

# Report Highlights

**Department of  
Transportation and  
Development -  
Road Design  
February 2005**

**Louisiana Legislative Auditor**

The Department of Transportation and Development (DOTD) is responsible for designing, constructing, operating, and maintaining over 16,000 miles of state highways throughout Louisiana. The department fulfills this responsibility through the 5,231 authorized positions located at its centralized headquarters unit, the Crescent City Connection Division in New Orleans, and its nine geographic district offices located across the state. DOTD's Road Design Section is charged with the design and development of roadway construction plans. The section interacts with other divisions and sections of the department to prepare road design plans and to supervise and direct the preparation of plans prepared by the nine districts and consultant engineering firms.



## Audit Results

**DOTD is not managing the design and development of roadway construction plans in the most efficient and effective manner because it does not have the information it needs or the necessary processes in place to use its data to manage this function.**

- ◆ **Reliable Data on Road Design Workload Are Needed to Determine Efficiency and Effectiveness of Design Process.** DOTD's information systems do not contain specific data to distinguish road design projects from other types of projects. Also, DOTD staff do not always enter all project information into its databases.
- ◆ **DOTD Needs Accurate and Available Time Sheet Data to Track Efficiency of In-house Road Design Staff.** DOTD's time sheet data for the Road Design Section are unreliable and are not readily available for analysis. Also, DOTD does not budget the work hours for its in-house road design staff.
- ◆ **Readily Accessible Consultant Data Are Needed to Help DOTD Make Better Management Decisions.** DOTD's consultant contract data are not easily accessible and cannot be used to perform analyses for decision-making purposes.
- ◆ **DOTD Needs Accurate Data to Effectively Allocate Workload Among In-house Road Design Staff and Consultants.** DOTD considers factors other than cost, primarily a lack of road design staff, when deciding whether to use in-house staff or consultants for road design projects. Also, DOTD cannot calculate the overhead rate for its Road Design Section to compare to consultants because of DOTD's unreliable time sheet data.
- ◆ **Accurate Identification of Design Errors Would Allow DOTD to Hold Designers Accountable.** DOTD does not always accurately identify design errors because it does not have a review process in place to verify that data entered into its databases are accurate.
- ◆ **DOTD Needs Relevant Performance Indicators to Evaluate Its Road Design Function.** The Road Design Section's strategic plan is several years old, and DOTD does not currently use the plan to measure its performance.
- ◆ **Implementation of Current Initiatives Would Help DOTD Improve Availability and Reliability of Data and Develop Formal Business Processes.** DOTD has contracted with private consultants to implement a data warehouse and a new project delivery process.

Steve J. Theriot,  
CPA

Legislative  
Auditor

**Is DOTD Efficiently and Effectively Managing the Design and Development of Roadway Construction Plans?**

**Reliable Data on Road Design Workload Are Needed to Determine Efficiency and Effectiveness of Design Process**

→ DOTD’s information systems do not contain specific data to distinguish road design projects from any other type of project. As a result, we could not easily obtain a complete listing of all road design projects for the last five fiscal years. The lack of an exclusive list of projects in the road design phase hinders DOTD’s ability to assess whether its workload is appropriately allocated among staff.

→ DOTD’s staff do not enter some road design projects into its information systems until the design has been completed. Obtaining a complete list of projects from the systems at any given time would omit these active projects.



Also, DOTD’s staff often did not enter other information, such as the designer or the design’s expected date of completion, because they do not use this information to determine the efficiency and effectiveness of their work. Therefore, DOTD cannot effectively monitor its overall progress, determine where improvements are needed, or provide information for decision-making.

**Recommendations**

- ✓ DOTD should ensure its information systems allow management to readily identify all road design projects.
- ✓ DOTD should develop and implement policies and procedures and provide training to instruct its staff on how to enter and review data in its various information systems to ensure the data are complete and accurate.
- ✓ DOTD should use the data in its information systems as a tool to more effectively and efficiently manage the Road Design Section, specifically when allocating workload and ensuring deadlines are met.

**DOTD Needs Accurate and Available Time Sheet Data to Track Efficiency of In-house Design Staff**

→ DOTD’s staff did not always enter the necessary data into DOTD’s information systems to link the various project numbers associated with a single project. Also, DOTD’s project databases do not interface with its payroll database. Therefore, DOTD cannot easily obtain the amount of time worked by its in-house staff on each road design project.

→ The road design staff do not accurately account for their time on their time sheets. Accurate time sheet data would allow DOTD to track the efficiency of its labor investment.

→ DOTD has no standards with which to compare the amount of time its in-house staff spend working on road design projects because it does not budget the work hours for its staff.



**Recommendations**

- ✓ DOTD should develop and implement policies and procedures and provide training to instruct its staff on how to enter and review project numbers in its various information systems to ensure that all the numbers associated with a single project are linked.
- ✓ DOTD should ensure that its payroll information and project information are linked so that DOTD can calculate the total labor cost and time spent working on a project.
- ✓ DOTD should develop and implement policies and procedures and provide training to instruct its staff on how to prepare and review time sheets.
- ✓ DOTD should routinely use road design staff time sheet data as a tool to manage the time spent by in-house staff more efficiently and effectively.
- ✓ DOTD should prepare a budget for the work hours associated with the design, review, and approval of each road design project.

## Readily Accessible Consultant Data Are Needed to Help DOTD Make Better Management Decisions

→ DOTD's consultant contract data were not easily accessible. Basic information is maintained in DOTD's contracts database, while other relevant information could only be obtained from scanned documents or from DOTD's hard-copy files. As a result, we could not calculate the total cost of all engineering consultant contracts initiated over the last five fiscal years.



→ DOTD has begun implementing a new database to track consultant invoices electronically, including payments by project. However, the database does not include the number of hours spent by consultants working on a project.

### Recommendations

- ✓ DOTD should enter all relevant information for consultant contracts into its contracts databases and ensure that the data are complete and accurate.
- ✓ DOTD should analyze consultant cost data to determine the total cost and time spent by consultants and to make better estimates of budgeted work hours.

## DOTD Needs Accurate Data to Effectively Allocate Workload Among In-house Staff and Consultants

→ DOTD considers factors other than cost, such as job complexity, project length, and the necessity of specialized expertise when deciding whether to use its road design staff or consultants. Without an accurate view of staff workload or a formal comparison of the cost of work completed by consultants with the cost of similar work completed in-house, DOTD cannot effectively allocate its in-house resources or manage the use of consultants to ensure that funds are used to provide the maximum benefit for the least cost.

→ DOTD cannot calculate its overhead rate for the Road Design Section because the information needed to perform the calculation from time sheets is not reliable. As a result, DOTD cannot use overhead rates to compare consultant costs to in-house design costs.

### Recommendation

- ✓ Once DOTD corrects the deficiencies with its time sheet data, it should calculate the overhead rate for its Road Design Section and compare this rate to that of consultants when allocating workload among in-house staff and consultants.

## Accurate Identification of Design Errors Would Allow DOTD to Hold Designers Accountable

→ DOTD's staff did not always accurately identify the reasons why design plans must be changed once construction has begun. We found that 22 of the 28 plan changes coded as design errors since July 2003 were not actually design errors and should not have been coded as such. Of the remaining six plan changes, only one was the result of an error by the Road Design Section. We also found 10 other plan changes that



should have been coded as design errors but were not. Three of these plan changes were the result of an error by the Road Design Section.

→ DOTD does not have a review process in place to verify that plan change data are entered correctly. Design errors can cause costly overruns of construction costs and could indicate deficiencies in the design process. Therefore, it is essential that all design errors are properly identified and appropriate staff are notified to allow DOTD to recover any added construction costs from consultants or to improve in its own design work efforts.

### Recommendation

- ✓ DOTD should develop and implement policies and procedures and provide training to instruct its staff on how to enter and review design error information into its information systems to ensure that the data are complete and accurate.

## DOTD Needs Performance Indicators to Evaluate Its Road Design Function

→ Several years ago, the Road Design Section created a strategic plan containing relevant performance measurement information, but DOTD does not use the plan to measure its performance. Also, DOTD’s current strategic goals and objectives do not reflect all relevant road design functions.

→ In addition, DOTD does not report the performance of its Road Design Section in LaPAS. As a result, legislators cannot make effective funding decisions based on the section’s performance.



### Recommendations

- ✓ DOTD should develop and measure performance indicators specifically relating to key road design functions.
- ✓ DOTD should work with the Office of Planning and Budget to determine whether performance indicators relating to the Road Design Section should be entered into LaPAS.

### Implementation of DOTD’s Current Initiatives Would Help DOTD Improve Availability and Reliability of Data and Develop Formal Business Processes

→ DOTD has identified the types of information it needs to conduct its business and has hired a private consultant to implement a data warehouse to centralize this information and use it for decision-making. Once fully implemented, the data warehouse should help

DOTD’s management identify incomplete information and make data more readily accessible.

→ DOTD has also hired a management consultant to implement a new project delivery process. The consultant has identified several areas needing improvement, including managing information systems, tracking performance, and allocating resources.

### Recommendations

- ✓ DOTD should use the results of its data warehouse project to improve the reliability and availability of its data.
- ✓ DOTD should use the results of its process and improvements and communications study to develop and implement formal processes to use its road design data as a tool to make management decisions.



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### Questions? Call

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LEGISLATIVE AUDITOR  
STATE OF LOUISIANA



DEPARTMENT OF TRANSPORTATION  
AND DEVELOPMENT  
ROAD DESIGN

PERFORMANCE AUDIT  
ISSUED FEBRUARY 23, 2005

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February 23, 2005

The Honorable Donald E. Hines,  
President of the Senate  
The Honorable Joe R. Salter,  
Speaker of the House of Representatives

Dear Senator Hines and Representative Salter:

This report provides the results of our performance audit of the Department of Transportation and Development's management of its road design function. The audit was conducted under the provisions of Title 24 of the Louisiana Revised Statutes of 1950, as amended.

The report contains our findings, conclusions, and recommendations. Appendix C contains the agency's response. I hope this report will benefit you in your legislative decision-making process.

Sincerely,

A handwritten signature in black ink, appearing to read "Steve J. Theriot".

Steve J. Theriot, CPA  
Legislative Auditor

SJT/ss

[DOTDRD05]

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## EXECUTIVE SUMMARY

The Department of Transportation and Development (DOTD) is not managing the design and development of roadway construction plans in the most efficient or effective manner because it does not have the information it needs or the necessary processes in place to use its data to manage this function. The following findings describe the problems we identified relating to data reliability and the adequacy of management processes in the Road Design Section, as well as DOTD's initiatives to help correct these problems.

### Performance Audit Findings

- **Reliable Data on Road Design Workload Are Needed to Determine Efficiency and Effectiveness of Design Process.** DOTD's information systems do not contain specific data to distinguish road design projects from other types of projects. Also, DOTD's staff do not always enter all project information into its databases. *(See pages 9-11.)*
- **DOTD Needs Accurate and Available Time Sheet Data to Track Efficiency of In-house Road Design Staff.** DOTD's time sheet data for the Road Design Section are unreliable and are not readily available for analysis. Also, DOTD does not budget the work hours for its in-house road design staff. *(See pages 11-13.)*
- **Readily Accessible Consultant Data Are Needed to Help DOTD Make Better Management Decisions.** DOTD's consultant contract data are not easily accessible and cannot be used to perform analyses for decision-making purposes. This information is needed to analyze the total cost and time spent by consultants and make better estimates of budgeted work hours. *(See pages 13-14.)*
- **DOTD Needs Accurate Data to Effectively Allocate Workload Among In-house Road Design Staff and Consultants.** DOTD considers factors other than cost, primarily a lack of road design staff, when deciding whether to use in-house staff or consultants for road design projects. Also, DOTD cannot calculate the overhead rate for its Road Design Section to compare to consultants because of DOTD's unreliable time sheet data. *(See pages 14-15.)*
- **Accurate Identification of Design Errors Would Allow DOTD to Hold Designers Accountable.** DOTD does not always accurately identify design errors because it does not have a review process in place to verify that data entered into its databases are accurate. Design errors can cause costly overruns of construction costs and could indicate deficiencies in the design process. *(See pages 15-17.)*
- **DOTD Needs Relevant Performance Indicators to Evaluate Its Road Design Function.** The Road Design Section's strategic plan is several years old, and DOTD does not currently use the plan to measure its performance. Therefore, the section cannot ensure that it is fulfilling its mission, goals, and objectives. *(See page 17.)*
- **Implementation of Current Initiatives Would Help DOTD Improve Availability and Reliability of Data and Develop Formal Business Processes.** DOTD has contracted with private consultants to implement a data warehouse, bringing together the disparate sources of its data for use in decision-making, and to implement a new project delivery process. *(See pages 18-19.)*



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## INTRODUCTION

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### Audit Initiation and Objectives

This performance audit was conducted under the provisions of Title 24 of the Louisiana Revised Statutes of 1950, as amended. Louisiana Revised Statute 24:522 requires, in part, that the legislative auditor establish a schedule of performance audits to ensure that at least one performance audit is completed and published for each executive department agency within a seven-year period beginning with the 1997-98 fiscal year. In accordance with this requirement, the Office of Legislative Auditor developed a plan scheduling a performance audit of the Department of Transportation and Development (DOTD) for the 2004-05 fiscal year. The scheduling of this audit was approved by the Legislative Audit Advisory Council in July 2003.

We limited our work to the road design function administered by the department's Office of Highways. Our audit objective was to answer the following question:

*Is DOTD efficiently and effectively managing the design and development of roadway construction plans?*

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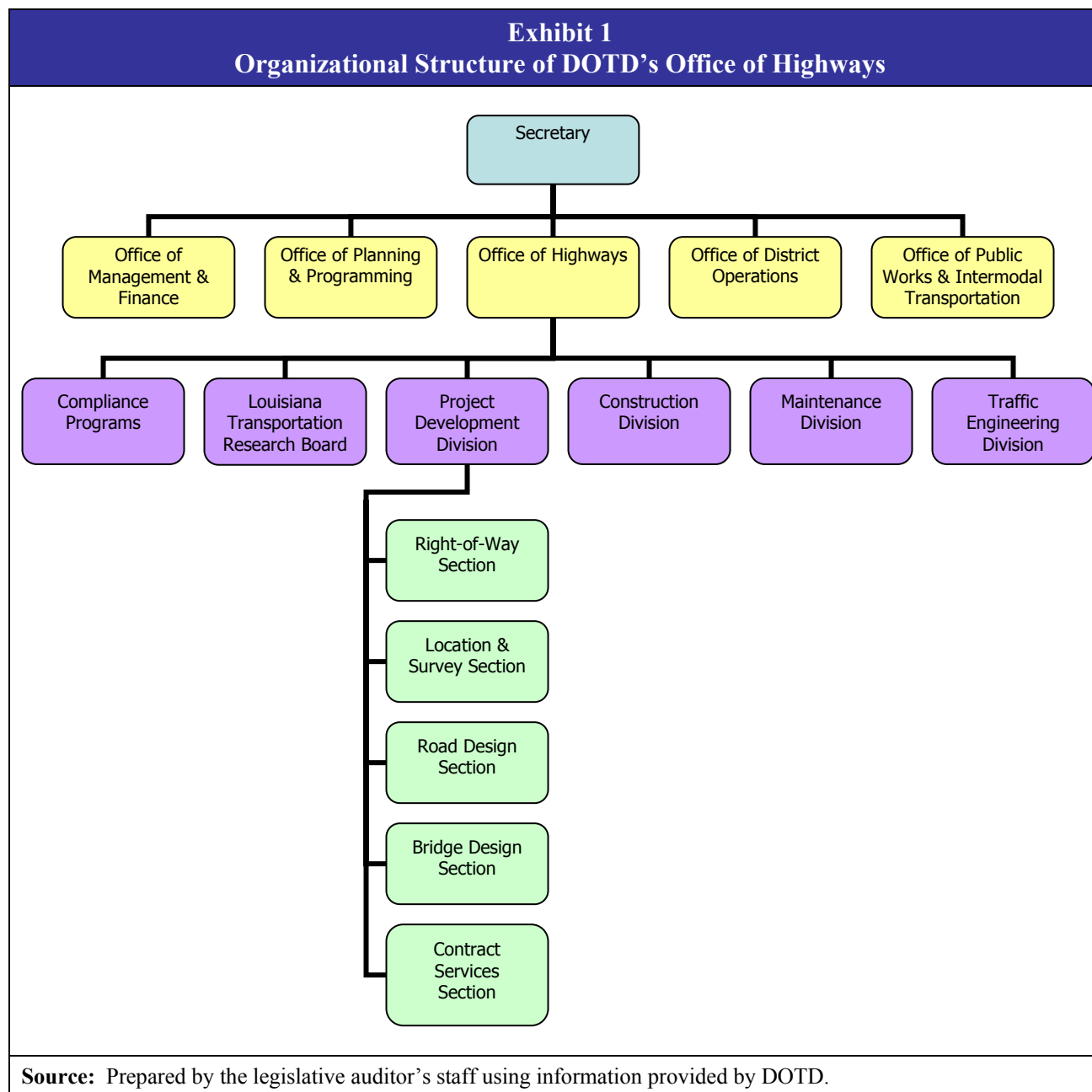
### Department Overview

DOTD is responsible for designing, constructing, operating, and maintaining over 16,000 miles of state highways throughout Louisiana. The department fulfills this responsibility through the 5,231 authorized positions located at its centralized headquarters unit, the Crescent City Connection Division in New Orleans, and its nine geographic district offices located across the state, as shown in Appendix B.

**Funding Resources.** The Transportation Trust Fund, which was created in 1990 by Article VII, Section 27 of the 1974 Louisiana Constitution, as amended, is the department's primary source of revenue for funding highway-related design, construction, and maintenance costs. The fund receives revenues from taxes on motor fuels and vehicle licenses, as well as receipts from the Federal Highway Administration.

For fiscal year 2004-05, DOTD was appropriated over \$400 million in general appropriations to administer its programs. The majority of these appropriations (\$371,532,368) were for highway-related services, including road design activities. The department was also appropriated over \$1 billion in capital outlay funds for fiscal year 2004-05; however, most of these funds are contingent upon revenues, reimbursements, and bond sales. During fiscal year 2003-04, DOTD received \$176,421,781 in capital outlay funds.

**Road Design Section.** DOTD's Road Design Section is responsible for the design and development of roadway construction plans. This section is part of the Project Development Division within the Office of Highways, as shown in Exhibit 1 on the following page.



The Road Design Section interacts with other divisions and sections of the department to complete the design and development of roadway construction plans. The section is responsible for preparing road design plans, preparing details and exhibits necessary for environmental clearance of roadway construction projects, and providing technical presentations at public meetings and public hearings during the environmental process. This section is also responsible for supervising and directing the preparation of plans prepared by the design staffs of the nine districts and by consultant engineering firms. Currently, the Road Design Section staff consist of 65 positions, including engineers, engineer interns, and engineering technicians. The nine districts contain an additional 121 positions of the same type; however, the district staff do not always work exclusively on road design projects. The current staffing of the nine districts is shown in Exhibit 2 on the following page.

<b>Exhibit 2 DOTD's District Road Design Staff Size As of July 2004</b>										
<b>Position</b>	<b>District 02</b>	<b>District 03</b>	<b>District 04</b>	<b>District 05</b>	<b>District 07</b>	<b>District 08</b>	<b>District 58</b>	<b>District 61</b>	<b>District 62</b>	<b>TOTAL</b>
Engineers	4	2	2	1	4	4	1	4	1	<b>23</b>
Engineer Interns	3	2	2	1	0	0	0	1	1	<b>10</b>
Engineering Technicians	11	10	9	10	13	14	11	2	8	<b>88</b>
<b>TOTAL</b>	<b>18</b>	<b>14</b>	<b>13</b>	<b>12</b>	<b>17</b>	<b>18</b>	<b>12</b>	<b>7</b>	<b>10</b>	<b>121</b>
<b>Source:</b> Prepared by the legislative auditor's staff using information provided by the nine district offices.										

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## Information Management

We analyzed four different information systems that DOTD uses to manage the design and development of roadway construction plans. Each system contains only a portion of the information DOTD needs to track a project from development to completion. The systems are all mainframe systems that have been in use as long as 22 years. Similarly, DOTD maintains the hours worked by in-house staff on road design plans in a separate mainframe system that is over 15 years old.

DOTD maintains its engineering consultant contract information in a separate contracts database. This system contains basic contract information, such as consultant name, contract amount, contract type, et cetera. Some contract-related documents are scanned into an electronic filing system, while other documents, such as monthly invoices, are maintained separately in hard-copy files. Exhibit 3 on the following page describes each of the databases that we analyzed.

<b>Exhibit 3</b> <b>Description of DOTD Information Systems Reviewed During Audit</b>		
System	Purpose	Year Implemented
Construction Estimates System (ESTI)	To expedite partial payments to contractors for monthly work done on construction projects	1982
Highway Construction Proposal Costs System (HCPC)	To determine the costs of preparing preliminary and final plans for various types of engineering service contracts	1984
Tracking of Projects System (TOPS)	To assign projects numbers and provide general project information	1988
Automated Payroll, Personnel and Position System (APPS)	To provide access to position, personnel, and payroll information	1988
Letting Schedule System (LETS)	To provide timely information regarding projects in the pre-letting stages of development	1995
Contracts Database	To track milestones in the contracting process	2000
<b>Source:</b> Prepared by the legislative auditor's staff using information provided by DOTD.		

In July 2004, DOTD implemented a client/server based construction management tool called SiteManager that provides for data entry, tracking, reporting, and analysis of contract data from contract award through finalization. This new system will eventually replace ESTI. DOTD has also implemented a new tracking system, Program and Project Management System (PPMS), for project scheduling, monitoring, and control. The computerized system tracks time and cost and produces reports on project progress. DOTD will not replace any of its existing systems with PPMS; rather, it will continue to track project and letting information through TOPS and LETS. In addition, DOTD began implementing a new database called Engineering Contract Tracking System (ECTS) to track consultant invoices electronically.

## IS DOTD EFFICIENTLY AND EFFECTIVELY MANAGING THE DESIGN AND DEVELOPMENT OF ROADWAY CONSTRUCTION PLANS?

### Report Conclusions

DOTD is not managing the design and development of roadway construction plans in the most efficient or effective manner because it does not have the information it needs or the necessary processes in place to use its data to manage this function. Basic project information relating to road design was either not completely entered into DOTD's various information systems by DOTD's staff or was not readily accessible within the systems. Also, the Road Design Section does not have processes in place to use its data to manage its activities.

DOTD has taken the initiative to undertake two projects that could correct many of the problems identified in this report. One of the projects is an effort to implement a data warehouse to consolidate data from DOTD's various information systems into a single location. The other project is a process improvements and communications study. DOTD could use the results of these two projects to improve the reliability and availability of its data and subsequently implement processes to use the data as a tool to make management decisions.

The following sections of this report describe the problems we identified relating to data reliability and the adequacy of management processes in the Road Design Section. The sections also include recommendations and a description of DOTD's current initiatives that could help to correct these problems.

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### Reliable Data on Road Design Workload Are Needed to Determine Efficiency and Effectiveness of Design Process

We could not determine the Road Design Section's workload over the last five fiscal years because we could not obtain a complete listing of projects in the road design phase during those years. Also, basic project information necessary to determine the efficiency and effectiveness of the road design process was often incomplete because DOTD's staff did not always enter all of the information into its databases.

**No Complete List of Projects.** DOTD's information systems do not contain specific data to distinguish road design projects from any other type of project. As a result, we could not easily obtain a complete listing of all road design projects for the last five fiscal years. With the assistance of DOTD's staff, we were able to create partial lists of projects. For example, we used the "project manager" data field in the LETS database to identify those projects that the road design staff are currently working on. However, DOTD added this field to the database about four years ago; therefore, we could not use this field to identify all projects in the road design phase for the entire five fiscal years. We also used the staff's time sheet information to identify road design projects, but as discussed later in this report, the time sheet data are not reliable. The lack of an exclusive list of projects in the road design phase hinders DOTD's ability to assess whether its workload is appropriately allocated among staff.



**Project Information Not Entered.** DOTD’s staff do not enter some road design projects into LETS until the design has been completed and they are ready to receive bids. Obtaining a list of projects from LETS at any given time would omit these active projects. In addition, we could not tell whether a project was designed by in-house staff, a district, or an engineering consultant because DOTD’s staff often did not enter this information into the “designer” data field in LETS or entered it incorrectly. DOTD added the “designer” field to LETS about four years ago; however, the staff did not always enter this information in the last four years.

We also could not tell whether the road design staff were meeting their expected dates of completion because DOTD’s staff often did not enter this information into LETS. DOTD’s management told us it began using these dates about a year ago; however, we found that DOTD’s staff did not always enter the delivery dates in the last year. Without this information, DOTD cannot tell whether a project is on schedule or the reasons why a project has been delayed.

DOTD does not maintain and track complete information for all road design projects because it does not use the data in its information systems to determine the efficiency and effectiveness of its work. Instead, DOTD manages the Road Design Section on an individual project level. Also, DOTD does not have any policies or procedures specifying the information that needs to be entered and routinely updated. Therefore, DOTD cannot effectively monitor its overall progress, determine where improvements are needed, or provide information for decision-making.

DOTD is currently undergoing efforts to implement a data warehouse that will provide easier access to financial and project information by storing data from DOTD’s existing information systems into a central location. (See pages 18-19 for more information on the data warehouse.) The data warehouse should identify those data fields that are empty and alert the responsible party. However, the purpose of the data warehouse is not to correct data deficiencies but to serve as a tool to help DOTD organize and manage its data. It is up to DOTD’s management to use this tool to ensure that the information contained in its databases is complete and accurate.

**Recommendation 1:** DOTD should ensure that its information systems allow management to readily identify all road design projects. A complete list of projects that is readily accessible is necessary to make sound management decisions.

**DOTD’s Response:** We agree. We do have systems that can identify projects, however the multiple legacy software systems are not easily programmed to quickly sort out just road projects, or bridge projects, etc. The Data Warehouse management tool will allow us to do this.

**Recommendation 2:** DOTD should develop and implement policies and procedures and provide training to instruct its staff on how to enter and review data such as project manager, delivery date, and designer in its various information systems to ensure that the data are complete and accurate.

**DOTD’s Response:** We agree. We are two years into a three year implementation of a new software package called Program and Project Management System (PPMS). As part of the

implementation, we are developing the policies and procedures necessary to instruct staff on how to enter, review and validate the data that are in the system. In addition, the overall implementation of PPMS and its use throughout the department is one of the activities included in the Process Improvement Initiative.

**Recommendation 3:** DOTD should use the data in its information systems as a tool to more effectively and efficiently manage the Road Design Section, specifically when allocating workload and ensuring deadlines are met.

**DOTD's Response:** We partially agree. The workload assignments of the Road Design Section are currently based on the 30 years of experience of the Section Manager. Although payroll information exists within our computer systems, the lack of easily accessible and sortable reports and the questionable accuracy of the data make using this information as a management tool almost impossible. Our hope is that the Data Warehouse effort will allow the easy extraction of this information so we can begin to validate the data by identifying errors in payroll coding, thus allowing our managers to produce accurate reports on workload assignments.

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### **DOTD Needs Accurate and Available Time Sheet Data to Track Efficiency of In-house Road Design Staff**

We could not use time sheet information to determine whether DOTD's road design staff were working efficiently because the information was either not readily available or was unreliable. Specifically, we could not use the time sheets to calculate the total time spent by the road design staff on the design, review, and approval of in-house, district, and consultant projects. Also, we could not compare the staff's actual hours worked to standard hours because DOTD does not budget the work hours for its in-house staff.

**Information Not Readily Available.** DOTD generally assigns multiple project numbers for each highway project, and road design staff may charge time to any of these numbers, depending on what stage the project is in. To calculate the amount of time a staff member spent working on the design of a particular project, we needed to know all the different numbers associated with that project. However, DOTD's staff did not always enter the necessary data into DOTD's information systems to relate the various project numbers associated with a single project. Also, these systems do not interface with DOTD's payroll system. Therefore, DOTD's management cannot easily obtain the amount of time worked by the road design staff on each project number without requesting DOTD's Information Technology Section to prepare a special report. DOTD has recognized the need to reliably relate all phases of work on a project, all work performed in each phase, and all funds expended on a project. This information would provide DOTD's management with more accurate, representative data for budget forecasting and planning.

**Unreliable Data.** The road design staff's time sheet data may not be reliable. DOTD's management told us that its staff do not accurately account for their time because of the large number of projects each staff member is working on. With such a large number of projects, it is cumbersome for staff to accurately account for all time on all projects. Specifically, the staff

charge too much time to tasks not associated with a specific project and charge most of their remaining time to only a few projects. In our analysis of the staff's time sheet data for the last five fiscal years, we found that appropriate project numbers and activity codes were not always entered. (We did not compare the information in the payroll system to the hard-copy time sheets to determine whether the errors occurred in preparing and reviewing the time sheets or in the data entry process.) Based on the information that was available, the cost of the road design staff's time was over \$11 million for the last five fiscal years. Accurate time sheet data would allow DOTD to track the efficiency of this investment in labor.

**No Time Budgets for In-house Staff.** In addition, DOTD has no standards with which to compare the amount of time its in-house staff spend working on road design projects. DOTD budgets the number of hours required for consultants but does not budget the work hours for its road design staff. Without the ability to compare actual time worked with budgeted work hours, DOTD cannot tell whether its staff are spending more time than necessary on designing, reviewing, and approving road design projects. DOTD should use this information as a management tool to ensure its staff are working efficiently.

DOTD's management does not ensure that the road design staff's time sheet data are readily available or reliable or compare actual to budgeted work hours, because it does not use this information to make management decisions. Also, DOTD does not have any policies or procedures instructing staff on how to enter and review the necessary data to relate all project numbers associated with a single project or how to prepare and review time sheets. Reliable time sheet data are needed to determine whether the road design staff are working efficiently and to assess whether their workload is appropriately allocated.

**Recommendation 4:** DOTD should develop and implement policies and procedures and provide training to instruct its staff on how to enter and review project numbers in its various information systems to ensure that all the various project numbers associated with a single project are linked.

**DOTD's Response:** We agree. While a system is in place to accomplish linking, incorrect data entry in this database is an ongoing shortcoming. Through the Data Warehouse effort, we have already identified weaknesses in the linking of our multiple databases. Many instances of duplicate entry have been identified and are being reconciled. As we begin to use the Data Warehouse management tool in May of 2005, one of the first goals will be to systematically review the data to insure its accuracy.

**Recommendation 5:** DOTD should ensure that its payroll information and project information are linked so that DOTD can calculate the total time spent working on a project.

**DOTD's Response:** We agree. This is a department-wide objective, not just for the Road Design Section. The concept of "Total Project Cost" has not been emphasized in the past partially due to the difficulty with our legacy computer software programs. The non-construction costs, such as payroll have not been analyzed relative to the in-house effort spent on individual projects. Again, our Data Warehouse management tool will be able to tabulate the "Total Project Cost".

**Recommendation 6:** DOTD should develop and implement policies and procedures and provide training to instruct its staff on how to prepare and review time sheets, which would allow for consistency in the time sheet process.

**DOTD's Response:** We agree. Policies and procedures, along with necessary training on the proper preparation and review of timesheets, will be implemented within the next six months.

**Recommendation 7:** DOTD should routinely use road design staff time sheet data as a tool to manage the time spent by in-house staff more efficiently and effectively.

**DOTD's Response:** We agree. The usefulness of payroll data in assigning workload would only be an additional tool or factor to consider. The experience of the road design section manager should not be discounted, however, once the availability of accurate and timely project man-hour summaries are provided through the Data Warehouse management tool, the section manager will use the information as an aid in his workload assignments.

**Recommendation 8:** DOTD should prepare a budget for the work hours associated with the design, review, and approval of each road design project, whether it is designed by in-house staff, district staff, or an engineering consultant.

**DOTD's Response:** We agree. The Road Design Section currently has a computer program which estimates the man-hours required to produce the design product. This is the basis for determining the value of consultant contracts, however it is not used for in-house design efforts. The information used for this program is in the process of being updated and will be used to estimate in-house efforts as well.

**Recommendation 9:** DOTD should then compare the actual hours worked to the budgeted hours to determine whether its road design staff are spending more time than necessary working on the design of roadway construction plans.

**DOTD's Response:** We agree. This would constitute an internal look at "efficiency". It might also cause Management to think more along the lines of the industry "Speed in Business" approach to improving productivity. Within the next twelve months, we will be implementing processes that will establish initial "total project cost" estimates that will be compared to final costs at the end of the project. By doing this, we will begin the institutionalizing of the concept of accountability within the organization.

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### **Readily Accessible Consultant Data Are Needed to Help DOTD Make Better Management Decisions**

We could not calculate the total cost of all engineering consultant contracts initiated over the last five fiscal years because DOTD's consultant contract data were not easily accessible. DOTD's management also could not easily obtain electronically the amount paid to a consultant by project without requesting DOTD's Information Technology Section to prepare a special

report. DOTD's contracts database contains only basic contract information, such as consultant name, original contract amount, and who the project is assigned to within DOTD. Relevant information such as the type of work (e.g., road design) was not always entered into the database. Other key information could only be obtained from scanned documents, such as total original cost, or from DOTD's hard-copy files, such as total hours worked and total amount paid by project. We attempted to obtain and analyze consultant cost data from the scanned documents related to a sample of contracts. However, this process was cumbersome and time-consuming because of the large volume of documents involved. Consultant contract data were not readily accessible because DOTD does not use this data to make management decisions. If made available, DOTD could use this information to analyze the total cost and time spent by consultants and make better estimates of budgeted work hours.

Last year, DOTD began implementing a new database called Engineering Contract Tracking System (ECTS) to track consultant invoices electronically. This database contains information such as consultant payments by project and the type of work, but it does not include the total hours worked by a consultant per project.

**Recommendation 10:** DOTD should enter all relevant information for consultant contracts, including total cost of a contract, total number of hours worked by a consultant, and total amount paid to a consultant into its contracts database and ECTS and ensure that the data are complete and accurate.

**DOTD's Response:** We agree. We are transitioning to a software system that will keep track of all data relative to consultant contracts. Policies and procedures will be developed that will ensure the accuracy of the data. We estimate that this will be accomplished within twelve months.

**Recommendation 11:** DOTD should analyze consultant cost data to determine the total cost and time spent by consultants and to make better estimates of budgeted work hours, which would allow for better management decisions regarding outsourcing and controlling costs.

**DOTD's Response:** We agree. Our effort to fully implement the consultant contract tracking program will enable us to analyze cost data and make better estimates of the necessary man-hours it should take for consultants to produce construction plans. Comparison of allowed man-hours to actual man-hours will allow management to evaluate consultant and in-house staff efficiency.

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### **DOTD Needs Accurate Data to Effectively Allocate Workload Among In-house Road Design Staff and Consultants**

We could not compare the cost of using engineering consultants with the cost of completing the same work in-house because the information needed to make the comparison is not readily available. As stated earlier, DOTD does not maintain a listing of all projects

designed by its in-house staff or track the number of hours its road design staff worked on the design, review, and approval of roadway construction plans. DOTD also does not maintain a listing of all projects designed by consultants or track the total amount paid to a consultant by project.

**No Cost Comparison of In-house Staff and Consultants.** DOTD's policy states that factors other than cost, such as job complexity, project length, and the necessity of specialized expertise, are considered when deciding whether to use in-house staff or consultants. However, DOTD's management told us that the primary reason for using consultants is a lack of in-house staff. Using consultants for road design work is an accepted practice among state transportation departments. However, without an accurate view of in-house staff workload or a formal comparison of the cost of work completed by consultants with the cost of similar work completed in-house, DOTD cannot effectively allocate its in-house resources or manage the use of consultants to ensure that funds are used to provide the maximum benefit for the least cost.

**No Overhead Calculation.** DOTD uses consultant overhead rates to determine contract costs when contracting for road design work. DOTD could use these overhead rates to compare consultant costs to in-house design costs if it could calculate an overhead rate for its Road Design Section. However, DOTD's management told us that it cannot calculate its overhead rate because the information needed to perform the calculation from time sheets is not reliable. As stated in Recommendation 6 on page 13 of this report, DOTD should correct the problems with its time sheet data to obtain reliable information and then use this information as a tool to compare the costs of in-house and consultant design work.

Some of the data DOTD needs to compare in-house and consultant workload and cost may be made available through the data warehouse that DOTD is currently studying. However, DOTD must first ensure that the data are complete and accurate before using them to conduct cost comparisons or any other type of analysis.

**Recommendation 12:** Once DOTD corrects the deficiencies with its time sheet data as mentioned in Recommendation 6, it should calculate the overhead rate for its Road Design Section and compare this rate to that of consultants when allocating workload among in-house staff and consultants.

**DOTD's Response:** We partially agree. An overhead rate for in-house staff will be determined upon validation of the data within our data systems. While this certainly is a critical part of the decision process, other factors such as internal staff size and availability, expertise required, need to accelerate the design, and other factors are equally important when weighing the best value added determination to outsource design or keep it in-house.

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### **Accurate Identification of Design Errors Would Allow DOTD to Hold Designers Accountable**

DOTD's staff do not always accurately identify the reasons why design plans must be changed once construction has begun. The Construction Division may need to change a road

design plan during construction for various reasons, including changes in quantities, changes in site conditions, and design errors. DOTD's Construction Division staff enter plan change information, including the reason why a plan change was initiated, into the ESTI database for tracking purposes.<sup>1</sup> We analyzed this database and found that 28 of the 1,338 plan changes since July 2003 (2.1%) were coded as design errors. According to the Construction Division chief, 22 of those plan changes were not the result of design error and should not have been coded as such. One of the remaining six plan changes was the result of an error by the Road Design Section, while the other five plan changes resulted from errors in other sections.

We also found 10 other plan changes that the Construction Division should have coded as design errors but did not. Three of these 10 plan changes were the result of an error by the Road Design Section. The Construction Division chief told us that he had already discussed the miscoding with his staff and instructed them to correct the errors in the database, but he did not verify that the corrections had been made.

In January 2004, DOTD established a Quality Control Review Committee to meet monthly and discuss plan errors, including those by the Road Design Section. Of the four road design errors we found, two were finalized after the creation of this committee. These errors could have been discussed at any of the committee's meetings held since January 2004, but had not been discussed as of July 2004. Therefore, DOTD has not held the designers accountable for their work.

DOTD does not always accurately identify design errors because it does not have a review process in place to verify that data entered into ESTI by the Construction Division staff are accurate. Design errors can cause costly overruns of construction costs and could indicate deficiencies in the design process. Therefore, it is essential that all design errors are properly identified and appropriate staff are notified to allow DOTD to recover any added construction costs from engineering consultants or to improve in its own design work effort.

**Recommendation 13:** DOTD should develop and implement policies and procedures and provide training to instruct its staff on how to enter and review design error information in ESTI and SiteManager to ensure that these data are complete and accurate. This information would allow DOTD to hold designers accountable for their work.

**DOTD's Response:** We agree. We currently have procedures, however additional training is needed to ensure that field construction staff use similar codes for the same type of design problems. An example is Design Error vs. Plan Error. These are incorrectly used interchangeably. Design Error is defined as the Designer using incorrect judgment or methods and producing a product which either cannot be built, or should not be built, or which will not be cost effective. Plan Error is defined as a mechanical error in tallying the quantities of bid and pay items or in producing a bid document which does not match companion parts of the plan. For example, the unit for a particular item in the plans indicates square yards; however, the proposal lists the unit for the item in square meters. Sorting out the distinction between these two types of errors has proven problematic. One of the Process Improvement Initiatives will address the

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<sup>1</sup> DOTD began using "design error" for plan changes in July 2003.

institutionalizing of the contractor estimate (ESTI) and construction data (SiteManager) programs across the Department. The goal is to utilize the information as a tool to learn what went right or wrong on a project and thus improve the process through this cycle of learning.

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### **DOTD Needs Relevant Performance Indicators to Evaluate Its Road Design Function**

We attempted to analyze the validity and reliability of DOTD's fiscal year 2003-04 performance indicators in the Louisiana Accountability System (LaPAS) as they relate to the road design process. However, none of these indicators are relevant to the design process. Several years ago, the Road Design Section created a strategic plan containing relevant performance measurement information; however, DOTD does not currently use the plan to measure its performance. Also, DOTD's current strategic goals and objectives do not include all relevant road design functions. Therefore, the Road Design Section cannot ensure that it is fulfilling its mission, goals, and objectives. In addition, because DOTD does not report the performance of its Road Design Section in LaPAS, legislators cannot make effective funding decisions based on the section's performance. The data warehouse should provide DOTD management with information to develop relevant indicators. However, DOTD must first ensure that the data are complete and accurate before using them to measure its performance.

**Recommendation 14:** DOTD should develop and measure performance indicators specifically relating to key road design functions.

**DOTD's Response:** We agree. An effort to identify key performance indicators for all sections in the department was conducted several years ago, but was never institutionalized. These performance indicators will be reviewed for applicability in the Road Design Section and, for that matter, all other sections. This will be a major objective in development of our "Business Plan".

**Recommendation 15:** DOTD should work with the Office of Planning and Budget to determine whether performance indicators relating to the Road Design Section should be entered into LaPAS.

**DOTD's Response:** We partially agree. The DOTD strategic plan for FY 06-10 was developed in consultation with the Office of Planning and Budget. The effort was concentrated on the development of a plan that focused on our external customers as opposed to the previous plan which concentrated on internal processes. The new performance indicators will be entered into LaPAS beginning with the new fiscal year. Internal performance indicators related to the Road Design Section will be developed over the next several months, but will not be entered into LaPAS. The tracking of these indicators will be done internally and will be used to evaluate performance of the Road Design Section. Our goal is to incorporate these indicators into each employee's annual planning and performance review (PPR). The anticipated result will be a concentrated effort by the employees in the section to accomplish the goals of the Road Design Section that will, in turn, contribute to the overall Business Plan.



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### **Implementation of Current Initiatives Would Help DOTD Improve Availability and Reliability of Data and Develop Formal Business Processes**

The manner in which DOTD's various information systems store data creates several problems, including inaccessible data, duplication of efforts, and unreliable data. DOTD has recognized the need to consolidate the information from its various systems into a single location to provide access to a more comprehensive view of the data than is currently available. To address this need, DOTD has taken the initiative to identify the types of information it needs to conduct its business and implement a data warehouse to bring together the disparate sources of information and use this information for decision-making. DOTD contracted with private consultants in July 2004 to develop the data warehouse. Through interviews with DOTD's staff, the consultants found that the staff are interested in obtaining information relevant to conducting their work, such as:

- Trends in amount of time taken to complete design phase
- Costs of design
- Comparison of costs and effectiveness of in-house resources to consultants
- Amount of time charged to specific projects
- Number of projects contracted out
- Number of design errors resulting in cost and time overruns
- Trends in number of projects backlogged
- Accuracy of time sheet reporting

The information that DOTD's staff have indicated they are interested in obtaining is much of the same information that we have identified in this report as being either unavailable or unreliable. The data warehouse, once fully implemented, should help DOTD's management identify incomplete information and make data more readily accessible.

DOTD has also hired a management consulting firm to conduct a process improvements and communications study that will lead to the implementation of a new project delivery process. The study was initiated in October 2004 and should be completed in February 2005. So far, the firm has identified several areas needing improvement, including managing information systems, tracking performance, and allocating resources.

**Recommendation 16:** DOTD should use the results of its data warehouse project to improve the reliability and availability of its data. As a result, many of the data deficiencies we identified in this report could be corrected.

**DOTD's Response:** We agree. The data warehouse will allow fast access to management reports. Inaccurate or missing data will quickly become apparent. A concerted effort will then be initiated to systematically correct the databases. Protocol will be implemented to ensure correct entry and review of data.

**Recommendation 17:** DOTD should use the results of its process improvements and communications study to develop and implement formal processes to use its road design data as a tool to make management decisions.

**DOTD's Response:** We agree. One of the faults of the past studies done within the DOTD has been the inability of staff to dedicate the time necessary to implement the changes identified by the studies. So as not to propagate this fault, a "Change Management Team" has been set up within the DOTD and staffed with an experienced manager. Sufficient staff will be assigned to the team to effectively direct the institutionalizing of the recommended changes. This Change Management Team will remain in existence for at least two years, or until it is deemed no longer necessary. Once the initial set of process improvements identified through the Process Improvement Initiative are implemented, this team will continue the effort of identifying processes within the DOTD that need improvement and implement changes as necessary.

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## APPENDIX A: AUDIT SCOPE AND METHODOLOGY

We conducted this performance audit under the provisions of Title 24 of the Louisiana Revised Statutes of 1950, as amended. We followed the applicable generally accepted government auditing standards as promulgated by the Comptroller General of the United States. Preliminary work on this audit began in January 2004.

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### Audit Scope

This audit focused on the road design function administered by DOTD's Office of Highways. The audit covered road design activities taking place from July 1, 1999, through May 31, 2004. Our audit objective was to answer the following question:

*Is DOTD efficiently and effectively managing the design and development of roadway construction plans?*

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### Methodology

To gain an understanding of DOTD's road design function, we performed the following procedures:

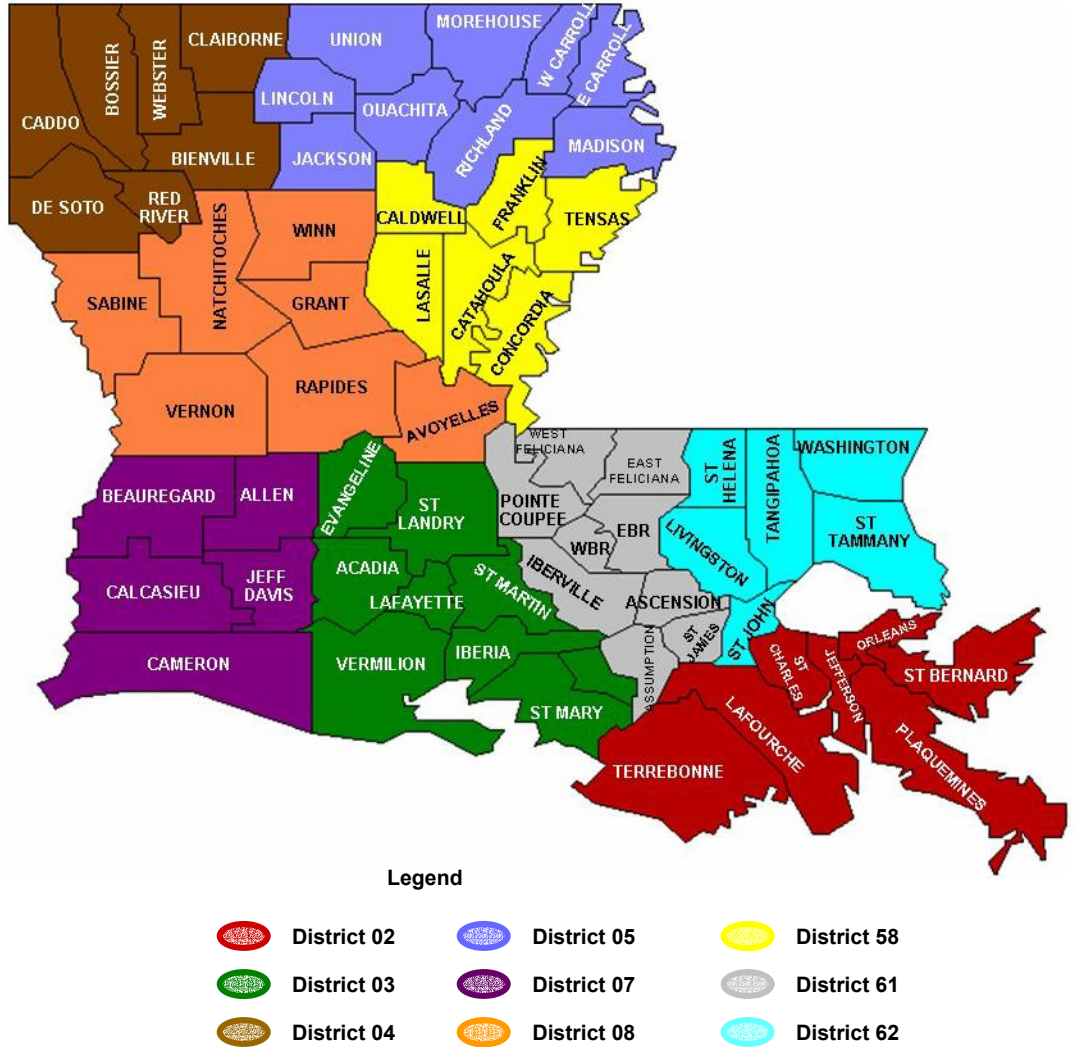
- Researched state laws, rules and regulations
- Analyzed DOTD's current funding and staffing resources
- Reviewed DOTD's Internet site
- Interviewed administrative and road design staff at DOTD headquarters
- Surveyed administrative staff at each of DOTD's nine geographic districts

To obtain information on whether DOTD is efficiently and effectively managing the design and development of roadway construction plans, we performed the following procedures:

- Obtained copies of certain information systems maintained by DOTD and analyzed information relevant to the road design function, including basic project information, design errors, standard man-hours, and consultant contract data
- Assessed the management controls governing time sheet preparation, review, and submission and analyzed time sheet data for DOTD's Road Design Section staff

- Interviewed appropriate DOTD staff to obtain information regarding the use of engineering consultants, including budgeting the work hours for consultants, maintaining contract data, and deciding when to use consultants for road design work
- Surveyed 15 other state departments of transportation to identify best practices such as budgeting the work hours for engineering consultants
- Interviewed the consultants DOTD hired to obtain information regarding DOTD's current efforts

**APPENDIX B: MAP OF DOTD'S NINE GEOGRAPHIC DISTRICTS**



Source: Prepared by the legislative auditor's staff using information provided by DOTD.

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**APPENDIX C: MANAGEMENT'S RESPONSE**

The following pages contain the Department of Transportation and Development's response to our findings, conclusions, and recommendations.







KATHLEEN BABINEAUX BLANCO  
GOVERNOR

STATE OF LOUISIANA  
DEPARTMENT OF TRANSPORTATION AND DEVELOPMENT  
P.O. Box 94245  
Baton Rouge, Louisiana 70804-9245  
www.dotd.louisiana.gov



JOHNNY B. BRADBERRY  
SECRETARY

225-379-1200

January 21, 2005

Mr. David K. Greer  
First Assistant Legislative Auditor &  
Performance Audit Director  
Post Office Box 94397  
Baton Rouge, Louisiana 70804-9397

Dear Mr. Greer:

This is in response to the performance audit report dated January 12, 2005, on the Department of Transportation and Development's management of the Road Design Section. We appreciate the opportunity to respond to the recommendations in the report.

Many of the recommendations set forth in the report have already been recognized as improvement needs by our Process Improvements Initiative that began in October of 2004. Our intent is to deliver the final set of recommendations from this initiative to the Governor and the Joint Legislative Committee on Transportation in March of 2005.

Additionally, we recognize the shortcomings of our legacy computer systems. Many of the management reporting shortcomings identified in the audit report are very difficult to overcome without updating our software systems at considerable cost. In an effort to overcome these shortcomings, we have retained the services of IBM to design a Data Warehouse that will allow us to more easily retrieve necessary management reports. The first deliverable from this effort is due in May of 2005 and will allow us to extract all details related to projects, especially cost and schedule. This should address a great portion of the audit findings in the report.

Please find below the Department's response to the recommendations contained in the report:

**Recommendation #1:** We Agree. We do have systems that can identify projects, however the multiple legacy software systems are not easily programmed to quickly sort out just road projects, or just bridge projects, etc. The Data Warehouse management tool will allow us to do this.

**Recommendation #2:** We Agree. We are two years into a three year implementation of a new software package called Program and Project Management System (PPMS). As part of the implementation, we are developing the policy and procedures necessary to instruct staff on how to enter, review and validate the data that are in the system. In addition, the overall implementation of PPMS and its use throughout the department is one of the activities included in the Process Improvement Initiative.

**Recommendation #3:** We Partially Agree. The workload assignments of the Road Design Section are currently based on the 30 years of experience of the Section Manager. Although payroll information exists within our computer systems, the lack of easily accessible and sortable reports and the questionable accuracy of the data make using this information as a management tool almost impossible. Our hope is that the Data Warehouse effort will allow the easy extraction of this information so we can begin to validate the data by identifying errors in payroll coding, thus allowing our managers to produce accurate reports on workload assignments.

**Recommendation #4:** We Agree. While a system is in place to accomplish linking, incorrect data entry in this database is an ongoing shortcoming. Through the Data Warehouse effort, we have already identified weaknesses in the linking of our multiple databases. Many instances of duplicate entry have been identified and are being reconciled. As we begin to use the Data Warehouse management tool in May of 2005, one of the first goals will be to systematically review the data to insure its accuracy.

**Recommendation #5:** We Agree. This is department-wide objective, not just for the Road Design Section. The concept of "Total Project Cost" has not been emphasized in the past partially due to the difficulty with our legacy computer software programs. The non-construction costs, such as payroll have not been analyzed relative to the in-house effort spent on individual projects. Again, our Data Warehouse management tool will be able tabulate the "Total Project Cost"

**Recommendation #6:** We Agree. Policies and Procedures, along with necessary training on the proper preparation and review of timesheets, will be implemented within the next six months.

**Recommendation #7:** We Agree. The usefulness of payroll data in assigning workload would only be an additional tool or factor to consider. The experience of the road design section manager should not be discounted, however, once the availability of accurate and timely project man-hour summaries are provided through

the Data Warehouse management tool, the section manager will use the information as an aid in his workload assignments.

**Recommendation #8:** We Agree. The Road Design Section currently has a computer program which estimates the man-hours required to produce the design product. This is the basis for determining the value of consultant contracts however it is not used for in-house design efforts. The information used for this program is in the process of being updated and will be used to estimate in-house efforts as well.

**Recommendation #9:** We Agree. This would constitute an internal look at "efficiency". It might also cause Management to think more along the lines of the industry "Speed in Business" approach to improving productivity. Within the next twelve months, we will be implementing processes that will establish initial "total project cost" estimates that will be compared to final costs at the end of the project. By doing this, we will begin the institutionalizing of the concept of accountability within the organization.

**Recommendation #10:** We Agree. We are transitioning to a software system that will keep track of all data relative to consultant contracts. Policies and procedures will be developed that will ensure the accuracy of the data. We estimate that this will be accomplished within twelve months.

**Recommendation #11:** We Agree. Our effort to fully implement the consultant contract tracking program will enable us to analyze cost data and make better estimates of necessary man-hours it should take for consultants to produce construction plans. Comparison of allowed man-hours to actual man-hours will allow management to evaluate consultant and in-house staff efficiency.

**Recommendation #12:** We Partially Agree. An overhead rate for in-house staff will be determined upon validation of the data within our data systems. While this certainly is a critical part of the decision process, other factors such as internal staff size and availability, expertise required, need to accelerate the design, and other factors are equally important when weighting the best value added determination to outsource design or keep in in-house.

**Recommendation #13:** We Agree. We currently have procedures however additional training is needed to ensure that field construction staff use similar codes for the same type of design problems. An example is Design Error vs. Plan Error. These are incorrectly used interchangeably. Design Error is defined as: the Designer used incorrect judgment or methods and produced a product which either cannot be built, or should not be built, or which will not be cost effective; Plan Error is defined

as: a mechanical error in tallying the quantities of bid and pay items or in producing a bid document which does not match companion parts of the plans. For example, the unit for a particular item in the plans indicates square yards however the proposal lists the unit for the item in square meters. Sorting out the distinction between these two types of errors has proven problematic. One of the Process Improvement Initiatives will address the institutionalizing of the contractor estimate (ESTI) and construction data (Site Manager) programs across the Department. The goal is to utilize the information as a tool to learn what went right or wrong on a project and thus improve the process through this cycle of learning.

**Recommendation #14:** We Agree. An effort to identify key performance indicators for all Sections in the department was conducted several years ago, but was never institutionalized. These performance indicators will be reviewed for applicability in the Road Design Sections and, for that matter, all other sections. This will be a major objective in development of our "Business Plan".

**Recommendation 15:** We Partially Agree. The DOTD strategic plan for FY 06-10 was developed in consultation with the Office of Planning and Budget. The effort was concentrated on the development of a plan that focused on our external customers as opposed to the previous plan which concentrated on internal processes. The new performance indicators will be entered into LaPas beginning with the new fiscal year. Internal performance indicators related to the Road Design Section will be developed over the next several months, but will not be entered into LaPas. The tracking of these indicators will be done internally and will be used to evaluate performance of the Road Design Section. Our goal is to incorporate these indicators into each employee's annual planning and performance review (PPR). The anticipated result will be a concentrated effort by the employees in the section to accomplish the goals of the Road Design Section that will, in turn, contribute to the overall Business Plan.

**Recommendation #16:** We Agree. The data warehouse will allow fast access to management reports. Inaccurate or missing data will quickly become apparent. A concerted effort will then be initiated to systematically correct the databases. Protocols will be implemented to ensure correct entry and review of data.

**Recommendation #17:** We Agree. One of the faults of past studies done within the DOTD has been the inability of staff to dedicate the time necessary to implement the changes identified by the studies. So as to not propagate this fault, a "Change Management Team" has been set up within the DOTD and staffed with an experienced manager. Sufficient staff will be assigned to the team to effectively direct the institutionalizing of the recommended changes. This Change Management

David K. Greer, CPA

January 21, 2005

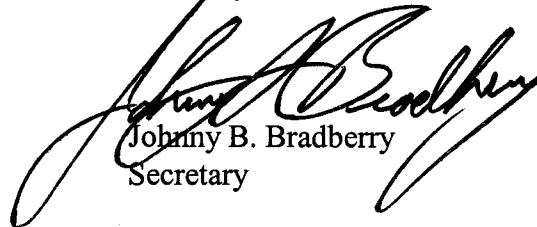
Page 5

Team will remain in existence for at least two years, or until it is deemed no longer necessary. Once the initial set of process improvements identified through the Process Improvement Initiative are implemented, this team will continue the effort of identifying processes within the DOTD that need improvement and implement changes as necessary.

My goals are to make meaningful and lasting changes within the DOTD and to build a culture of continuous improvement by changing our internal processes that result in inefficiencies within the department. I'm confident that a continuous improvement mentality can be embraced by the staff to take the DOTD into the future.

We appreciate the professional approach you have taken conducting this audit. If I can be of further assistance, or if any further information is needed to clarify our responses, please feel free to contact me or Mr. Michael Bridges, Undersecretary, at (225) 379-1270.

Sincerely,



Johnny B. Bradberry  
Secretary

C: Bill Temple, Chief Engineer  
Michael Bridge, Undersecretary