STRATEGIES TO STRENGTHEN CONSULTANT MANAGEMENT IN THE GEORGIA DEPARTMENT OF TRANSPORTATION

GDOT Research Project Number 2020

TASK REPORT 2: SYSTEM REVIEW OF CONSULTANT MANAGEMENT

Prepared for The Georgia Department of Transportation

By the Georgia Institute of Technology's
Schools of Public Policy and Civil & Environmental Engineering

Georgia Institute of Technology
SCHOOL OF PUBLIC POLICY
A Unit of the Ivan Allen College

Georgia Institute of Technology
School of Civil & Environmental Engineering

STRATEGIES TO STRENGTHEN CONSULTANT MANAGEMENT IN THE GEORGIA DEPARTMENT OF TRANSPORTATION

GDOT RESEARCH PROJECT NUMBER 2020

TASK REPORT 2: SYSTEM REVIEW OF CONSULTANT MANAGEMENT

CONTRIBUTING AUTHORS INCLUDE:

DR. PAUL CHINOWSKY
DR. GORDON KINGSLEY
DARA O'NEIL
CLIFF LIPSCOMB
ELIZABETH KRAFT
SHELDON GEN
HEATHER HALL

THIS RESEARCH WAS PREPARED UNDER THE DIRECTION OF

DR. GORDON KINGSLEY
SCHOOL OF PUBLIC POLICY

GEORGIA INSTITUTE OF TECHNOLOGY, ATLANTA

OCTOBER 2003

TABLE OF CONTENTS

TABLE OF FIGURES

ABBREVIATIONS

AASHTO	American Association of State Highway and Transportation Officials
CEI	Construction Engineering and Inspection
DOT	Department of Transportation
FHWA	Federal Highway Administration
GDOT	Georgia Department of Transportation
GQI	Georgia Quality Initiative
GRIP	Governor's Road Improvement Program
GRTA	Georgia Regional Transportation Authority
ISTEA	Intermodal Surface Transportation Efficiency Act
OCD	Office of Consultant Design
OCGA	Official Code of Georgia Annotated
PDP	Plan Development Procedure
PE	Professional Engineer
PPP	Policy-Procedure-Project
QA/QC	Quality Assurance, Quality Control
TEA-21	Transportation Equity Act for the 21st Century
TOPPS	Transportation Online Policy Procedure System
TQM	Total Quality Management

Acknowledgments

The authors of this research gratefully acknowledge the sponsorship and support of the Office of Materials and Research of the Georgia Department of Transportation. This work is prepared as part of GDOT Research Project Number 2020.

Disclaimer

The opinions and conclusions expressed or implied in this report are those of the researchers. They are not necessarily those of the Office of Materials and Research or of the Georgia Department of Transportation. Any errors or omissions are the authors.

THIS PAGE INTENTIONALLY LEFT BLANK

ABSTRACT

Over the past ten years the Georgia Department of Transportation (GDOT) has rapidly increased the use of consultants to acquire needed professional services. This study provides a descriptive review of the existing organization and operating procedures used to manage the influx of consultant contracts. The description is based on a series of semi-structures interviews with senior GDOT executives and an archival review of policies and procedures. Topics include political, demographics and market factors motivating the trend toward consultants, Strategic planning for consultants, as well as adaptation to organizational structures, cultures and procedures.

The report is part of a series of reports commissioned by GDOT on consultant management and is used to establish an understanding of senior executive perceptions of this issue.

PROJECT OVERVIEW

The Georgia Department of Transportation (GDOT) has experienced a dramatic increase in the number of consultants being employed. By some agency estimates the number of consultants has quadrupled over the last five years. Consultants now conduct 50% of the work that GDOT performs – up from 10% less than 10 years ago. Agency officials note that large numbers of consultants are being used in 17 GDOT offices that perform activities vital to the core missions of GDOT representing $450 million dollars in consultant contracts over the last 3 years. While current state and federal policies motivate this trend, it presents GDOT officials with the need to adapt managerial systems and organizational designs to this new operating environment.

This topic is one where praxis has run far ahead of management and engineering theory. GDOT is hardly alone in facing the problem of making effective use of an increasing number of consultants. This has been a topic under active discussion amongst organizations in both the public and private sector for the last thirty years. However, studies of state Departments of Transportation (DOTs) have tended to focus on cost considerations and general lessons learned from engagements with consultants.

Building on this research we explore factors that influence the *effective* use of large numbers of consultants within GDOT. The focus on effectiveness means that we will examine how existing managerial systems contribute to (or hinder) maximizing the quality of consultant contributions to achieving project objectives.

As a basis for analyzing this effectiveness, GDOT managers were asked to describe several concepts that were hypothesized to influence the effective use of consultants. These include the following:

- Strategies determining the use of consultants;
- Contracting procedures;
- Consultant expectations;
- Organizational design and administrative procedures for managing consultants;
- Human capital skill sets for effective use of consultants;
- Information systems for managing consultants;
- Monitoring and evaluation systems for assessing consultant and project performance.

Every research instrument developed for this study addresses these conceptual elements. This allows the integration of the various research findings and the ability to assess the convergent validity through the analysis.

The conclusion of the consultant management research effort will result in the compilation of several research elements as follows:

1. A review of consultant management practices within GDOT;
2. A literature review of consultant management practices in other public agencies (with an emphasis upon state DOTs);
3. Best practice case studies from other state DOTs;
4. Case studies of GDOT projects requiring consultant management;
5. Surveys of GDOT project managers and consultants.

This report satisfies the first of these deliverables – the review of consultant management practices within GDOT. At the same time the research team has been preparing the second deliverable which serves as a companion study -- the literature review of consultant management practices by other public agencies. One of the analytic

goals in compiling the two reports is to create the means for a comparison between the approaches taken by GDOT and those of other public departments and agencies.

Currently, the conclusions presented in this report are preliminary and subject to modification based on further research and interaction with key internal and external individuals. This status corresponds to the initial milestone of an early review by GDOT managers on the evidence collected by the research team in order to obtain advice from these managers concerning the documents and individuals that may be missing. Although interviews with senior GDOT managers are largely complete, there are two or three key managers who were unavailable during the last two months and will be interviewed later this summer. In general, these are managers who have recently assumed new positions. Work remains on interviews with regional and national experts where the goal remains to interview roughly seven to ten experts working at the national and regional level.

Scope of Analysis

One of the challenges of this analysis is that GDOT managers describe consultant management as three distinct types of problems, each with a dramatically different scope of impact on the organization. Perhaps the most interesting aspect of this is that over half of GDOT managers expressed all three perspectives during a single interview. This indicates that GDOT managers share an understanding of the issues associated with consultant management.

First, managers, particularly senior managers, describe consultant management issues in the context of the future identity of GDOT as a public works organization. From this perspective, the increasing reliance upon consultants is symptomatic of

fundamental changes in the nature of GDOT operations. It troubled many managers that GDOT is moving from a department that builds transportation systems to one that oversees the builders. In this light, the scope of the issues associated with consultant management are department wide and serve as a fundamental challenge to the way in which GDOT operations are organized.

Second, GDOT managers describe consultant management as largely a problem of scale. This is particularly the case from managers whose office has historically had extensive experience in using consultants and contractors. From this perspective the primary issue is managing the large number of consultants operating on GDOT projects. The consequence of large-scale is that more GDOT engineers and managers are interacting with consultants. This can expose problems with the skill-level of both GDOT project engineers and consultants who have less experience in negotiating and managing these relationships. It can also lead to the uneven application of rules and procedures, again from both consultants and GDOT personnel alike. One project with experienced personnel may apply rules and procedures different than a project where the consultant relationship involves less experienced people. This leads to conflicts between GDOT and the consultants' company over the uneven application of rules and service.

The third way in which GDOT managers describe the issues associated with consultant management is in terms of novelty. This perspective tends to come from managers whose offices have little history of employing consultants. From this perspective, the existing rules and procedures associated with hiring and managing consultants are not a significant help. Such procedures are particularly designed to the needs of offices with experience in hiring consultants. For managers who are new to

hiring consultants, it is difficult to find information about the appropriate procedures to follow. Further, there is no single office that can describe the full range of administrative procedures, or make judgment calls about the types of information needed to justify and secure the new use of consultants. Consequently, these managers feel they must cobble together a procedure and see if their particular interpretation will fly through the scrutiny of the various oversight offices.

These responses indicate that the concept of effectiveness may have three dimensions reflecting the different scope that managers apply to consultant management issues. First, *identity effectiveness* is primarily concerned about the future organizational structure and culture of GDOT operations. Second, *scale effectiveness* will be primarily oriented towards assessing the production of outputs by GDOT on projects where consultants are employed. Finally, *administrative effectiveness* is primarily concerned with developing systems that lead to smooth operations and the minimization of transaction costs in all internal interactions as well as those with consultants.

Reader's Guide: The systems analysis is divided into five sections as follows:

- Section 1. Systems Review Introduction. An overview of the systems review process undertaken within this analysis and the goals set for the accomplishment of the analysis.
- Section 2. Methodology. A review of the methods used to collect data, collate the data, and align the results with the systems review process and issues. An introduction is given to the analysis matrix of issues that form the centerpiece of the policy level analysis for GDOT.

- Section 3. GDOT Triad Implementation. A documentation of the policy-procedure-project implementation processes currently adopted by GDOT and the external and internal forces guiding these implementations.
- Section 4. Gap Analysis. An analysis of the implementation documented in Section 3 from both an organization and process perspective.
- Section 5. Conclusions. A focus on issues that have been identified during the systems review process and issues that influence the next phase of the consultant management analysis.

EXECUTIVE SUMMARY

The Georgia Department of Transportation (GDOT) has experienced a dramatic increase in the number of consultants being employed. By some agency estimates the number of consultants has quadrupled over the last five years. Consultants now conduct 50% of the work that GDOT performs – up from 10% less than 10 years ago. Agency officials note that large numbers of consultants are being used in 17 GDOT offices that perform activities vital to the core missions of GDOT representing $450 million dollars in consultant contracts over the last 3 years.

In response to this dramatic increase, the current research effort was initiated to review the consultant management strategies and practices within GDOT. In this first deliverable, the systems review documents the story of consultant management as told through the experiences of GDOT managers. This story was compiled through interviews, reviewing documents and attending relevant GDOT meetings. Placed within the context of the systems analysis technique, the process analyzes the operation of the department in terms of its short-term and long-term operations. The results of the systems analysis are presented in the context of a policy-procedure-project (PPP) triad that addresses the internal development of consultant management practices as well as the internal and external forces that are impacting consultant management within the department.

At the policy level GDOT has taken an incremental and reactive approach to meeting external demands by the Governor and the State of Georgia. This reactive stance has resulted in few long-term planning efforts being initiated within GDOT to guide the use and management of consultants (other than the need to meet external deadlines and

the need to meet Federal and State guidelines in selecting and prequalifying consultants). Therefore, consultant management is left to be overseen at the project level based on procedures developed by Office and Division Heads.

The result of minimal planning and associated policy development has not hindered the development of procedures. The GDOT Transportation Online Policy and Procedure System (TOPPS) and the Plan Development Process (PDP) are distributed to contractors and consultants who work for GDOT and are intended to preserve GDOT's focus on quality systems. Our review of these documents and the interviews with GDOT personnel reinforce the finding that GDOT has been effective throughout its existence in creating specific procedures to address common issues. However, the issue remains as to whether the procedures documented in TOPPS and the PDP address the appropriate policies and whether plans exist from which to generate a full spectrum of systems-related procedures.

Finally, the project execution level revealed that the project implementation steps as understood by GDOT personnel and do not necessarily follow documented procedure in a strict fashion. This dichotomy is directly related to the lack of focus on training and workforce development on consultant management. Human resource development is an acknowledged weakness within GDOT for consultant management and is compounded by brain drain with those individuals who are likely to perform consultant management functions. When combined with problems in recruiting top-level civil engineers, the basis for a mismatch between procedures and project execution becomes clear to all external parties interacting with GDOT.

The conclusions reached from this three-part analysis can be summarized as follows:

- Consultant management policy and plans must begin at the top – The focus on short-term consultant management impact results in two negative outcomes: 1) short-term planning reduces the need to develop long-term policies, and 2) short-term perspectives reduce the need to study long-term alternatives such as reengineering to facilitate effective and efficient processes.
- GDOT workforce must be better prepared for consultant management – Consultant management is not a secondary activity to engineering. GDOT employees must understand this and undertake workforce development activities to successfully adapt.
- Organization consistency must be developed – The lack of integration between the construction approach to construction engineering inspectors, the preconstruction approach to design consultants, and the minimal involvement by the legal and budget offices is a clear indication that consistency is not a current priority within the consultant management process.
- Consultant management must be reengineered to streamline – Areas that do not require significant policy statements should be examined for immediate impact and opportunities to enhance the relationship with outside consultants.
- A greater focus on future identity – GDOT managers must take a proactive approach to defining what GDOT will look like in five or ten years including its role, personnel profile, tasks, and relationships to the professional, political and public communities.

- A greater focus on consultant management scale – GDOT personnel need to understand this concept of scale and adopt a proactive response to reengineering the consultant management process in terms of scale.

In conclusion, the state of consultant management within the GDOT organization has been determined to be a case of mixed implementation levels with varied internal and external perspectives. It is clear that a lack of planning and comprehensive policies has allowed these variations to exist and expand as the consultant management issue continues to expand due to external forces. Additional phase two research is required to further identify the impact of this situation on GDOT projects and the extent to which these perspectives pervade the general GDOT organization. Finally, the ability of the GDOT *organization to change, adopt and adapt existing best practices, and reengineer the organization to reflect a changing identity* will serve as focal points for the research team during phase two.

THIS PAGE INTENTIONALLY LEFT BLANK

SECTION 1. SYSTEM REVIEW INTRODUCTION

Basic Concepts

The successful operation of an organization, public or private, is dependent on all components of the organization working together efficiently and with the same goal. In this sense, the organization is similar to well-designed system. The system receives inputs from both internal and external sources; the system processes these inputs and develops outputs that are distributed to consumers of the goods or services. An organization follows this same basic operational pattern when it is operating efficiently and effectively. However, just as a system can get out of balance or begin to produce outputs that do not meet the specified requirements, an organization can lose balance and begin to operate in a less than optimally efficient or effective manner. Determining whether an organization has entered this period of off-balance operation is the focus of a systems review. Specifically, a systems review analyzes an organization for the following purposes:[1]

- Determine the system components within the organization including their interactions and products;
- Analyze the development of procedures for system operation based on overall policies set for the organization and its people;
- Analyze the implementation of procedures during system operation to determine if the system is operating as it is intended and required;

[1] These purposes follow the general concept that every system requires tuning at appropriate intervals. Whether the system is an automobile, delivery system, or large organization, the components of the system must be periodically examined for their ability to continue as designed and the system as a whole must be examined to determine its relevance to the current operating environment. In either case, the failure of the system may occur due to inattentiveness to the system operation. In the case of a component, the system may be halted as an individual component is replaced or in the case of an organization, a new person trained for a new responsibility. In the case of an organization, the system may be operating efficiently, but it is producing output that is no longer relevant to the consumer or its environment.

- Determine the future path for the organization and the potential impact on system operation;
- Analyze the forces on the organization that are resulting in the need for system change and the appropriate responses to those forces.

As applied to the Georgia Department of Transportation (GDOT), this study reports the results of the research team's first deliverable – a review of consultant management strategies and practices within GDOT. The goal of this deliverable is to tell the story of consultant management through the experiences of GDOT managers. This story is compiled through interviews, reviewing documents and attending relevant GDOT meetings. Placed within the context of the systems analysis technique, the process analyzes the operation of the department in terms of its short-term and long-term operations. For the short-term operation, the systems review provides an analysis of the project operations that are a central component of GDOT's task and the effectiveness of these operations as they reflect the policies and the procedures put in place by GDOT management. For the long-term operation, the systems analysis places the external and internal forces that are challenging GDOT to modify its processes in terms of organizational impact and the potential need to change the system concepts and focus.

Components of a system review

The development of a systems review focuses on three fundamental areas as follows:

- Organization Analysis – An organization reflects the personalities of its leaders, the composition of its workforce, and the forces acting upon the organization in its given environment. These variations provide the identity of every organization and establish the differentiation between organizations in both public and private domains. Within the effort to conduct the organization analysis, it is necessary to

obtain a cross-section analysis of organization personnel to gain a breadth of understanding of the system operation. Rather than relying on a one-dimensional story obtained from a single management source, the organization analysis combines perspectives from throughout the organization to develop a comprehensive analysis of the organization and its ability to guide the system operation.

- Operation Analysis – The operation analysis focuses on the design and organization of the system operations. Specifically, this second level analysis analyzes whether a given system is developing procedures that guide the daily operation of the system and that reflect the intent and identity of the overall organization. In this manner, it can be determined if a system is developing operating standards that are proactively assisting the organization in its long-term development as well as its short-term operations, or if the organization is developing ad-hoc procedures that are reactive in nature and focused primarily on meeting immediate needs.
- Implementation Analysis – The final level of analysis in a system review is the implementation analysis. In this context, the focus transfers from policy and procedures to system execution. Any system can be elegantly designed and its components optimized. However, where the results are going to be obtained is in the execution of the system on a daily basis. This is the emphasis of the implementation analysis. The goal of this phase is to determine if the system is both operating effectively and reflecting the procedures and policies designed to manage operations. In a service-based organization such as GDOT, this analysis focuses heavily on the ability of the system to produce the results that its customers, both government and private citizen, expect and demand from the department. To determine such a result, the analysis compares stated procedures with actions by internal personnel, external consultants, and stated customers. If any of these constituencies behaves in a manner

which is inconsistent with stated procedures without a well-founded reason, then it is necessary to examine whether the actions are a result of poorly designed procedures or procedures that are either misunderstood or ignored by the human capital within the system.

Perceptions of Consultant Management

An understanding of any policy development effort and its translation into procedures is limited without placing these elements in terms of actual projects and the actions that individuals take during project execution. In this research, the case studies and surveys will be anchored in GDOT projects. In this system review, we take a broader view examining the general perceptions of senior managers concerning consultant management[2]. In our conversations, managers described their understanding of consultant use in GDOT without anchoring responses in a specific project. Rather, responses referred to their general experience managing numerous projects or supervising project managers.

Many individuals at all levels of an organization have their own perspectives on how a system operates. These perspectives all have elements that are accurate and elements that may be inaccurate due to perceptions and lack of direct involvement. The roadmap for GDOT consultant management is introduced throughout this analysis as the underlying context for the comments, recommendations, and conclusions presented by the research team.

The fact is that whenever outside individuals are substituted for in-house system components, it will be perceived that the system does not operate as efficiently as originally designed. This perception is based on elements of truth. The additional

[2] By senior managers we mean all GDOT personnel we interviewed were at the assistant office head level or above.

overhead required to manage outside assets as well as the requirement to educate them on accepted procedures will have a negative effect on the system. Additionally, since the outside components are not members of the organization, there will be differences in the outcome from that produced in-house (not necessarily negative differences). The key in this analysis is that much of it is based on perception rather than reality. To control for perception bias, this systems analysis balances the impressions and input from multiple GDOT personnel.

In summary, the systems analysis presented in this report provides a comprehensive investigation of consultant management practices within GDOT from the perspective of a system that is required to run consistently, effectively, and efficiently on every project. The internal and external forces acting on the system, the changing requirements of the customers, and the realities of how the procedures are executed on given projects are presented.

The Policy-Procedure-Project Triad

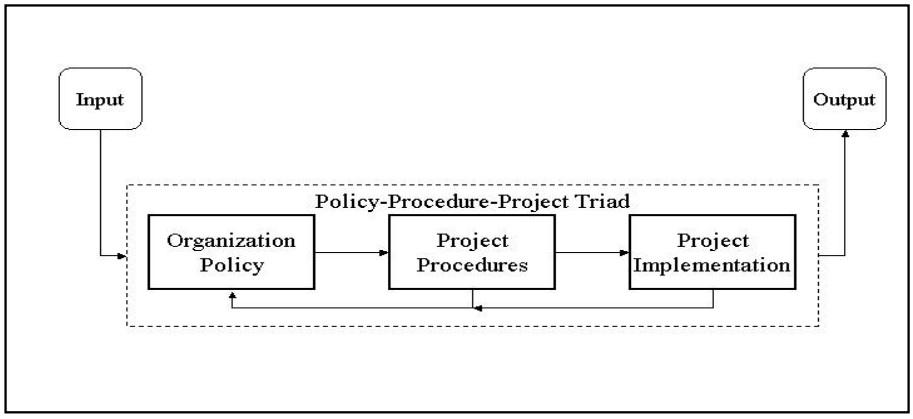
The concept of relating organization policy to organization procedures and project execution directives is formalized in the concept of a policy-procedure-project (PPP) triad as illustrated in Figure 1-1. This concept is a continuous loop that provides the opportunity for each level of the organization to influence the final system operation as well as enable the system to react to external forces. The PPP triad has been extended to many concepts including TQM, quality circles, and the Deming award. Although each of these implementations extends the PPP triad in an individual manner, the underlying concept remains consistent. Specifically, the success of an overall system is dependent on each system component operating under directions that reflect the overall direction and vision of the organization. Deviation from these directions and vision ultimately results in a system that is out of balance with its operating environment.

In the context of GDOT, the PPP triad is intended to reflect the direct influence that each of the department's management levels has on project execution plans. With a flat management structure, project managers are never more than three levels removed from the Chief Engineer or Deputy Commissioner. In this circumstance, directives given by these executive positions should have immediate implementation results by the project team. Similarly, problems encountered by the project managers should be resolvable in minimal periods of time due to the short ladder to the ultimate decision making authority.

Figure 1-1: The Policy-Procedure-Project (PPP) Triad.

Intent of GDOT Systems Analysis

As stated in the previous section, the effectiveness of policies and procedures within a system are critical to the long-term success of the organization. In the case of



this study, the systems analysis emphasizes the policy and procedures that guide the consultant management component of the overall GDOT system. Within this overall focus, three key questions guide the intent of the systems analysis.

1. *How are policies translated into operations?* – Consultant management is both an operational issue and a policy issue. From the policy perspective, the decision as to whether to increase or decrease the magnitude of consultants will directly influence

both the image that the department projects as well as guide the career paths of GDOT employees. However, from a systems perspective, these policies must be examined in terms of their translation into current and future operations. In terms of current operations, the systems analysis puts into perspective the degree in which consultant management decisions reflect the policies for the GDOT organization regarding the use of consultants. Where specific policies do not exist, the systems analysis emphasizes the need for guidance to ensure the system remains focused on producing desired outcomes.

2. *Are projects executed according to procedures?* – This systems analysis examines consultant management procedures to determine if there is consistency in the actual execution of projects. If individuals within a system fail to follow procedures, or do not know that a procedure exists for a given operation, then the developers of the procedure have failed to accomplish their intent. Of greater importance, if a procedure does not exist to guide a component of project execution, or the operators within the system find the procedures to be unclear or unwieldy, then inconsistency and ineffectiveness will be the direct result.
3. *Do consultant management policies or procedures need to be reengineered?* – The long- term health of an organization is dependent upon constant analysis of its operations to determine if the system needs to be adjusted to reflect current operating environments. The rapid increase and projected future increases in the number of consultants being used and the increasing encroachment of consultants on core GDOT activities are each indicators that past policies on consultant management need to be examined. Consideration must be given to the fact that these policies may need to be enhanced or changed completely. This systems analysis examines the role of consultants through the perspectives of both internal and external constituents with

the intent of providing a recommendation on the scope of reengineering that may be required to achieve the long-term strategic objectives within the department.

SECTION 2. METHODOLOGY

The application of a policy-procedure-project model to the GDOT environment requires two levels of analysis:

1. A flow analysis of the administrative procedures. This analysis is used to contrast official procedures with the actual procedures GDOT managers describe as being used during project execution. This analysis is also used to identify bottlenecks in existing procedures.
2. A gap analysis of each level in the PPP triad. The gap analysis identifies those areas where conflicts exist in the PPP triad between policies, procedures, and project execution plans.

Process of Analysis

To gain a better understanding of the forces impacting GDOT, several external and internal data sources were reviewed as information and guidance documents. During the course of reviewing these data sources, a diverse set of information was collected including the following:

- Interviews with 17 senior GDOT managers (see Appendix A for a list of those interviewed);
- Interviews with 3 national and regional experts knowledgeable of consultant usage by state DOT's (see Appendix A for a list of those interviewed);
- GDOT documents describing the consultant management process and/or issues that arise from this process (see the references for a list of reviewed documents);
- Reports in the popular and professional press regarding GDOT operations and issues relevant to consultant management;

- Attending the most recent Consultant Relations Committee meeting of the Georgia Quality Initiative (GQI).

In collecting and reviewing this information, three levels of data were examined in accordance with the PPP framework: policy, procedure, and project execution. A brief summary of each level is presented here. A fuller description of findings from each level of analysis is provided in Section 3.

Conflicting comments on consultant management requirements.

"They need to have the full expertise of knowing how to design a roadway but they need to have a different skill set for the day-to-day management of the professional services provider and also to have the accounting skills, negotiating skills, and management skills for those activities associated with the management of consultants."

"…you don't need engineering skills to manage a consultant. We are relying on first and second year people to manage projects. Rather, one needs skills in auditing, financial, legal, time management, not design/engineering decisions. Lots of people hired over the years can draw blueprints; they end up spending their time information hunting. We would be better off getting an MBA student with knowledge of financial and legal matters."

The policy analysis focuses upon those factors that are motivating GDOT's increasing use of consultant's in core mission activities. GDOT managers exhibit a consistent understanding as to why consultants are being hired in greater numbers. This was reflected in both interviews and in GDOT documents, particularly state transportation planning documents. GDOT managers describe their external environment as one demanding a tremendous increase in the volume of work, while their workforce has diminished and the ability to hire new employees has been capped by the State.

The procedural analysis examines how GDOT managers interpret, mediate, and translate external forces into work plans for GDOT operations. Currently, GDOT has two systems in effect that are the cornerstones of the consultant and contractor management processes. These two documents, TOPPS (Transportation Online Policy and Procedure System) and the PDP (Plan Development Process), provide set processes

and rules for consultants and contractors to follow in conducting projects. TOPPS contains specific policies and procedures that may be needed when a project requires certain steps, such as environmental permits or special rights of way. Concurrently, the PDP generalizes the steps to be followed by contractors to get a project from the initial conceptualization stage to the letting stage.

Finally, the project analysis examines the administrative systems that have been developed and the ways in which they facilitate and hinder the work of both GDOT personnel and consultants. There is a general sense of frustration among GDOT managers as to the appropriate course of action. Even within the same interview managers would present very different understandings of the problems associated with consultant management (See sidebar). For example, a common sequence of events during interviews was for the responding GDOT manager to explain with great vigor that a) the increased reliance on consultants is a short-term problem; and b) it is an issue that GDOT has already solved through adaptations to existing procedures. However, in the same interview respondents would express dire concerns about the future of GDOT, turnover among young engineers and managers, a feeling that reliance upon consultants is the way of the future, and uncertainty as to how GDOT should prepare for this eventuality.

Procedural Flow Analysis Description

The consultant management process is outlined in the procedural flow analysis in Section 3. The process flow analysis has been derived from information collected during interviews and GDOT document review. Specifically, interviewees were asked to delineate the steps required within GDOT for securing the services of a consultant and the procedures for managing that relationship. These respondents each provided an overview of the process, but none included all 25 steps. Instead each provided a broader

perspective with some delineating in detail specific components of the process. These specific details were then integrated to provide a comprehensive 25-step process for consultant management. It should be noted that the process outlined by each of the interviews was consistent with no contradictions in necessary procedures.

GDOT document review supplemented the steps outlined during the interviews. Documents reviewed include the *Plan Development Process 2000*, the *Consultant Prequalification FAQ* on the Office of Consultant Design website, *Consultant Services and Georgia DOT* PowerPoint presentation by Ben Buchan (April 2002), and the *Manual of Quality Standards for Consultant Services within the Georgia Department of Transportation* (November 2001).

The Gap Analysis Matrix

The preceding sections introduced the policy-procedure-project triad and its role in defining the operation of the GDOT system and the issues that impact successful consultant management within the GDOT system. The combination of these issues forms the basis for an analysis matrix as seen below. Within the matrix, each level of the PPP triad is examined from the perspective of the consultant management issues.

Using this matrix, the research team obtains a point of departure from which to undertake the formal analysis of the GDOT system. Section 3 presents in detail how the GDOT system operates within the context of the PPP relationships and culminates in the flow analysis. Section 4 follows this operational analysis with a gap analysis emphasizing the degree to which the consultant management issues are being addressed in the PPP relationships. This analysis returns to the following matrix as the basis for presenting the results.

	Organization Structure	Organization Change	Communications	Staff Development	Customer Expectations

Policy Level					
Procedure Level					
Project Execution Level					

Gap Analysis Matrix Issues

In response to the developing impact of consultant management on the successful delivery of GDOT services, the research team analyzed a list of issues within the context of each PPP level. These issues represent a combination of established system analysis issues utilized in published systems reports and issues that are specific to the GDOT organization. The issues the team analyzed within each PPP relationship are as follows:

- Organization Structure - The structure of an organization reflects both the management style of its executives and the scale of its operation. Within GDOT, the relatively flat organization structure among senior GDOT managers enables all senior managers to obtain direct input from top management with a minimum of delay and interference. Similarly, this allows top managers to provide guidance to division and office heads with minimal filtering of information. In terms of consultant management, the research team examined the manner in which this structure facilitates the development of consultant management policy as well as facilitating feedback from project managers to senior managers. Additionally, the exchange of information across the structure was an important element as the research team examined the manner in which similar level managers obtained lessons learned and best practices from each other.
- Organization Change – The rate at which change occurs in an organization varies widely according to the system requirements. Organizations in the high-tech industry

must change rapidly to reflect scientific changes whereas change is slow in organizations where technology or customer expectations are slow to evolve. In terms of GDOT, organization change is an issue because it falls in the center of this spectrum. Whereas the objective to build interstate highways and an overall road network dominated the department for a generation, customer expectations are rapidly changing to multi-modal transportation and reductions in traffic congestion. This change of expectations is combining with reduced workforce issues to require the organization to change its operations, expectations, and perspectives.

- Internal and External Communications – It is easy to say that the problems in any organization arise from either a lack of communication or misinterpreted communications. Specific to GDOT, this issue is both an external and internal issue when applied to consultant management. Each project manager and senior manager must be receiving the same "story" on consultants to make consistent decisions. Similarly, the consultants must receive a consistent and understandable message regarding both their place in the system and their future position in operational details.
- Staff Resources/Development/Training – A senior consultant stated that to achieve success, GDOT needs to put experienced people in the role of consultant managers, pay them well, and let them make quick decisions based on their experience. Although internal GDOT personnel may disagree with this sentiment, it highlights the fundamental need for continuous training in a successful system. Changes that occur within an operating environment such as the need to increase the use of consultants, do not acquire an appropriate response by simple exposure. Rather, individuals in the system must be trained and developed to proactively address changes rather than to reactively respond with substandard procedures. With the magnitude of changes

occurring in the GDOT operating environment, this development process becomes a significant system priority.

- Customer Expectations – The final issue that must be managed by system managers is the expectations of the customer. Customers will always expect more than it is practical to provide. In terms of transportation, customers will not be satisfied until they have a private expressway that leads from their house to their job and takes only 15 minutes to traverse.

  Everybody knows this is not practical, but the unrealistic expectation makes it difficult to achieve a solution that meets a realistic expectation. In this scenario, expectations must be managed and the customer convinced that they are receiving the best product that the system can produce. Although resource constraints will place a limitation on the final result, customers do not want to hear about limitations. Rather, they want a result that meets their requirements. This final issue may be the toughest for GDOT to address. With widespread discontent with traffic and development in the Atlanta region, GDOT is caught between the role of regional manager and transportation developer. The manner in which the department responds to this conflict is the focus of this analysis point.

SECTION 3. GDOT TRIAD IMPLEMENTATION

In this section, the results of the systems analysis conducted by the research team are presented in the context of the policy-procedure-project (PPP) levels introduced in Section 1. Within this framework (Figure 3-1), this section addresses the internal development of consultant management practices as well as the internal and external forces that are impacting consultant management within the department.

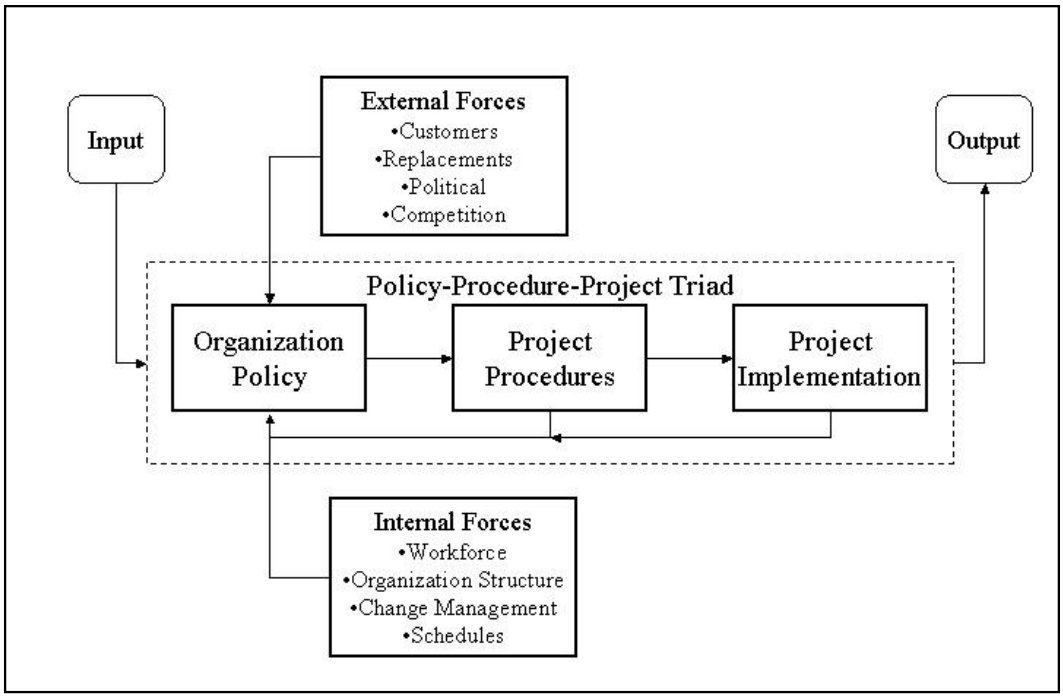


Figure 3-1: The Policy-Procedure-Project (PPP) Triad and Illustrative GDOT Forces.

Policy Development

Documented research on thousands of organizations worldwide over the last five decades has consistently demonstrated that the difference over time between successful organizations and those that do not meet expectations is the existence of an effective long-term plan. The core of these observations lies in the fact that organizations with a

strong plan have the ability to set policy that reinforces the plan and directs the organization in a consistent path towards the achievement of the plan objectives. The challenge to this concept within a given organization is the common belief that long-term thinking is not relevant to everyday operations. Although the logic to this argument may be sound, the evidence points directly to the contrary. Specifically, those organizations that get lost in daily operations are the same ones that are the last to address the need to change since they failed to recognize the need for change before it was inflicted on them by the operating environment.

Comments on Strategic Policy Development

- Shoot it down every chance I get.
- Not a fan, too far out there, don't do much with it.
- I avoid it at all costs. It's absolutely useless within GDOT.
- I only get involved when they make me.
- 9 years behind the curve and does not involve employees.
- GDOT is living in the past. If there's a strategic direction for GDOT, I don't know what it is.
- Personnel office does not forecast personnel needs or consultant needs.
- There is no strategic planning for consultant management.
- Current GDOT culture and management style emphasize action more than planning.
- Strategic planning is driven by political whims and directions from governor.

As a public works department, GDOT is constantly faced with this challenge. Although internal managers have specific plans and ideas that they would like implemented, the ultimate guiding force for the organization is the Governor of Georgia who is not an employee of GDOT. Rather, GDOT must respond to the political desires of the Governor, thus setting the stage for an outside individual to set the long-term priorities for GDOT. Unfortunately, these long-term priorities have the life-span equal to the time that the Governor is in office. Therefore, a long-term priority set today may likely be overturned when a new Governor enters office.

The result of this situation within GDOT has been the development of a policy generation process reflected in Figure 3-1. GDOT policy is forced to follow the action-oriented objectives of several entities including the Governor, the Transportation Board,

and the Commissioner. These entities in turn also reflect the external political forces that act upon them and determine their length of time in public office. This scenario is common for public agencies - not specific to GDOT. However, it is the response to these action-oriented priorities that make an organization unique in its policies.

The GDOT Response

The systems analysis reveals that GDOT has adopted a two-part response to the formation of policy development: 1) development of a strategic plan, and 2) development of action plans.

For external consumption and to meet the requirements of the Governor, the agency embarks on a strategic planning effort every 18 months. This effort is spearheaded by the Office of Planning and overseen by the Quality Council. Designed to reflect the strategic objectives of the Governor and the Transportation Board, the strategic planning effort puts in place a plan that interprets the Governor's objectives in the context of GDOT. Although these objectives are worthwhile, many of the forces acting upon GDOT are not reflected in its strategic plans. The reasons for this lack of comprehensive coverage stem from the belief that the strategic planning process is not a central concern to GDOT and the process needs to be reengineered if it is to be useful to the organization (See sidebar, previous page).

With this perspective on strategic planning, the primary policy development process focuses on the triad of senior executives who oversee daily GDOT operations: the Deputy Commissioner, the Chief Engineer, and the Treasurer. These individuals have the responsibility to balance the external forces acting upon GDOT (see below) and the internal changes into a cohesive policy that ensures GDOT is meeting its commitment to the State of Georgia to maintain an effective transportation system.

The second response to policy development is to focus on GDOT action plans. In terms of a system perspective, the senior managers are responsible for setting the action objectives based on input and output requirements set by the Governor and the Commissioner. Specific to consultant management practices, these managers are responsible for setting the guidelines under which external resources should be used to augment the capabilities of the internal system.

The process under which these policies are set is clear to members throughout the system. Where needed, the senior managers provide input and final authorization for consultant management policy. It is clear to GDOT employees that these managers have ultimate authority to guide the use of consultants and to set the policies that will determine the future scope of work that consultants will be able to execute. Furthermore, it is clear throughout the GDOT system that policy is directly influenced by input from the Division Heads who provide senior management with perspectives that emerge from each of the operating divisions. It is further understood that these perspectives are developed from a combination of personal interactions and input from the Office Heads. This multi-level, hierarchical process is the understood mechanism under which the system is directed and changed to meet new operating environment influences.

Unidentified Policies

The above description documents the understanding within GDOT of how consultant management policy is developed and authorized. However, this understanding does not correspond to the actual process that occurs as identified during the systems review. The specific process is extensively influenced by the Governor through politically-based initiatives. Through this politically influenced process, GDOT is placed in the position of reacting to external forces in an effort to maintain political favor within

state government. The result of this alternative process is the introduction of new steps in the project identification process as follows:

1. New directives such as GRIP are initiated by the Governor and put under the responsibility of GDOT for implementation.
2. Restrictions on the use and expansion of personnel are indirectly put in place by the Office of Management and Budget and the Attorney General.
3. The directives are apportioned out to the appropriate divisions by the senior managers with a directive to meet the deadlines established by the Governor and with the restrictions outlined by the state officials.

In summary, few policies exist within GDOT to guide the planning for the use of consultants other than the need to meet external deadlines and the need to meet Federal and State guidelines in selecting and prequalifying consultants. Therefore, consultant management is left to be overseen at the project level based on procedures developed by Office and Division Heads. The reasons for this policy direction are reviewed below.

External Forces Impact on Policy

The forces that have led to the increased use of consultants in state DOTs have come from sources external and internal to DOTs. External to DOTs, there have been strong trends since the mid 1980s toward privatization and downsizing[3]. Beginning in the late 1980s, interest in quality management stimulated government interest in alternative modes of program delivery through private firms[4]. The subsequent movement

DOT downsizing in the 1990s
(Witheford 1997)

Texas: -13.3%, from 15,000 to 13,000
Virginia: -13.6%, from 11,000 to 9,500
California: -15.0%, from 20,000 to 17,000

Georgia: -35.0% (approx), from 10,000 to 6,500

[3] Witheford 1997
[4] AASHTO 1998

to "reinvent government"[5] included extensive use of the private sector to provide public services. This prescription followed a popular perception – not always founded – that the private sector can provide better services for less cost than the government can. As a result, government agencies at all levels saw reductions in their staffs in lieu of greater use of private consultants. Further encouraging this trend in the early 1990s was widespread financial constraints in federal and state governments stemming from a deep recession[6]. Together these policy and economic forces set a stage for increased consultant usage in DOTs.

A brief synopsis of the external conditions finds state political leaders accelerating the design and construction of several highway and road construction projects through the Governor's Road Improvement Program (GRIP) program. Changes in state rules for financing projects have financed the acceleration of GRIP and limited GDOT's ability to use their own personnel on projects. These state initiatives have coincided with federal initiatives to accelerate maintenance and inspection activities through the ISTEA and TEA-21 programs. The collective effect of federal and state initiatives is to create a short-term glut of work, graphically described as a pig moving through a snake.

This short-term perspective is reflected when GDOT managers describe the issues in terms of the scale of reliance upon consultants. These managers are more likely to describe consultant management problems as short term. For example, managers within preconstruction say that much of the workload associated with GRIP has now left their operations and is being let to construction. Other managers will point to limits on the bonding authority arguing that GDOT has only two more years to be able to issue bonds

[5] Osborne and Gaebler 1992.
[6] AASHTO 1998

based upon their future cash flows. Also, when consultant management is described in terms of a temporary problem of scale, GDOT managers tend to defend existing administrative systems.

Internal to state DOTs, there were also several forces at work. First, in the last few decades there has been a fundamental shift in the focus of DOT activities. Whereas the 1950s through the 1970s saw a focus on infrastructure construction, the last few decades has seen more of a focus on operations and maintenance, activities that are more easily privatized that others.[7] DOTs also cite two other common internal forces influencing their use of consultants: declining or limited staff (the local manifestation of the national trend) coupled with increased work loads.[8] Over half of DOTs responding to one survey cited staff shortages and peak work loads as the main reasons for turning to consultants.[9] Still, there are other reasons DOTs use consultants, including growth of population and the resulting increase in travel demands, user demand for better and quicker service with minimal delays, need for special skills or innovation, control of staff size, and drive for greater efficiencies.

Internal Planning Requirements

The directive to implement a transportation system that corresponds to the needs of the State of Georgia while accomplishing the political objectives of the Governor may place GDOT in a position of conflict. Although the State may require long-term development of alternative transportation modes, or improvements of less-traveled roadways, the political pressure can require short-term development and improvements to areas that are politically important. Therefore internal planning must balance the needs of the organization with the needs of the ultimate manager.

[7] Witheford 1997.
[8] Witheford 1997, Hancher and Werkmeister 2001, Newman 1989.

Within GDOT, this balance occurs through two distinct plans, a short-term action plan and a long-term project plan. GDOT managers indicated that the short-term plan directly reflects the directives of the current Governor. If the Governor is a proponent of alternative transportation, then the plan will include studies of alternative transportation. However, if the Governor is a strong proponent of improved roadways and roadway expansion, then the short-term plan will reflect that bias. In both cases, the plan is augmented with required maintenance activities that are an ongoing responsibility of GDOT. The scope of this plan reflects the need of the Governor to accomplish transportation tasks in a given time. For example, the current plan requires GDOT to accelerate projects to meet the needs of the GRIP program.

In contrast to the short-term plan, the long-term plan contains a list of projects that have a 25-year planning cycle. Projects on this list are approved and set in priority for future GDOT development. Although priorities may change and timelines may be altered, the projects on this list reflect the best GDOT analysis of the needs of the Georgia transportation system. Given the high regard that the Georgia system is given on a national basis, this long-term planning system has worked well for the organization during its recent history.

In terms of consultant management, the fluctuations in the short-term plan have directly led to the need for increased consultants and the projected need for either a continuation of current levels, or as some organization managers insist, an increasing need for outside consultants. From a policy perspective, the dominance of the short-term plan requires policies to be set that address the level of consultants to be engaged by GDOT on an immediate basis. In the absence of these policies, GDOT is forced to make these policy decisions on a project-by-project basis. With indicators pointing to the

[9] Witheford 1999.

continuation of consultants in critical, and perhaps core, roles within the organization, individuals within the system are looking for greater guidance on the guidelines for these decisions.

Procedure Development

Procedures are developed out of the above policy development stage and laws created at the federal and state levels of government. Procedures are the physical steps that must be taken by consultants and contractors to show compliance with the policy directives created by federal, state, local, and GDOT officials. At the office and division level, the procedures to be followed by consultants, contractors, and GDOT staff are found in the Transportation Online Policy and Procedure System (TOPPS). This system details the federal and state laws that all GDOT project personnel must follow. The *application* of these laws and statutes can be found in the Plan Development Process (PDP) distributed to contractors and consultants who work for GDOT.

The PDP is a document that outlines all necessary steps to be taken for a project from conceptualization to letting. It details all the parties involved in various projects, as well as their roles and responsibilities in the process. The PDP also leaves no doubt as to what party is accountable in the event of a mistake. The PDP succeeds at providing a consistent and logical chain of events and the parties involved at each step. Also, the PDP refers to the appropriate federal and state laws and codes when a step in the process is required by one of these laws or codes.

The PDP and TOPPS documents are intended to preserve GDOT's focus on quality systems. Each consultant or contractor must comply with a very stringent process outlined in the PDP. For example, until all environmental studies consistent with the PDP and TOPPS have been completed, final design steps may not occur (i.e. no attempts

at contacting landowners may occur). These procedures are clearly outlined in the PDP, with the finer points of laws and statutes described in the TOPPS.

The combination of these documents as well as interviews with GDOT personnel reinforce the finding that GDOT has been effective throughout its existence in creating specific procedures to address common issues. The documents reflect a prescriptive pattern, whereby an employee in the GDOT system can gain a clear picture of their roles and responsibilities in situations governed by the procedural documents. Additionally, these documents reflect some level of industry input through the GQI mechanism. For example, when asked if consultants have input into GDOT processes, a GDOT employee responded, "we are heavily involved in the Georgia Quality Initiative, which has a consultant relations workgroup…[GQI] looks at training, contracting, environmental issues. [GQI] used to be a contractors workgroup…but it grew beyond GDOT and beyond construction to other agencies and utility owners."

Although the analysis of these documents provided a positive basis for a systems analysis outcome, the issue remains as to whether the procedures documented in TOPPS and the PDP address the appropriate policies and whether policies exist from which to generate a full spectrum of systems-related procedures. This issue is analyzed further in the gap analysis presented in Section 4.

Project Execution

The final level of PPP systems analysis conducted within GDOT was the project execution level. The review of the processes put in place to execute projects led to the following process flow analysis that delineates the 25 steps (as described below) required to hire and manage consultants as documented by GDOT personnel.

Steps	Description
Step 1	Consultant pre-qualification
Step 2	Office of Planning develops 6-7 year plan
Step 3	Individual office receives project
Step 4	Office decides to use consultant
Step 5	Office requests use of consultant
Step 6	Management reviews request
Step 7	Request moves to Office of Consultant Design
Step 8	Contracting office advertises opening
Step 9	Consultants submit Statement of Qualifications or proposal
Step 10	Review committee assembles
Step 11	Review committee reviews submittals
Step 12	Submittals are ranked
Step 13	Final review committee looks at rankings
Step 14	Consultant selected
Step 15	Winning consultant recommended to management
Step 16	Consultant prepares proposal
Step 17	Negotiations between GDOT and consultant
Step 18	Pre-award audit by the Office of Audits
Step 19	Consultant makes necessary changes to proposal
Step 20	Contract developed
Step 21	Contract routed
Step 22	Consultant issued notice to proceed
Step 23	Contract management
Step 24	Final audit by Office of Audits
Step 25	Consultant evaluation

This last clause is significant because the following steps do not represent documented procedure, but rather, document the perceived understanding of GDOT personnel. This dichotomy is directly related to the need for training and workforce development on consultant management. Human resource development is an acknowledge weakness within GDOT for consultant management and is compounded by brain drain with those individuals who are likely to perform consultant management functions. When combined with problems in recruiting top-level civil engineers, the basis for a mismatch between procedures and project execution becomes clear to all external parties interacting with GDOT. A brief description of each project execution step is provided:

1. Consultant Pre-Qualification

Consultants must become pre-qualified to work with GDOT. The pre-qualification committee is comprised of seven members including five Professional Engineers (PEs). The Chief Engineer recommends members of the committee. A consultant's pre-qualification package is sent to reviewers in a specific area of specialty for recommendation. The reviewers significantly influence the committee's recommendation for pre-qualification. Exceptions are typically for rules and recommendation such as the minimum number of PEs required in an office. Votes against pre-qualification typically result from insufficient experience, lack of specificity on scope of work on past projects, lack of equipment, software, or registered engineers, or an incomplete application.

2. Office of Planning Develops 6-7 Year Plan

The Office of Planning develops a six- to seven-year plan that identifies and prioritizes projects

and programs, and this plan guides funding.

3. Individual Office Receives Project

An individual office receives a project through the Office of Planning.

4. Office Decides to Use Consultant

For a given project in the 6-7 year plan, the responsible office decides to use a consultant. The office develops a problem definition and estimates the time and money needed to address it.

5. Office Requests Use of Consultant

A request is made to use an outside consultant. Authority to use a consultant must be granted by sending a letter to management (including Office Director, Division Director, Chief Engineer, and sometimes the Commissioner) stating the reason for the consultant

request. Typical reasons include insufficient manpower in-house, requirement of specialized expertise, or a task that must

be completed quickly.

6. Management Reviews Request

Management decides whether to approve use of a consultant for a particular project.

7. Request Moves to Office of Consultant Design

If management approves the request, it is moved to the Office of Consultant Design

(OCD) where the project is either taken over completely or hybrid managed with

administrative work done by OCD and day-to-day work done by the requesting office.

Most (95%) are managed entirely by OCD.

8. Contracting Office Advertises Opening

The open consultancy is advertised, either through a Request for Statements of Qualifications or Request for Proposals, detailing the project and providing all pertinent information. The advertisement is posted on the DOAS procurement website at http://procurement.state.ga.us/index.jsp.

9. Consultants Submit Statement of Qualifications or Proposal

Submittals are collected for 20 days to a month.

10. Review Committee Assembles

A committee of at least three individuals to review the submittals is assembled. More reviewers may be included that just review the specialty work. The committee is typically a cross-section

of people from different offices and different disciplines.

11. Review Committee Reviews Submittals

The committee reviews qualifications or proposals but this is not a low-bid process.

When considering potential consultants, GDOT evaluates the specific personnel the

consultants will use and looks for those individuals who have training and experience in GDOT projects.

12. Submittals are Ranked

Reviews from the review committee are pulled together to establish a ranking of submittals.

13. Final Review Committee Looks at Rankings

A final review committee looks at the rankings by the review committee to consider big picture issues such as firms being spread too thin, federal regulations being followed, and consistency of contracts between offices (not too many being awarded concurrently to the same office).

14. Consultant Selected

A consultant is selected and all submitting firms are notified of final results.

15. Winning Consultant Recommended to Management

The selected consultant is recommended to the Chief Engineer or Division Director.

16. Consultant Prepares Proposal

The winning consultant prepares a man-hour and scope of work proposal.

17. Negotiations Between GDOT and Consultant

GDOT negotiates with the consultant on scope of work, hours, price, etc.

18. Pre-Award Audit by the Office of Audits

Federal regulations require pre-award audits on contracts greater than $250,000. The Office of Audits reviews the cost proposal to see that it is reasonable and meets all applicable rules including ensuring its accounting processes are normal and its overhead rate and charges are legitimate. Procurement of architectural and engineering consultant services is governed by the Official Code of Georgia Annotated (O.C.G.A.) Title 50,

Section 22, entitled "Managerial Control over Acquisition of Professional Services." This code limits the volume of work that a consultant can do by not more than 10% of the total executed contractual amount by GDOT in a three-year period. However, in emergencies the requirements of O.C.G.A. 50-22 may be waived to allow procurement of professional services by the most expeditious means.

19. Consultant Makes Necessary Changes to Proposal

If there are problems during the pre-audit, then the budget goes back to the consultant for explanations or changes.

20. Contract Developed

GDOT puts together a contract for the project. Contracts typically have a clause that allows GDOT to terminate the contract in 30 days if the consultant is not working well. Once primes sign the contract, they frequently hire out different parts of project. Primes that hire sub-contractors for over $10,000 have to provide clauses in the contracts that says the consultant holds DOT harmless for the subcontractor.

21. Contract Routed

The contract is routed through regular mail (not internal mail) for signatures using a routing sheet known as the *blue sheet*. The contract requires signatures of the contracting engineer, Office of Legal Services, Office of Audits, Office of General Accounting who ensures funds are in place), immediate division director, Chief Engineer, Deputy Commissioner, and Commissioner.

22. Consultant Issued Notice to Proceed

The project manager issues a notice to proceed to the consultant.

23. Contract Management

The contract is managed primarily through one point of contact (typically the project manager). All work must be authorized by the project manager but other GDOT

employees interface with the consultant as necessary. Monthly invoices provide information on record for reporting. GDOT policy says that contracts cannot be supplemented by more than 20% over the life of the contract, although "this rule is broken more on smaller contracts than larger projects." The project manager's responsibilities include the following tasks:

Constantly reviewing project schedule and reporting progress;

a. Coordination, as required by the scope of work, with other GDOT offices or others;
b. Review of monthly statements and immediately recommend to OCD that payments be withheld when the consultant's work is not satisfactory;
c. If actual performance falls behind schedule, trying to get the project back on schedule;
d. On a quarterly basis, producing a list of projects that have "issues that are beyond their control"; and
e. If a project must be delayed due to "inadequate resources or other problems," submitting a revised schedule.

24. Final Audit by Office of Audits

Toward the end of the project, the Office of Audits performs a final audit. The Office of Audits has 26 auditors, 21 of whom are devoted to external audits (including both pre-awards and final audits).

25. Consultant Evaluation

GDOT is implementing a rating system in which all consultants will be rated by GDOT at least once per year. The Division of Construction has been doing this already but it will be implemented agency-wide.

SECTION 4. GAP ANALYSIS

The previous section provides an overview of the system that exists within GDOT for consultant management. In this section the consultant management system is analyzed based upon two types of analysis. In the first level, a gap analysis is presented from an organization and PPP perspective. The analysis follows the gap analysis matrix introduced in Section 2. Following the organization level analysis, a process flow analysis is presented based upon the implementation steps outlined in Section 4. When combined, the two analyses provide a beginning for GDOT to examine its future consultant management implementation as it reflects current implementation policies and procedures.

Deleted: The previous section provided an overview of the system that exists within GDOT for consultant management. Building upon this introduction, this chapter analyzes the consultant management system in particular, and the GDOT department in general, based upon two levels of gap analysis. In the first level, a gap analysis is presented from an organization and PPP perspective. The analysis follows the analysis matrix introduced in Section 2. Following the organization level analysis, a process level analysis is presented based upon the implementation steps outlined in Section 3. When combined, the two gap analyses provide a beginning for GDOT to examine its future consultant management implementation as it reflects current implementation policies and procedures.¶

Deleted: levels of gap

Deleted: [Note to Paul: I have been calling Dara's work a flow analysis. Here you refer to it as another form of gap analysis. Which language would you prefer?]

Deleted: 3

Deleted: gap

The Organization Gap Analysis

	Organization Structure	Organization Change	Communications	Staff Development	Customer Expectations
Policy Level					
Procedure Level					
Project Execution Level					

Figure 4-1

Figure 4-1 once again illustrates the analysis matrix initially introduced in Section 2. However, in this presentation, the matrix is highlighted with one of four colors in each cell as follows:

- Red – Significant gaps have been identified in the consultant management system. Immediate attention is required.
- Yellow – Some gaps have been identified in the consultant management system. Attention to the gaps should be given in the near future.
- Green – Few or no gaps have been identified in the consultant management system. No immediate attention is required to remedy a situation.
- White – Not enough data has been collected to make a sufficient conclusion.

Organization Structure

The gaps identified in this category get increasingly severe as the consultant management system proceeds down through the organization levels. The core of the gap analysis concerns for this issue center on the vertical separation that exists between GDOT divisions. At the senior executive level, the executives work closely together to maintain daily operations within GDOT. At the policy level of analysis, GDOT executives have encouraged managers to adapt to the changing environment and be more accepting of consultants. For example, one senior manager reported that when he assumed his job GDOT engineers would use QA/QC to limit the role of consultants to little more than drafters. These types of practices have changed dramatically moving GDOT from being highly reluctant to engage consultants, to one that routinely uses consultants today.

However, senior executives are uncertain what the future of consultant management holds for GDOT. The prevailing view among senior managers is that the current situation confronting GDOT is temporary. The increases in workload are likely to abate as current projects get built out over the next few years. However, a significant minority of senior managers believe that GDOT will eventually look like the Federal Highway Administration (FHWA). As one manager described the future "We'll do all oversight and no building." The uncertainties over the use of consultants at the policy level leads to a rating of in the gap analysis of yellow.

Greater emphasis has been placed upon developing policies concerning the management of consultants. GDOT has a well developed and articulated process for acquiring consultants as described in the PDP. It has also established an Office of Consultant Design that is both active and effective. The Consultant Relations Committee of the Georgia Quality Initiative has served as a sounding board to identify procedures

requiring modification and improvement. Great progress has been made in making existing procedures smoother. GDOT has also initiated a process of training GDOT managers in the skills needed for overseeing the work of consultants. However, these efforts are new and the frequency and content of training sessions is uncertainty. From a procedural perspective much of the architecture is in place to help GDOT managers develop consultant management skill with some attention needed in further developing the training program. Consequently, this area receives a rating of yellow.

Managers working for offices that routinely work with consultants point out that the implementation of procedures can be challenging given the influx of work and the need for many consultants. Managers who are new to the use of consultants express concern that the implementation of existing procedures can be cumbersome and not well tailored to the needs of their offices. They report a pattern of having to adapt procedures from the bottom up.

At the project execution level, managers report that the organization is absorbing inefficiencies due to uneven training, decision-making authority and knowledge of management. Although a single method has been outlined for requesting consultants, the management of these consultants once they are contracted varies between division and offices. Immediate attention is required to provide project management, consultant management, and organization management skills to project-level employees. The lack of this attention will result in uneven consultant management practices and eventual drops in quality of the finished product. This area receives a score of red in the gap analysis.

Organization Change

The interviews and documentary evidence offered a mixed view of GDOTs ability to change and adapt to its new operating environment. It is well-known that change arrives slowly in the engineering and construction industry. Change arrives even slower for owners that are investing in these services. Managers believe that GDOT is changing and adapting to the operating environment while upholding and maintaining its commitments to a quality transportation system. However, external stakeholders, both public and private, differ in this interpretation. Charges of stagnation and failure to recognize the future are being leveled at GDOT with little sign of response.

In terms of consultant management, although recognition of greater project management skills has been made in GDOT, little change is being made in personnel decisions or in workforce development. Similarly, the implementation of procedures has proven difficult and led to uneven results. This is an area that requires further research and receives a grade of white.

Communications

The message within GDOT is consistent regarding consultant management procedures and practices. Key individuals appear to understand the process for contracting with consultants and guiding the relationship through project execution. However, the lack of long-term policies for theses relationships at the senior executive level is creating questions concerning the direction under which these relationships will continue. For example, managers point out that the only justification needed for hiring a consultant is the lack of personnel. When this is widely understood much of the responsibility from the project managers to adequately plan for the consultant management process is removed. Finally, the lack of strong communications regarding the evaluation of consultants is sending a message through the absence of a message. It is clear within and without the organization that review of consultant performance has

been an afterthought within the organization and continues to lag far behind prequalification and audits as concerns for GDOT.

The mixed communications being sent on this topic are the foundation for the score of white on the procedural level. Specifically, understanding of how the process currently works is not sufficient to override the fact that few policies actually exist to guide the process. Therefore, procedures are emerging without sufficient documentation to support their development. Further analysis is required to determine the extent to which the procedures work and whether they should be considered adequate to guide the consultant management process.

Staff Development

This column has been left with mainly white cells to emphasize the fact that the research team received mixed messages regarding this topic in the context of consultant management. Although there is little question that human resources is attempting to address this issue with a combination of in-house training and the use of external training courses, the extent and scope of this training is unclear. At a policy level managers report some uncertainty on the best course of action to pursue in conducting training. In particular there are on-going discussion as to how much training should be conducted in-house. Thus, staff development at the policy level receives a rating of yellow.

The other levels require further research and receive a rating of white. It is unclear whether individuals undergoing this training are receiving instruction that is limited to procedures, or if the training contains greater breadth to include management and personnel issues related to consultant management. Additionally, it is unclear how outside information obtained from private training courses is disseminated within GDOT. Finally, it is unclear if workforce changes are being addressed in terms of the consultant management issue. Specifically, with less resources and fewer individuals opting for a

career within GDOT, are there any changes in the selection of personnel during the hiring process? Similarly, with individuals getting promoted at a rapid pace, are these individuals receiving the full complement of development courses required to successfully manage consultants in public projects.

Customer Expectations

GDOT managers express concern that their organization is viewed by customers as an agency that holds up the individuals who built the Interstate Highway System as its heroes and refuses to move past that era. Is that a fair statement? The answer is not important. Rather, the impression exists and that is what is important. Respondents note the development of Georgia Regional Transportation Authority (GRTA) and the Tollway Authority may not have happened if GDOT customers believed that high-level planning was occurring within GDOT. Furthermore, there are no signs to indicate that additional threats such as the formation of external authorities or the establishment of new regulations will fail to materialize in the near future. Rather, GDOT is viewed by many in the public and private sector as needing to respond to change or risk further erosion of its authority. Furthermore, with a perspective that GDOT cannot respond quick enough during project execution, the pressure to adapt to changing needs is progressing at all levels. From this perspective, customer expectations are not being managed and a critical problem exists within the department. The failure to manage these expectations will lead to a broader perspective being adopted that consultants and politicians are controlling project selection, development, and execution within GDOT. GDOT personnel at all levels must address this issue as a core element of setting its future identity, ensuring its value, and renewing its perception of value to the people of Georgia.

Process Flow Analysis

The process flow analysis examines how GDOT managers perceive steps in the process of consultant management. Gaps are identified and comments are provided for each step. A summary of this analysis is provided in Figure 4-2 (on the following page).

Consultant Pre-Qualification (Step 1)

Although some concerns were raised on this issue, neither internal nor external interviewees believed that significant changes were required in the pre-qualification requirements. One manager mentioned that pre-qualification "has very little to do with financial details—just the consultant's abilities." The pre-qualification is for two years. At the end of the two years, consultants must reapply. One interviewee mentioned that this process is "a little fuzzy."

The Process Flow Analysis

Steps	Description	Degree to which this is an issue
Step 1	Consultant pre-qualification	Consultant pre-qualification is cited as a minor factor delaying the contracting process.
Step 2	Office of Planning develops 6-7 year plan	
Step 3	Individual office receives project	
Step 4	Office decides to use consultant	
Step 5	Office requests use of consultant	Many times the request for use of a consultant tends to be made at the last minute.
Step 6	Management reviews request	
Step 7	Request moves to Office of Consultant Design	
Step 8	Contracting office advertises opening	
Step 9	Consultants submit Statement of Qualifications or proposal	
Step 10	Review committee assembles	
Step 11	Review committee reviews submittals	
Step 12	Submittals are ranked	
Step 13	Final review committee looks at rankings	
Step 14	Consultant selected	
Step 15	Winning consultant recommended to management	
Step 16	Consultant prepares proposal	Consultants sometimes oversell themselves.
Step 17	Negotiations between GDOT and consultant	Negotiations are cited as sometimes causing delays.
Step 18	Pre-award audit by the Office of Audits	The pre-award audit is cited as being the biggest delaying factor.
Step 19	Consultant makes necessary changes to proposal	
Step 20	Contract developed	Problems with the scope of work is cited as causing cost overruns and project failure.
Step 21	Contract routed	Getting signatures on the contract is cited as a major delay in the contracting process.
Step 22	Consultant issued notice to proceed	
Step 23	Contract management	Consultant management is seen as a problem and a challenge due to a lack of required skills and training in project management as well as a lack of accountability.
Step 24	Final audit by Office of Audits	
Step 25	Consultant evaluation	The lack of a uniform and formal evaluation process for consultants is cited as a problem

Figure 4-2

- Red – Significant gaps have been identified in the consultant management system. Immediate attention is required.
- Yellow – Some gaps have been identified in the consultant management system. Attention to the gaps should be given in the near future.
- Green – Few or no gaps have been identified in the consultant management system. No immediate attention is required to remedy a situation.
- White – Not enough data has been collected to make a sufficient conclusion.

Individual Office Receives Project (Step 3)

Concerns over scope of work are beginning to emerge as potential factors in the GDOT process. Although some disagreement exists over the scale of this issue, repeated concerns over this issue make it one that requires attention by GDOT personnel in the near future.

Office Decides to Use Consultant, Office Requests Use of Consultant, Management Reviews Request (Steps 4-6)

Comments on Scope of Work Issues
- Scopes of work are becoming less detailed and causing cost overruns.
- Rarely have projects come in on time or on budget. Failure to specify scope of work causing projects to fail.

The positive aspect of this process component is that the determination of need is decentralized, as each office decides when it needs consultants. And it appears that management (Division directors and above) rarely turn down an office's request for consultants. These two qualities of consultant procurement (decentralization of decisions along with management support of them) follows the government reinvention mantra of "empowerment".

Request Moves to Office of Consultant Design (Step 7)

The issues associated with this step in the process have less to do with the process itself and more to do with external perception of the capabilities represented in the OCD. Specifically, the comment is repeatedly heard that consultant design will be one of the most important functions within GDOT in the coming decade. However, GDOT is failing to respond to this move with adequate staffing and workforce development actions. Concerns are being voiced that there are not enough personnel in this office and not enough personnel with adequate backgrounds or understanding of consultant organization requirements. Although this may not be a red flag at the current time, this issue will definitely escalate to a red flag condition in the near future if GDOT does not

commit significant attention to the role, future, and purpose of the OCD.

Proposal Development and Selection (Steps 8 – 14)

The proposal development and selection process is considered fair within the consultant community most of the time. Although some isolated cases of criticism exist, the procedures implemented by GDOT appear to be well understood and followed by internal and external personnel. However, a concern has been raised that decreasing GDOT power and influence as evidenced by the initiation of new state authorities will result in greater political influence over the department. In these cases, the potential exists for consultants to attempt to use a political angle to gain greater advantages in proposal submission and selection.

An additional item related to the political angle must be addressed at this point. There exists in the private sector a strong belief that GDOT has exceeded an appropriate level of power within Georgia and does not hesitate to use that power against public or private individuals and organizations. As such, many individuals and organizations will look for opportunities to weaken the GDOT power either to gain advantage in the proposal selection process, or to just attempt to change the balance of power.

Consultant Prepares Proposal (Step 16)

According to one manager, consultants have an easy time preparing proposals as "tasks are now standardized along with the terminology." However, another manager said that "consultants oversell themselves and blow smoke occasionally" including promising their best people who may not be available to work on the project.

Pre-Award Audit by the Office of Audits (Step 18)

The audit review can take three to six weeks. The Office of Audits keeps files on consultants with acceptable rates to speed future assessments, although several managers mentioned that the consultants frequently charge a variety of overhead rates for different

projects. Satterfield says that his office is buried in a backlog of pre-award audits, and he recognizes that this is a bottleneck in the process of hiring consultants. The Office of Audits faces staff recruitment and retention difficulties, as exemplified by two recently hired auditors who respectively stayed with the department six months and one year, leaving for more lucrative positions with other state agencies and the private sector.

People in each of the three branches of the Department agree and external consultants agree that the pre-award audit is the bottleneck in the process of procuring consultants. 44 percent of interviewees cite auditing as the biggest delay in the contracting process. Even so, the total time required to procure a contractor averages 2 to 6 months in GDOT, while the national average is between 4.5 months for CEI consultants[10] to 6 months for preconstruction consultants,[11] and an average of 7 months for all professional engineering consultants.[12] Thus, GDOT has been at least as fast as the national average in procuring contractors, even with the increased use of them.

Comments on Auditing Issues

- Auditing is driving us nuts. One geo-tech firm has been audited 6 times in a 6-month period.
- Staffing of audits has been a perpetual problem along with recruitment and retention. Big turnover in audits due to low salaries. Office of Audits is buried under a backlog of pre-award audits (inherited problem).
- Auditors are overworked, lots of turnover due to high volume and insufficient staff.

The procurement bottleneck at pre-award auditing is not unique to GDOT. DOTs across the nation say the same thing.[13] However, the national average blames the bottleneck on procedures in pre-award auditing, especially negotiations.[14] GDOT's Office of Audits, however, blames their bottleneck on an over-extension of their staff into

[10] Newman 1989.
[11] Witheford 1999.
[12] Sternbach 1988.
[13] Witheford 1999, Sternbach 1988.

activities outside of auditing (e.g., contract enforcement). That is, the national bottleneck is blamed on procedure, while GDOT's is blamed on a human resource mismatch. If GDOT is currently able to process consultants as "fast" as the national average, even with this human resource mismatch, then there appears to much be room for improvement once this mismatch is addressed.

Consultant Makes Necessary Changes to the Proposal, Contract Developed, Contract Routed (Steps 19-21)

The contract development process is one that receives mixed levels of concern from GDOT personnel. Although each believes that the process can be improved, the sources of frustration differ from individual to individual. At the core of these frustrations is the perceived extended length of time to complete these steps. Although as stated previously Georgia is actually faster than many states in producing contracts, this does not alleviate the frustration from GDOT personnel. In particular, obtaining signatures on project routing sheets is repeatedly referenced as an unacceptable delay. Contracts are often delayed due to a single signature because there are no alternatives in the system.

Additionally, several interviewees mentioned problems with confusion about contract types such as task order and lump sum. One manager mentioned that some employees wouldn't "listen to anyone about how to write a consultant contract." The manager said that "when the money comes in as a lump sum, people get excited, underestimate risk, and adds bells and whistles." Another interviewee stated that "there is never a perfect contract" and yet another stated that "our people need to realize that no matter how idealistic or sincere a person is, consultants are driven by profit motive" and that "there's not much of an us versus them mentality, whereas there should be." Instead

[14] Witheford 1999, Sternbach 1988.

this manager hears "we've dealt with this consultant for so long, they know what we want."

The significance of these steps as issues within the system process is that the individuals who are affected by the delays believe the problems are solvable and should be solved efficiently. This is highlighted by the signature delay issue. According to one manager, "it's very rare that all the necessary people are in the office for the necessary signatures." This is perceived as a simple task that should be streamlined for efficiency. Since this is a simple task, it can override efficiencies throughout the system since this is what individuals will remember as their GDOT process experience. Therefore, contract routing receives a red flag, not for its actual problems, but for the magnitude of the fallout that results in a simple issue causing problems within the system.

Contract Management (Step 23)

Contract management is a skill that is not usually obtained by engineers in the course of their standard education. With a focus on management of personnel and projects, contract management challenges many individuals who have progressed in their careers due to technical achievements. When combined with inexperience in GDOT projects, this step can be volatile at best and the Achilles heel of GDOT at worst. And, it appears that this is recognized both internally and externally. Internally, the need for greater training is consistently voiced as an issue for contract management. Externally, the issue is addressed more bluntly, with individuals stating that GDOT has not realized that this is the future of GDOT and the department needs to focus its resources on enhancing contract and consultant management.

One GDOT manager said that project managers need to "be able to respond to consultants' needs and requests as without that frustration grows on both sides and they can't deliver the product they think you need or want." Another employee said the relationship between the project manager and the consultant is one of "mommy and daddy" while another mentioned that project managers must "learn how to say no" to consultants as managing "the people side is much more concerning than the technical side." Using project managers as signatories on contracts was also mentioned as a significant problem as "their interests focus on delivery of services, not administration of the contract." One manager said that "some young, good engineers left the department because they didn't want to manage other, but instead wanted to do the work." Another manager said that GDOT employees simply receive contract management expertise "as they work through the ranks" while another says "I question the wisdom of home-grown training." Another manager stated that "GDOT will have to accept that it will have to hire, train, and maintain project managers to build institutional knowledge" as "GDOT employees have had to develop skill sets that were non-existent in the 1970s and 1980s." According to another employee, "GDOT perceives that the engineer can do anything."

Comments on Consultant Evaluation

- We don't have a concise way of evaluating them to see if they should be used in the future.
- Need uniformity in evaluation.
- No formal consultant evaluation.
- No formal evaluation process for consultants.
- Consultants not being held accountable for their errors in quality.

Building the sufficient contract management capacity within GDOT requires a combination of the right number of people with the right skills for the job. During the GDOT interviews, most of the necessary skills were mentioned, including: accounting, contracting, project management, negotiation, communication (oral and written), leadership and organizational skills. Having qualified employees with specific skills

related to contract management is crucial to the success of any contract. Contracting agencies must have the necessary expertise to successfully complete the entire contracting process from defining the statement of work, to soliciting the requirement, evaluating proposals, and auditing, administering, monitoring, modifying, terminating, and closing out contracts.

The GDOT interviewees identified the necessary course of action as the following:

PRRT.

Plan for human resource needs;

- Recruit qualified employees with contract management skills;
- Retain qualified employees with the right skill sets; and
- Train whoever remains.

Final Audit by Office of Audits (Step 24)

See comments in Step 17.

Consultant Evaluation (Step 25)

The general consensus among GDOT employees concerning evaluating consultant performance is exemplified through one interviewee's comments: "Success is a project that is completed on time and budget and produces a product that facilitates the continuation of the project in a smooth manner." Another mentioned that "performance provisions are weak." There is no formal procedure for sharing successful or failed consultancies other than "word of mouth." One manager said, "we rate our contractors; we rate our employees; why shouldn't we rate consultants?"

The evaluation of personnel within an organization is standard practice for human resources. Employees regularly are reviewed for performance raises, promotions, and administrative quality control. The justification for these reviews is straightforward; reward is given to those who excel and quality must be retained through overall consistency of performance. Unfortunately, this same level of review is sometimes neglected for outside contractors and consultants. This is the case at GDOT. With minimal or any evaluation and review process for consultants, the opportunity to prevent poor consultant work from reoccurring is minimized as well as the opportunity to rebuke a consultant who is not performing up to preferred GDOT standards.

Although an effort is underway to introduce a review questionnaire for consultants, this effort will not achieve the results desired by GDOT. The reason for this failure is that the review form is subjective and relies on the opinion of GDOT project managers. This process of review will lead to inconsistencies in the reviews based on experience levels of project mangers, different interpretations of the 1-10 scale, and different experiences with different personnel within the consulting organization. Additionally, any negative results obtained through this review process will be

challenged since it is subjective and based on the opinions of possible under trained project managers.

To address the fundamental issue of greater consultant performance, increased quality performance, and reductions in consultant errors, a comprehensive review process must be adopted that objectively reviews the product, the organization, and the future potential of the consultant to continue working with GDOT.

SECTION 5. CONCLUSIONS

The development of conclusion for this report followed twp paths: conclusions from the current investigation and conclusions to guide the next stage of analysis. The following sections reflect these two paths as a presentation framework.

Current Investigation

The analysis of GDOT consultant management practices allowed and required the research team to study several levels of GDOT management as well as study external research efforts. This cross-section of sources provided multiple perspectives on issues throughout the GDOT consultant management process as well as the operations of the GDOT organization. The research team sorted these responses according to the organization gap analysis matrix and the process flow analysis presented in Sections 3 and 4. The result of this analysis process is the generation of the following overall conclusions that summarize the needed GDOT priority issues:

- Consultant management policy and plans must begin at the top – It is clear from internal and external interviewees that clear consultant management planning is limited within GDOT. Although part of this may be based on the manpower shortage or the view that this is a temporary situation that must be overcome, these reasons do not override the need for organization planning. It is clear that senior management recognizes the short-term impact of consultant management. Initiatives such as the Office of Consultant Design, the Consultant Relations Committee, and extended efforts as part of the Georgia Quality Initiative are all examples of recognizing the growth of consultants within GDOT. However, the focus on short-term impact results in two negative outcomes: 1) short-term planning reduces the need to develop

long-term policies, and 2) short-term perspectives reduce the need to study long-term alternatives such as reengineering to facilitate effective and efficient processes.

- GDOT workforce must be prepared for consultant management – It is clear that the GDOT operating environment is permanently changing. The Interstate Highway focus of the last generation will not return. Additionally, the workforce levels of that generation are doubtful to return locally or nationally. These facts are changing the role and face of GDOT. At the core of this change is the greater management role that GDOT employees will be undertaking with consultants. To successfully perform these roles, GDOT employees must receive greater management training as well as modify their perspective on the importance of management skills. Consultant management is not a secondary activity to engineering. GDOT employees must understand this and undertake workforce development activities to successfully adapt.
- Organization consistency must be developed – The current organization structure within GDOT emphasizes decentralization to the offices. Although this approach provides individual office heads with independence to set procedures, the split between GDOT divisions prevents consistency in the consultant management process. Specifically, the lack of integration between the construction approach to construction engineering inspectors, the preconstruction approach to design consultants, and the minimal involvement by the legal and budget offices is a clear indication that consistency is not a current priority within the process. Senior GDOT management must immediately focus on this inconsistency and convene a senior group of employees to merge procedures into a single process.
- Consultant management must be reengineered to streamline – The process flow analysis presented in Section 4 documented the numerous frustrations by internal and external personnel regarding the inefficiencies in simple tasks within the consultant

management process. Issues such as getting signatures, completing audits, and holding consultants accountable through a performance review process are repeatedly mentioned as procedures that must be fixed. Although some elements of the consultant management process are dictated by state and federal law, areas such as the preceding ones exist where streamlining can occur and have an immediate impact. Therefore, areas that do not require significant policy statements should be examined for immediate impact and opportunities to enhance the relationship with outside consultants.

- A greater focus on future identity – The operating environment for GDOT is permanently changing. Understandably, this change will affect the identity of GDOT and its personnel. However, GDOT has a choice as to whether it will proactively influence the change in this identity or react to the identity given to it by outside entities. Currently, GDOT is adopting the latter approach. This approach needs to be altered. Specifically, GDOT managers must take a proactive approach to defining what GDOT will look like in five or ten years including its role, personnel profile, tasks, and relationships to the professional, political and public communities. The lack of this approach will continue to affect workforce development as GDOT will fail to adopt the proactive stance required to attract individuals who have management as well as technical skills.
- A greater focus on consultant management scale – It appears inevitable that GDOT will move to a greater focus on consultant management as a core responsibility. This focus will extend consultant management beyond the responsibility of a few offices to a responsibility that becomes a part of most if not all operating units. This expansion will result in a scaling up of consultant management practices. Unfortunately, this increase in scale will not be accompanied by a simple expansion of current consultant

management practices. Rather, increases in scale require broader policies and adapted procedures. GDOT personnel need to understand this concept of scale and adopt a proactive response to reengineering the consultant management process in terms of scale.

Next Phase Issues

The second component of the consultant management conclusions focus on the next phase of the research effort. In phase one, the research team focused on two primary issues; obtaining a working knowledge of the GDOT consultant management process and conducting a thorough review of the literature on consultant management. The completion of that phase resulted in the literature review and system review documents. The completion of phase one also signals the beginning of the critical phase two effort, an analysis of consultant management execution through case studies and a reexamination of the GDOT consultant management perspectives. In this effort the research team will anchor the observations and perspectives presented by the interviewees in the context of actual projects. Through this analysis, the research team will have the opportunity to determine what processes are being followed according to GDOT stated policy, what procedures are being developed ad-hoc, and how GDOT personnel are performing during project execution.

To support the next phase of research, the following conclusions are presented as critical needs for the successful completion of the consultant management effort.

- Identify and Access GDOT cases – The success of the consultant management effort depends heavily on the selection and analysis of current GDOT projects. Currently, the identification of these projects has been slow in developing. The research team requires close cooperation with GDOT personnel to identify and access appropriate cases as well as access project documentation.

- Access to GDOT documents – Similar to project access, document access is essential to determine changing consultant management practices within GDOT. Once again, assistance in this process has been slow in developing and has been a barrier to effectively carrying out the consultant management research. Assistance in changing the access procedures will be required in the next phase of the project.
- Study of Training Procedures – The link between successful consultant management and training is a necessity within GDOT. The lack of individuals with management skills and experience in consultant management requires an intensive workforce development effort. To successfully gauge how this effort is proceeding, the research team will need to review the current implementation and future plans for GDOT consultant management training.
- Greater Breadth of Interviews – The current cross-section of interviews provided excellent insights into GDOT consultant management practices. However, during the course of these interviews it was determined that additional perspectives and knowledge is required to gain a comprehensive picture of GDOT consultant management. Specifically, additional office heads in preconstruction and in human resources need to be interviewed as well as personnel in the district offices.
- External Expert and Consultant Interviews – Complementing the additional breadth of interviews, the research team will focus on interviewing external experts and consultants who are actively involved in the consultant management process. This external perspective will provide further balance to the perspectives provided by GDOT personnel.
- Best Practice Development – Although consultant management is a national issue with few DOTs developing leading practices for the topic, best practices do exist throughout the country. Subsequently, the research team will emphasize during phase

two the compilation of these practices as input to GDOT personnel during the final document submittal.

- Survey Implementation – With a workforce of over 6,000, it is impossible to interview all of the individuals or even a significant percentage of the workforce. Therefore, a survey method is required to assist the research team in obtaining perspectives from these individuals. As such, a significant component of phase two will be the fielding of surveys to gauge the consultant management perspectives from a broad cross-section of GDOT personnel. Complementing this internal survey will be a consultant survey that is deployed to prequalified GDOT consultants on their perspectives of the consultant management process. Results from these surveys will be compiled and integrated into the final project report.

In conclusion, the state of consultant management within the GDOT organization has been determined to be a case of mixed implementation levels with varied internal and external perspectives. It is clear that a lack of planning and comprehensive policies has allowed these variations to exist and expand as the consultant management issue continues to expand due to external forces. Additional phase two research is required to further identify the impact of this situation on GDOT projects and the extent to which these perspectives pervade the general GDOT organization. Finally, the ability of the GDOT *organization to change, adopt and adapt existing best practices, and reengineer the organization to reflect a changing identity* will serve as focal points for the research team during phase two.

APPENDIX A: INDIVIDUALS INTERVIEWED

Georgia Department of Transportation

Ben Buchan, Office of Consultant Design
Susan Carter, Division of Administration
Frank Danchetz, Chief Engineer
Jim Davis, Office of Personnel
Georgene Geary, Office of Materials and Research
David Graham, Office of Construction
Buddy Gratton, Office of Maintenance
Dan Guimond, Office of Legal Services
Earl Mahfuz, Treasurer
Paul Mullins, Division of Transportation Planning, Data, & Intermodal Development
Harold Linnenkohl, Deputy Commissioner
Marta Rosen, Office of Planning
Jerry Satterfield, Office of Audits
Joe Stapleton, Office of Application Support
Joseph Street, Division of Construction
Tom Turner, Division Preconstruction
Marion Waters, Office of Traffic Operations

Others

Donn Hancher, University of Kentucky
Thomas Leslie, Georgia Engineering Center
Theodore H. Poister, Georgia State University

REFERENCES

AASHTO (1998). *The Changing State DOT*. American Association of State Highway and Transportation Officials, Washington DC.

Hancher, D.E. and R.R. Werkmeister (2001). *Managing Change in State Departments of Transportation. Scan 2 of 8: Innovations in Private Involvement in Project Delivery*. National Cooperative Highway Research Program, Transportation Research Board, Washington DC.

Newman, R. B. (1989). *Use of Consultants for Construction Engineering and Inspection*. Transportation Research Board, Washington DC.

Osborne, D. and T. Gaebler (1992). *Reinventing Government: How the Entrepreneurial Sprit Is Transforming the Public Sector*. Addison-Wesley, Reading MA.

Sternbach, J. (1990). *Contract Management Systems*. Transportation Research Board, Washington DC.

Witheford, D. K. (1997). *Outsourcing of State Highway Facilities and Services*. National Academy Press, Washington DC.

Witheford, D. K. (1999). *Consultants for DOT Preconstruction Engineering Work*. National Academy Press, Washington DC.