complexity, and type of work. Visits are made to verify progress, quality of work, quality control program, location of work, and personnel assigned to the project. This includes being aware of the day-to-day operations for contracts involving construction engineering services.

6. Assure that the costs billed are consistent with the acceptability and progress of the work. Consultant invoices should be processed for payment only upon vertification of the percentage of completion. The Project Manager may request from the consultant a breakdown of man-hours completed for the various tasks as identified in the consultant's Manpower Requirement (MR) schedule for any items in question. If the percentage completed is less than the percentage billed, the Project Manager will promptly notify the consultant of the percentage to be used. Total cost in excess of the approved percentage multiplied by the upper limit of compensation will not be approved for payment. All requests for payment (SCDOT Form 608) will be signed by the Project Manager to indicate that the percentage of completion and the costs billed are accurate to the best of his knowledge.

7. Advise the Director of Engineering in writing of any substandard performance by the consultant during the course of the work. Upon substantial completion of the work, prepare and submit to the Manager a final performance evaluation report using SCDOT Form Y.

XIV. GENERAL

1. "X" Form - A SCDOT Form used by Manager to obtain various information about consultants. (Form attached)

2. "Y" Form - A SCDOT Form used to evaluate consultant project performance. The Form will be completed by the Project Engineer and Director of Engineering and forwarded to the Manager for filing. The Form is to be considered a "Confidential In House Document". (Form Attached)

APPENDIX N

Performance Evaluation Factors from Colorado

COLORADO DEPARTMENT OF TRANSPORTATION
CONSULTANT PERFORMANCE EVALUATION

Project no.:	Subacct#:
Project name:	

To: (Appropriate Division Head)	Rating dates: Item I	Item II
Subject: Consultant Performance Evaluation Report	Item III	Item IV
Name of Consultant:	Rating key (see instructions):	
Type of work:	Excellent (E) Very Good (VG) Good (G) Acceptable (A) Poor (P) Not Applicable (NA)	

	CONTRACT PHASE	PRECONSTRUCTION PHASE		CONSTRUCTION PHASE
FACTOR	ITEM I	ITEM II	ITEM III	ITEM IV
A. Knowledge of department needs				
B. Cooperation with department, public, other agencies				
C. Adequacy of personnel, supervision and management				
D. Prosecution and submission of work				
E. Clarity of work				
F. Support calculations, data, reports				
G. Completion of work within contract budget				
H. Accurate billing records				
I. Overall quality, accuracy and competence				
J. Prudent plans/creative design				
K. DBE participation				
Rater: Project Manager/Engineer (signature required)				
Reviewer: Preconstruction/ Construction Engineer (signature required)				
Region Engineer/Branch Manager				

Remarks:

Agreements and Consultant Management Office

INSTRUCTIONS FOR CONSULTANT PERFORMANCE EVALUATION REPORT

A. Purpose of evaluation:

The completed evaluation report of a consultant's performance will be used as input for selection of the consultant for future assignments.

B. Rating procedure:

The raters and the time periods in which evaluations are performed shall be as follows:

Item I - Contract Phase

The rater will be the contract administrator (Consultant Management Unit) and/or the Project Manager. The rating will be performed after the consultant's work has been accepted or at appropriate contract stages. The rating will be reviewed by the Preconstruction Engineer, Region Transportation Director, Branch Head or other official directly responsible.

Item II - Preconstruction Phase (Preliminary Engineering)

The rater will be the Project Manager or other official directly responsible for incorporating the consultants work into Department plans, reports, etc. The rating will be performed promptly after the consultant's work has been used (ie., after the FIR). The rating will be reviewed by the Preconstruction Engineer, Region Transportation Director, Branch Head or other official directly responsible.

Item III - Preconstruction Phase (Final Design)

The rating will be completed and reviewed by the same individuals as indicated for Item II and as promptly as practical after the FOR.

Item IV - Construction Phase

The rater will be the Project Engineer or other official directly responsible for completing the construction project on which the consultant's work was used. The rating will be performed promptly after construction of the project has been completed. The rating will be reviewed by the Construction Engineer, Region Transportation Director or other official directly responsible.

C. Basis of ratings:

Ratings of the consultant's performance will be accomplished by marking poor, acceptable, good, very good, excellent or not applicable for each of the indicated factors on the evaluation report. **All poor and excellent evaluations for any factor shall have an explanation in the "Remarks" section provided on the form.**

The keys to the various rating levels are as follows:

Excellent (E)	Consultant consistently exceeded expectations
Very Good (VG)	Consultant frequently exceeded expectations
Good (G)	Consultant consistently met expectations
Acceptable (A)	Consultant occasionally failed to meet expectations
Poor (P)	Consultant consistently failed to meet expectations
Not Applicable (NA)	As indicated on form or as determined by rater

RATING FACTORS

Ratings for each factor should be based on how often, how quickly and to what degree the following criteria were met by the consultant during the performance of the work.

Factor A - Knowledge of Department needs

- Consultant was knowledgeable and fulfilled his contractual obligation with the Department.
- Consultant maintained the scope of services sought by the Department.
- Consultant was familiar with the Department's policies and procedures.
- Consultant maintained the flexibility necessary for meeting the changing Departmental needs.
- Consultant served the Department, but was not subservient to it. This means that occasionally the Consultant must give the Department unpleasant news such as: costs of a design concept exceed the budget.

Factor B - Cooperation with Department, Public, Other Agencies

- Consultant displayed a willingness to work as a team member in the development of a project. Liaison with the Department's Project Manager was undertaken at the earliest possible time (prior to the signing of contract documents if possible) ensuring a common understanding of the scope of the project as well as conformity with the Department's standards, practices, accuracy requirements, format, computer data compatibility, survey practices and such other items as the Project Manager considered to be critical to the project.
- Consultant mediated disagreements between disciplines and/or agencies always in the best interest of the project.
- Consultant was accessible to Department staff and responsive to their questions, needs and concerns.
- Consultant maintained working relationship with the Department and other agencies.
- Consultant participated in community workshops/public meetings and responded to citizens/groups seeking information or assistance.

RATING FACTORS (continued)

Factor C - Adequacy of Personnel, Supervision and Management
- Consultant did not over extend their human resources to where their personnel were inadequate to maintain schedules.
- The work was accomplished at the lowest possible level without sacrificing quality of the design.
- The work was checked prior to submission to the Department.
- Consultant knew when to take charge and utilized the authority granted them.

Factor D - Prosecution and Submission of Work
- Consultant obtained approvals and decisions from the Department in a timely manner, thereby permitting the project to flow smoothly and quickly.
- The Project Manager was informed of any change in scope, lack of information, or decisions by the department or other agencies that adversely affected the schedule or did not permit the work to progress in a logical manner.
- Consultant developed project schedules and communicated with the Project Manager with regard to the progress of work.
- Consultant participated and contributed to the decision making process.
- Consultant submitted plans, specifications and supporting documentation to the Department in a timely manner; maintaining schedules and meeting deadlines for project milestones (ie., Financial Package, Scope of Work, Man Hour Estimates, FIR, FOR, etc.).
- Work was checked for accuracy and content prior to submission to the Department.

Factor E - Clarity of Work
- Consultant provided the Department with plans and specifications that met Department standards for content and format. These plans and specifications were therefore readily understood by all those persons who were required to work with them.
- Reports, calculations, correspondence and other written materials exhibited completeness, clarity and conciseness and addressed Department concerns and questions.

Factor F - Support Calculations, Data, Reports, etc.
- Consultant explained, defended and justified technical decisions and actions.
- Consultant provided hard copy documentation concerning design decisions, calculations, and other supporting data so that a project history was maintained.

Factor G - Completion of Work Within Contract Budget
- Consultant prepared plans and specifications for the project that considered the project budget (preliminary engineering and construction). If the project approached a budget overrun, the consultant brought this fact to the attention of the Project Manager in a prompt and timely manner and offered alternative solutions to the budget problems.
- Consultant preformed the scope of services within the anticipated man-hours, scheduled completion date and actual estimated fee.
- Supplemental contracts to the original contract were minimized through careful planning and forethought when establishing the origional scope of services and contract agreement with the Department.

Factor H - Accurate Billing Records
- Consultant provided the Department with mathematically correct and itemized breakdowns of billing charges in accordance with commonly accepted accounting practices both upon completion of the project and when requested.
- Salaries, indirect costs, fixed fees and other rates submitted agreed with the contract cost proposal.
- Supporting documentation for charges were provided and questions were answered in a timely manner.

Factor I - Overall Quality, Accuracy and Competence
- Consultant provided work that was technically accurate and complete; and displayed professional competence with regard to content.
- Construction oversights were not the result of omissions or confusing details provided by the consultant in the plans or specifications.
- Consultant's work was checked prior to submission to the Department to ensure quality and accuracy of the work in meeting the scope of services under the contract.

Factor J - Prudent Plans/Creative Design
- Although new and innovative solutions are permitted, the consultant ensured that only appropriate design alternatives meeting the Department's objectives were selected.
- Innovative and/or state-of-the-art methods, procedures, designs or theories in solving problems were used.
- Although a design was unique, innovative and creative; the project remained constructible.

Factor K - DBE Participation
- Consultant participated in the Department's DBE goals within the terms of the contract.

APPENDIX O

Performance Evaluation Procedures—Wisconsin

WI

State of Wisconsin
Department of Transportation

Facilities Development Manual

ORIGINATOR		PROCEDURE
Bureau of Financial Services Contract Administration Unit (BFS-CAU)		8-20-10
CHAPTER 8	Consultant Services	
SECTION 20	Contract Management	
SUBJECT 10	Performance Evaluations	

WisDOT will evaluate the work of each consultant providing professional services at the completion of each contract or at least annually on multi-year contracts. The evaluations are intended to serve as a positive tool to provide information to both WisDOT and to the consultant as a means to enhance or improve the consultant's performance. The purpose of the evaluation is to identify weaknesses and strengths of the consultant's work and to provide constructive feedback. It should reflect performance whether good or poor. Evaluations will be conducted by the WisDOT Project Manager in a timely manner. When the design of a structure is involved, Bureau of Highway Development, Structures Design Section should be contacted for comments prior to completion of the evaluation form.

A preliminary evaluation should be performed at an early stage of contract work. An informal discussion between the consultant and WisDOT Project Manager may be warranted to discuss the evaluation and identify ways to improve areas in which performance is not adequate. Such a procedure, when conducted in the constructive manner intended, will enable required corrective measures to be implemented in a timely manner, and obviate a negative or adverse final evaluation at the conclusion of the contract work. Additional interim evaluations may be performed, when necessary.

Design Contracts

Figure 1 is the form used to evaluate the performance of consultants providing design engineering services. There are five items used as an evaluation criteria for rating of the consultant's performance on a project. A rating of five (5) is the highest (positive) score, and a rating of one (1) is the lowest score.

An Average Design Consultant Rating is calculated to the nearest tenth from the five rating items. Written comments are encouraged to better define the numerical ratings.

Construction Contracts

Figure 2 is the form used to evaluate the performance of consultants providing construction engineering services to WisDOT. There are six items used as an evaluation criteria for rating of the consultant's performance on a project. A rating of five (5) is the highest (positive) score, and a rating of one (1) is the lowest score.

An Average Construction Consultant Rating is calculated to the nearest tenth from the six rating items. Written comments are encouraged to better define the numerical ratings.

112 To achieve consistent ratings between consultants and districts, the following rating system should be used for both design and construction engineering contracts:

CONSULTANT PERFORMANCE EVALUATIONS	
5.	**Outstanding** - Performance consistently exceeds requirements in all phases of the work. This level should be reserved for only special occasions where the Consultant always exceeds expectations, and is under budget and ahead of schedule.
4.	**Above Average Performance** - Performance is above average. Most requirements of the job are completed ahead of schedule. Consultant requires a minimal amount of monitoring. Quality leadership principles and sound engineering judgments are used. Agency coordination and public involvement activities are always timely and well done. Consultant reacts well to criticism.
3.	**Satisfactory** - Meets quality/performance expectations. Project is completed on time and on budget. There may be some areas that need minor improvements but the tasks are usually done on time and with minor revisions and monitoring. Good engineering practices/management. Adequate evaluation of alternatives and trial solutions. Agency coordination is adequate.
2.	**Below Average Performance** - Some work or time requirements need improvement but with monitoring are acceptable. Work is done solely by rote. Consultant should have a plan for improvement if they expect to be selected for additional projects.
1.	**Unacceptable Performance** - The work has numerous errors/omissions and the consultant requires a high degree of monitoring to complete the work. Significant improvements need to be made before consideration for future work.

Written comments must be used following each overall numerical ratings. Suggestions for improvement must be included when appropriate.

Evaluation Submittal

The WisDOT Project Manager should retain the original evaluation form and send copies to the consultant, Bureau of Financial Services (attn: Contracts Coordinator) 851 Hill Farms, and local unit(s) of government for local projects. The Contracts Coordinator will maintain a statewide record of performance evaluations for each consultant and upon request provide them to consultant selection committees for review.

Appeal Procedure

Consultants may appeal a decision or the results of an evaluation. Only written appeals will be accepted and they must be submitted to the WisDOT Project Manager who shall review the appeal and prepare a response. The WisDOT Project Manager will then forward the appeal and response to the Director of Bureau of Highway Development who shall review, add background data where necessary, and forward the information to the Administrator of the Division of Transportation, Infrastructure Development for a final decision. ★

DESIGN CONSULTANT PERFORMANCE EVALUATION REPORT By District ____ State of Wisconsin/Department of Transportation

Project I.D.	County	Construction Year
Highway / Project Name		
Consultant Name and Address	Telephone	
Consultant Project Manager	Subconsultants	___Resurface ___Recondition ___ Reconstruct ___Major ___Pavement Replacement ___Bridge Maintenance ___Bridge Rehab ___Bridge Replacement ___SHRM ___Other
Description of Work Performed by Consultant:		
Description of Work Performed by SubConsultant:		
Evaluation Period: From _____ To _____ Percent of Project complete _____ Final _____ Post Construction _____ (When necessary)		
DOT Supervisor/Team Leader	DOT Project Manager	
Project Complexity: (See FDM 8-10-20 Figure 1, 2 of 2) o High o Medium o Low		

CONTRACT DATA

Type of contract: 2 Party o 3 Party with _____ (municipality) o No. of Amendments

Date Contract Approved	Original Contract Completion Date	Date Actual Completion

Rating of Structure Plans by Structure Design Section_____
(Max 5)

Average Design Consultant Rating (to nearest tenth) _____

EVALUATION

1 = Unacceptable 2 = Below average 3 = Satisfactory
4 = Above average 5 = Outstanding

EVALUATION CRITERIA

- Performance evaluation should be completed minimally on an annual basis, more often if needed and upon contract completion.
- Rate each of the five performance items on the following pages based on the evaluation criteria (1-5) listed above.
- Indicate performance level by checking either exceeds, satisfactory or needs improvement. Consider the questions listed below each performance item and any unique issues where applicable.
- Comments pertaining to each item shall be entered in the space provided below each item.
- General comments or suggestions and comments from other specialty areas should be considered and attached if needed.
- A post-construction evaluation should be made when necessary for design projects. Adjustments to scores and ratings if necessary could be made based on the results and experience encountered during construction.
- Evaluation scores are recorded and kept on file in the Bureau of Financial Services for use in future selection processes.
- Evaluation of subconsultant should be considered and completed as needed.
- If project had a structure, contact the Bureau of Highway Development, Structures Design Section for rating score.

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EVALUATION

1. PROJECT MANAGEMENT

Note: Rate the consultant's representative you deal with.

Exceeds	(Check as appropriate) Satisfactory	Needs Improvement	
_____	_____	_____	Was the consultant project manager/leader in control of the services provided to WisDOT?
_____	_____	_____	Did the consultant project manager/leader assign appropriate staff to the services?
_____	_____	_____	Was there adequate communication between the consultant project manager/leader and the Department staff?
_____	_____	_____	Was there adequate coordination with subconsultants and others involved in the project?

Considering the above questions the overall Rating is: (Max 5) ☐

Comments/Unique issues:

_____

_____

_____

2. HUMAN RELATIONS

Exceeds	(Check as appropriate) Satisfactory	Needs Improvement	
_____	_____	_____	Was consultant responsive to requests from the Department and other reviewing agencies?
_____	_____	_____	Was consultant cooperative?
_____	_____	_____	Did consultant react well to criticism?
_____	_____	_____	Was it easy to work with consultant?
_____	_____	_____	Was consultant courteous and helpful in dealing with the general public and agencies?
_____	_____	_____	Was the Public Involvement Plan developed by the consultant effectively?
_____	_____	_____	Did the consultant properly represent WisDOT?

Considering the above questions the overall Rating is: (Max 5) ☐

Comments/Unique issues:

_____

_____

_____

EVALUATION

3. ENGINEERING SKILLS, other

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(Check as appropriate)

Exceeds	Satisfactory	Needs Improvement	
_____	_____		Did consultant's services reflect good engineering practice?
_____	_____		Were good engineering thought and sound judgment applied?
_____	_____		Were innovative or original concepts proposed where the opportunity presented itself?
_____	_____		Was there adequate evaluation of alternatives and trial solutions?
_____	_____		Did consultant work well independently, without significant help from Department staff?
_____	_____		Were routine details properly utilized on this project?

Considering the above questions the overall Rating is: (Max 5) [ ]

Comments/Unique issues:

_____

_____

_____

4. QUALITY OF WORK

(Check as appropriate)

Exceeds	Satisfactory	Needs Improvement	
_____	_____		Does the product reflect compliance with FDM procedures and requirements?
_____	_____		Was a quality control plan in effect and is there evidence it was followed?
_____	_____		Were studies & reports complete and accurate? This includes surveys, quantities, estimates and special provisions.
_____	_____		Was work well organized, properly presented, clear and concise?
_____	_____		Were all PS&E submittal items (including plans) complete, accurate, and in compliance with DOT procedure in the FDM? (make comments)
_____	_____		Were errors or omissions, numerous, serious, significant or costly?
_____	_____		Did project result in the expenditure of reasonable time by Department staff?

Considering the above questions the overall Rating is: (Max 5)

[ ]

Comments/Unique issues:

_____

_____

_____

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EVALUATION

5. TIMELINESS

(Check as appropriate)

Exceeds	Satisfactory	Needs Improvement	
_____	_____		Did consultant keep the Department informed of project work and schedule status?
_____	_____		Did consultant meet final contract time requirements?
_____	_____		Did consultant meet intermediate submittal dates?
_____	_____		Did consultant make timely requests for amendments?
_____	_____		Did the consultant submit PS&E items (including final plans) with agreed upon lead time to meet PS&E dates?

Considering the above questions the overall **Rating is: (Max 5)** ☐

Comments/Unique issues:

_____

_____

_____

Would you have reservations selecting this firm again for this type of project? _____

Describe strengths/weaknesses and provide suggestions for improvement:

_____

_____

_____

_____

_____

Evaluated by: Date:

_____ _____

(WisDOT)

Reviewed by: Date:

_____ _____

(Consultant)

Was this evaluation done at a face-to-face meeting? (yes) (no)

THE TRANSPORTATION RESEARCH BOARD is a unit of the National Research Council, a private, nonprofit institution that provides independent advice on scientific and technical issues under a congressional charter. The Research Council is the principal operating arm of the National Academy of Sciences and the National Academy of Engineering.

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