

Table of Contents

A Report on Contract Administration at the Texas Department of Transportation

August 1997

Key Points of Report

Executive Summary	1
--------------------------------	---

Overall Assessment	3
---------------------------------	---

Section 1: CONTRACTOR SELECTION

Past and Present Performance Were Not Considered as Part of Contractor Selection Criteria	4
--	---

Section 2: FINANCIAL MANAGEMENT/PAYMENT METHODOLOGIES

The Department Needs to Adopt More Consistent Policies for All Types of Change Orders and Advanced Funding Agreements	6
--	---

Strengthen and Standardize the Controls Over Change Orders	6
--	---

The Department Could Enhance Standard Contracts by Including Right-To-Audit Clauses	9
--	---

Standardize Markup Allowances on Change Orders	10
--	----

Rate for Labor Burden on Change Orders May Be Excessive	14
---	----

The Department Should Continue to Improve Controls Over Advance Funding Agreements	16
---	----

Section 3: DESIGN CONTRACT SELECTION AND MONITORING

Improve Controls over Selection and Monitoring Design Contracts	18
--	----

Appendices

1 - Objectives, Scope, and Methodology	20
--	----

2 - R. L. Townsend and Associates Markup Allowances	24
---	----

3 - Related Reports	25
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4 - The Department Exceeded Legislative Expectations in Contracting Out Maintenance Work	26
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Key Points of Report

A Report on Contract Administration at the Texas Department of Transportation

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Overall Conclusion

The Texas Department of Transportation (Department) has processes in place to administer the contracting function for its preliminary engineering (design), construction, and maintenance activities. However, opportunities exist for the Department to strengthen controls over certain portions of these functions. While the contracting practices used by the Department minimize the risk of abuses such as those identified in other agencies, the Department's contracting practices still present some opportunities to obtain public funds without delivering intended services. The Department has designed a variety of controls to minimize these risks. We identified opportunities to improve certain aspects of these control systems.

Key Facts and Findings

- Contractor selection is a critical step in ensuring the efficient and effective use of funds for highway design, construction, and maintenance. At the time of our fieldwork, the Department's procedures did not consider past or present performance as part of contractor selection criteria. This prevented the Department from limiting or prohibiting contractors who were behind schedule on current or past projects from receiving contracts for additional, new projects.
- The Department reports in the *Transportation Revenue Needs Assessment* that current funding sources will enable the State to meet only 33 percent of the transportation system needs for the next decade. The change order processes and management of advanced funding agreements are areas we identified with potential for cost efficiencies.
- The Department's existing policies and procedures do not adequately address the pricing methodology and structure for all change orders that add items of work to the contract. Change orders are not subject to the same contracting controls since they occur outside the competitive bid process.
- The Department needs to improve controls over the process for contracting for preliminary engineering and the process for monitoring payments to preliminary engineering consultants. The process for contracting with engineering consultants seems to take a long time. The Department did not have a formal mechanism to hold design consultants accountable for timely completion of their design services contract.

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This audit was conducted in accordance with Government Codes, Sections 321.0123 and .0132.

Executive Summary

The Texas Department of Transportation (Department) has processes in place to administer the contracting function for its preliminary engineering, construction, and maintenance activities. However, opportunities exist for the Department to strengthen controls over certain portions of these functions. While the contracting practices used by the Department minimize the risk of abuses such as those identified in other agencies, the Department's contracting practices still present some opportunities to obtain public funds without delivering intended services. The Department has designed a variety of controls to minimize these risks. We identified opportunities to improve certain aspects of these control systems.

Past and Present Performance Were Not Considered as Part of Contractor Selection Criteria

Contractor selection is a critical step in ensuring the efficient and effective use of funds for highway design, construction, and maintenance. At the time of our fieldwork, the Department's procedures did not consider past or present performance as part of contractor selection criteria. This prevented the Department from limiting or prohibiting contractors who were behind schedule on current or past projects from receiving contracts for additional, new projects.

The Department Needs to Adopt More Consistent Policies for All Types of Change Orders and Advanced Funding Agreements

The Department reports in the *Transportation Revenue Needs Assessment* that current funding sources will enable the State to meet

only 33 percent of the transportation system needs for the next decade. The change order processes and management of advanced funding agreements are areas we identified with potential for cost efficiencies.

The Department did not have audit provisions in cost reimbursement or in competitively bid contracts. Adding a right-to-audit provision to contracts could further protect the interests of the State, especially when applied to change orders. The risk of change order pricing is that negotiations are done outside the competitive bid process. When the costs of change orders are negotiated between the Department and the contractor, the Department could use access to a contractor's records to verify the accuracy of costs which the contractors claim to be associated with the change.

The Department's existing policies and procedures do not adequately address the pricing methodology and structure for all change orders that add items of work to the contract. Change orders are not subject to the same contracting controls since they occur outside the competitive bid process.

Improve Controls over Selection and Monitoring Design Contracts

The Department needs to improve controls over the process for contracting for preliminary engineering and the process for monitoring payments to preliminary engineering consultants. The process for contracting with engineering consultants seems to take a long time. The Department did not have a formal mechanism to hold design consultants accountable for timely completion of their design services contract.

Executive Summary

Summary of Management's Response

Department management agrees with our recommendations except for the one concerning the inclusion of a right-to-audit clause as standard contract language. In addition, management is not fully in agreement with parts of recommendations addressing change order pricing policy.

Management's response can be found following each recommendation in the audit report.

Objectives and Scope

The objective of the audit was to evaluate the efficiency and effectiveness of selected contract administration processes for design, construction, and maintenance activities at the Texas Department of Transportation. The scope of this audit included all design, construction, and maintenance contracts active during fiscal year 1995. Samples of the design, construction, and maintenance contracts were selected. Areas addressed during our review included:

- Contract development phase
- Bidding process
- Construction administration phase
- Contract closeout phase

Overall Assessment

The Texas Department of Transportation (Department) has processes in place to administer the contracting function for its preliminary engineering (design), construction, and maintenance activities. However, opportunities exist for the Department to strengthen controls over certain portions of these functions. In the publication *Transportation Revenue Needs Assessment*, the Department reports that current funding levels are insufficient to meet the State's transportation system needs for the next decade. Current funding sources will enable the State to meet only 33 percent of needs. The efficient and effective use of funds over the contracting function is critical to the transportation needs for the future.

Our review of the contract administration functions at the Department resulted, in part, from concerns of the legislative leadership that contractor abuses similar to those identified during the statewide contract reviews could occur at other agencies. Our work at various state agencies has identified four key areas of contract management:

- Contractor selection
- Contract provisions
- Payment/reimbursement methodologies
- Contractor oversight

The nature and level of risk associated with each of these areas will vary depending on the method of contracting.

The design of the Department's operations and the nature of its contract processes reduce the risks of inappropriate and inefficient use of public funds. Following are key control factors inherent in the Department's contracts for highway design, construction, and maintenance services:

- The contracting process occurs in a generally competitive construction industry.
- The contracts result in a physical, verifiable deliverable. This provides the Department with the ability to confirm contractor performance before making payments.
- The contracts require performance and payment bonds for protection from losses. This helps minimize the risk that the State would pay for work the contractor does not complete. If the contractor does not deliver the project, the State has the ability to default the contractor and have the bonding company complete the project.

In addition, the design of the Department's operations includes procedures that further minimize the risk of contractors receiving payment for services or products not delivered or meeting quality requirements. Controls for inappropriate use of payments that are built into the Department's operations include:

- Construction projects are monitored with on-site inspection and testing.
- The Department pays contractors for contracts only after approving the quality of the deliverable or confirming that a project milestone has been met.
- Construction contracts are generally awarded through a competitive bidding process. Individual contractors would risk their competitive edge if they inflated bids in an attempt to obtain state funds for personal enrichment.
- Estimates for the total project cost are prepared before accepting a final bid. This cost estimation allows the Department to evaluate the reasonableness of actual bids.
- The Department's project records are subjected to a final review process before the final payment is disbursed.

While the contracting practices used by the Department minimize the risk of abuses such as those identified in other agencies, we identified opportunities to improve certain aspects of these control systems. These issues are detailed in the subsequent sections of this report:

- Past and Present Performance Were Not Considered as Part of Contractor Selection Criteria (Section 1)
- The Department Needs to Adopt More Consistent Policies for All Types of Change Orders and Advanced Funding Agreements (Section 2)
- Improve Controls over Selection and Monitoring Design Contracts (Section 3)

Section 1: CONTRACTOR SELECTION

Past and Present Performance Were Not Considered as Part of Contractor Selection Criteria

Contractor selection is one of the critical steps in ensuring the efficient and effective use of funds for highway design, construction, and maintenance. At the time of our fieldwork, the Department's procedures did not consider past or present performance as part of contractor selection criteria. This prevented the Department from limiting or prohibiting contractors who were behind schedule on current or past projects from receiving contracts for additional, new projects. This increased the risk of the Department selecting contractors who were unlikely to deliver projects on schedule.

The Department was contracting with construction contractors who did not stay on schedule. Our sample included 650 open contracts for fiscal year 1995, with a total dollar amount of \$2,153,115,776. The sample included 222 individual contractors.

Liquidated Damages

When there is a delay in project completion, the Department can be harmed by added costs and lost revenue. Liquidated damages usually provide for a daily dollar assessment for every day of delayed completion for which the contractor is responsible. The assessment continues until the date of substantial or final completion, depending on contract language, which is determined by the Department. The daily amount must bear some resemblance to the damages that could be foreseen when the contract was written, and it must not be a penalty.

Of these, 83 contractors (37 percent) had been assessed liquidated damages for at least one contract. Seven contractors had been assessed 81 percent of the total amounts of liquidated damages. These same seven contractors accounted for almost 68 percent of the total number of days in liquidated damages. Therefore, a large portion of the assessed damages was the responsibility of a few contractors. While the amount of liquidated damages or the number of days damages were assessed may not always demonstrate poor performance, each can at least be considered when contractor performance is evaluated.

In addition, during fieldwork, no prequalification process existed for maintenance contractors. The Department was reviewing a process to centrally

prequalify maintenance contractors.

Actions of the 75th Legislature addressed the contractor selection criteria. Legislation (Senate Bill 370, Section 223.012 (a)(2)) requires the Department to review contractor bidding capacity to ensure that contractors meet the quality, safety, and timeliness standards developed by the Texas Transportation Commission.

Recommendation:

We recommend the Department continue to strengthen controls over contractor selection and monitoring as required by Senate Bill 370, Section 223.012 (a)(2). The Department should also develop a formal implementation plan with specific milestone dates for each segment of the selection criteria. In addition, given the increasing significance of the role contractors play in the successful maintenance of the State's highways, we support developing a prequalification process for maintenance contractors.

Management's Response:

The department is currently developing standards for timeliness, safety and quality to review contractor bidding capacity. With regard to prequalifying small/maintenance contractors, the Department has developed and implemented a prequalification process which has been in use for well over one year.

State Auditor's Follow-Up Comment:

At the time of the review, the prequalifying process for maintenance contractors had not been implemented.

The Department Needs to Adopt More Consistent Policies for All Types of Change Orders and Advanced Funding Agreements

Based upon the results of the *Transportation Revenue Needs Assessment*, the

Department must continue cultivating greater cost consciousness given rising costs, increasing traffic, and continuing growth in the State's population. To increase its ability to provide high-quality products using the most cost effective processes, the Department needs to continue to reevaluate the efficiency of its operations. We identified the change order process and management of advanced funding agreements as areas with potential for cost efficiencies. In fiscal year 1996, the Department had change orders of all types totaling \$73.6 million, an increase of 38 percent over the previous year.

Change orders may be required for various reasons such as an adjustment of bid quantities, unforeseen conditions, design errors or omissions, time adjustments, or for the benefit of the Department. For example, if the decision is made to add an exit ramp to a highway after the contract is signed, this item of work is added to the project with a change order. Change orders can increase, decrease, or have no change on the dollar amount the Department pays to complete a project.

Change orders typically fall into three categories:

- **Force Account** - Generally used when the Department and the contractor cannot agree on a price for new items of work. This type of change order requires a considerable amount of documentation. Procedures for this are documented in the *Area Engineers' and Inspectors' Contract Administration Handbook*.
- **Change orders for new items of work without bid history** - Primarily used when new items of work are added to the contract. The Department and the contractor negotiate the price to be paid for the work.
- **Changes orders at the bid price** - Used to increase or decrease quantities of work that had a unit price specified in the contract. Procedures for this are documented in the *Area Engineers' and Inspectors' Contract Administration Handbook*.

Section 2-A:

Strengthen and Standardize the Controls Over Change Orders

Change orders that add items of work to the contract, without bid history, are not adequately addressed in the Department's existing policies and procedures. These change orders are not subject to the same contracting controls since they occur outside of the competitive bid process. The Department is at risk of overpaying for change orders because the contractors have no incentive to price extra work as efficiently as when they bid competitively. There is also the potential for the contractor to make up for a tight bid through pricing of change orders.

Because the procedures related to these change orders were not consistently applied throughout the districts, the Department ran the risk of not being able to detect potential irregularities in the normal course of operations. The number and dollar amount of change orders that added items of work to the contract, without bid history, was difficult to determine since the Department does not directly track this information.

During fieldwork, we noted:

- **Documentation of change order pricing analysis was inconsistent.** The documentation of the degree of analysis and review of change orders for new items of work was inconsistent in the ten districts visited. The area engineer is responsible for determining if the

contractor's price is reasonable and justified. While all the change orders were appropriately signed and approved, for 20 percent of the change orders tested there was no documentation indicating that the Department's personnel reviewed and validate change order pricing.

The supporting documentation should evidence the methodology used to arrive at the negotiated prices and quantities. Examples of change orders for new items of work approved by the Department with insufficient supporting documentation include the following:

- For one project, the original design for one highway segment was determined to be unconstructable by the Department and the segment was redesigned. The contractor agreed to perform the work at the price bid for the original design. There was no documentation to indicate the Department had performed an analysis of the costs of the redesign work. There was no support that the price for the redesign work should be the same as the original design.
- Several items noted on a change order were paid at a price higher than the district's average bid price. There was no documentation or support explaining the need for a higher price.

A **negative change order** reduces a portion of the current contract amount.

- A negative change order could result from deleting scope of work or value engineering.
- It could also result from changing the original scope of work so that it is less expensive to construct.

The difference, or credit, becomes a negative change order.

- **Policy statements did not address approval authority for negative change orders.** Department policy does not specifically address who has the authority to approve negative change orders, nor does it address the dollar amount range of approval authority. The *Area Engineers' and Inspectors' Contract Administration Handbook* only addresses approval levels for positive change orders that add dollars to the contract amount. For example risks exist that:

- An Area Engineer who has approval authority of up to \$25,000 for positive change orders could potentially authorize negative changes worth significantly more.
- An Area Engineer could approve a change order consisting of multiple pricing components, including contract savings on one bid item and an increase in the unit price of another existing item, with the net effect totaling less than \$25,000.

Decisions or analyses for negative change orders were not always documented when determining the identified savings. These changes could occur without

Table 1

Approval Authority for Positive Change Orders

Amount Authorized	Authorized By
\$0 to \$25,000	Area Engineer (If empowered by the District Engineer)
\$25,001 to \$100,000	District Engineer
\$100,001 to \$250,000	Director of Construction and Maintenance Division
over \$250,000	Assistant Executive Director of Field Operations

the district engineer or Division's knowledge. In addition, there is the risk that during the course of a large dollar contract, negative change orders could become lost in the magnitude of work. A negative change order can be just as significant as a positive change order.

Negative change orders should require the same amount of analysis, review, and approval that positive change orders receive.

While reducing the contract price may appear advantageous, careful consideration must be taken to ensure that the credits received are fair and appropriate for the work deleted.

Recommendation:

- The Department includes in current policies and procedures the requirement for documentation for change orders for new items of work without bid history. However, clarification is needed on the quality of support documentation. For example, comparisons between the independent cost estimates on change orders for new items of work and the pricing received from the contractor can be made.

Engineers should generally perform quality take-off surveys of material quantities or units to determine the validity of these estimates. They should also examine labor hours or units with the respect to the material quantities derived for the take-off. Evidence of these reviews would be sufficient documentation and should be retained to support the change orders.

- The Department should consider revising policy statements to include approval authority for negative change orders. Dollar amount thresholds similar to those required for positive change orders could be set.

Management's Response:

Our area engineers, with support and guidance from their district offices, are responsible for preparing change orders including appropriate pricing. There are no "recipes" or "cookie cutters" for change orders. Ethically and professionally, every area engineer and those in the approval hierarchy are obligated to fairly price added items. The Area Engineers' and Inspectors' Contract Administration Handbook, Preparation of Change Orders, Chapter 4, Section 4, states, "include a full explanation, including price justification on new bid items, for the proposed work in the transmittal memo."

Additionally, the Construction and Maintenance Division (CMD) reviews change orders to make sure the authority for adding work by change order is not exceeded through the use of off-setting underruns. Major negative change orders would almost certainly involve changing the design of the project or the scope of the work which require headquarter's approval. Contractors may not price items of work added by change order in the same competitive manner as the bid for the contract because change orders usually deal with problems, corrective work, work out of sequence, work of small quantity, work that impacts the schedule and the work in progress, and/or work that is less efficient or productive to perform.

The cited \$73.6 million in change orders in 1996 is only about 2 percent of the total dollar volume of active contracts during that period. Of the \$73.6 million in change orders, only a small fraction is not price based on the competitive bid prices.

- We agree that current policies and procedures require documentation for change orders for new items of work. We will review our guidelines on price justification on new bid items (where sufficient bid history is not available) to determine if clarification is needed.*
- We will clarify existing policy to address approval authority for negative change orders.*

Section 2-B:

The Department Could Enhance Standard Contracts by Including Right-to-Audit Clauses

At the time of fieldwork, the Department did not have audit provisions in competitively bid contracts. Adding a right-to-audit provision to contracts could further protect the interests of the State, especially when applied to change orders. As previously stated, the risk of change order pricing is that negotiations are done outside of the competitive bid process.

The significance of having an audit clause becomes apparent when considering the increasing dollar amount of change orders issued by the Department. The potential for overpayment to the contractor for change orders, both positive and negative, increases with the complexity of the work and completion schedule demands. When the cost of change orders is negotiated between the Department and the contractor, the Department could use access to a contractor's records in order to verify the accuracy of costs the contractor claims to be associated with the change.

Recommendation:

The Department should include a special provision to all construction and maintenance contracts for access to contractors' records for change orders. The *Standard Specifications* should be modified to include a right-to-audit clause for change orders. The audit clause should include:

- Access to any pertinent books, documents, papers, and records of the contractor relating to any changed work or related claims.
- The right to examine subcontractors' books, documents, papers and records relating to any changed work or related claims.
- The period of access should continue until final disposition of the claims.

Management's Response:

We do not concur. There is no evidence that fair prices are not being established for added items of work. There are a limited number of new items of work where sufficient bid history is not available because of the wide variety of road building items that are included in most contracts. Further, unit prices for added work are reviewed at the area engineer offices, at the district offices, and in one or more offices in Austin when the change order is over \$100,000 or changes the design or scope of the project. The expense of carrying out the audits would be significant and would produce little or no improvement over present pricing processes.

State Auditor's Follow-Up Comment:

The recommendation is for a right-to-audit clause to provide access to the contractor's records to give the Department an option if a dispute or problem arose. Currently there are no provisions to allow the Department access to contractors' records. Our intent was not to require an audit of all change orders negotiated with the contractors.

Section 2-C:

Standardize Markup Allowances on Change Orders

At the time of our review, the policy addressing markup allowances on pricing change orders for new items of work was administered inconsistently between and within districts. The lack of a consistent change order pricing methodology causes the Department to be at risk of paying more than necessary for the extra work ordered.

The **markup percentage** is a combination of overhead and profit. Change order markup rates may be higher than the markup percentage the contractor uses when competitively bidding the project.

Although some districts use the Force Account provisions as guidelines for all change orders, they are not requirements. Standardizing markup allowances for change orders for new items of work would promote consistency between districts and provide equal treatment for contractors that perform work in multiple districts.

Table 2
Markup Allowances for Force Account

Cost Factor	Markup Allowance
Labor	25% (on direct labor, not including the burden)
Labor burden	55% flat fixed rate on all labor
Material	25% on direct cost of material
Equipment - owned	15% of the Rental Rate Guide
Equipment - leased/rented	15% of invoice, not to exceed Rental Rate Guide
Subcontract	No provision in specifications for markup

Source: Item 9.4 of the *Standard Specifications*, Force Account

The Force Account specification sets out allowable markups for all categories of work except subcontractor markups (see Table 2).

Markup allowances on subcontractor's work are not consistent among districts. Some districts allow up to a 25 percent markup on subcontractor's work while others allow none. A risk of higher markup allowances for change orders exists when subcontractors mark up their work to the prime contractor and then the prime contractor marks up the same work to the Department.

Recommendation:

We recommend the Department apply the Force Account markup allowances to all change orders for new items of work without bid history. The Department should develop consistent specifications that address both change orders for additional items of work and Force Account change orders. This should include developing a standard markup allowance for all subcontractor's work.

Management's Response:

We agree with the recommendation that a fixed mark-up rate should be established for compensating the prime contractor for his oversight and administrative costs when change order work is performed totally by a subcontractor.

We disagree with the rest of the recommendation. Compensation for Force Account Work is a much different procedure than change order work done at fixed unit prices. The prices of change orders in general are lower than on force account change orders because force account requires increased monitoring to establish the hours of labor and equipment and the cost of materials.

The statements in the box on "mark up percentage" are true but there are situations which could justify different mark-up rates. Slow, tedious, inefficient work items will usually draw additional mark-up because normal prices for such work does not account for poor productivity. Change order work is not consistent from project to project, therefore a uniform pricing mechanism would not be appropriate.

State Auditor's Follow-Up Comment:

Our concern was the inconsistency in the way the individual districts applied the rates. Some districts used the Forced Account Work rates as guidelines, others did not. The recommendation was for consistent guidelines for all types of change orders. Since many districts unofficially used the Forced Account specifications, these appeared to be a good starting point.

Allowances for Contractor Markups on Force Account

At the time of fieldwork, The Department's *Standard Specifications* manual set markup rates for the most significant categories of work related to Force Account change orders, including labor, material, and equipment.

The Department may have an opportunity to reduce the cost of the highway services it provides by adopting markup rates more in alignment with other states' departments of transportation. The Department's markup rate for labor is lower than the average of other big states (25 percent to an average of 29.5 percent), but its markup rates are higher for material (25 percent to an average of 19.4 percent) and equipment (15 percent to an average of 6.9 percent).

The Department Could Reduce Costs By Using Lower Markup Rates

The Department’s markup allowances for contractors are generally higher than those used by other states’ departments of transportation that are considered Texas’ peers. Table 3 compares the Department’s markup rates to four peers.

Table 3

Cost Factor	Markup Allowance (in percentages)				
	Texas	California	Florida	New York	Pennsylvania
Labor	25	33	25	20	40
Material	25	15	17.5	20	25
Equipment	15	15	7.5	0	5

When applied to an example change order, these markup rates mean the Department ends up paying more to contractors than three of four other states. The example profiled in Table 4 assumes that work valued at \$993,000 is added to a contract. Typically labor is the smallest of the cost components and materials is largest.

Table 4

Example - Effect of Markup Percentage Rates on Work Valued at \$993,000						
Cost Factor	Texas	California	Florida	New York	Pennsylvania	
Labor	\$107,000	(25%) \$ 27,000	(33%) \$ 35,000	(25%) \$ 27,000	(20%) \$ 21,000	(40%) \$ 43,000
Material	742,000	(25%) 186,000	(15%) 111,000	(17.5%) 130,000	(20%) 148,000	(25%) 25,000
Equipment	144,000	(15%) 22,000	(15%) 22,000	(7.5%) 11,000	(0%) 0	(5%) 7,000
TOTALS	\$993,000	\$ 235,000	\$ 168,000	\$ 168,000	\$ 169,000	\$ 236,000
Difference from Texas			\$(67,000)	\$(67,000)	\$(66,000)	\$ 1,000

The Department would get a bill for \$1,228,000 for this work. Of that, \$235,000 would be contractor markups. Three of the four other states would pay about \$67,000 less for the same work, simply because their markup rates are lower.

Recommendation:

We recommend the Department reevaluate the existing markup percentage rates to identify opportunities for additional cost reductions. Other states have lower rates for similar cost factors. Savings may be realized if the Department reduces the markup percentages to the levels of the other states. Another alternative to consider is a sliding scale for markup percentage rates. (See Appendix 2.)

Management's Response:

The department will review the mark ups on the cost categories used on force account change orders. Other states experience differing cost impacts based on local laws, union agreements, tax rates, etc. It is unknown whether the cited rates for other states are sufficient and whether contractors add to their bid prices to fund the cost factors that those specified mark-ups do not cover. The mark-up rates for added work should be fair and sufficient so that contractors bid as low as possible on the work depicted in the initial contract. TxDOT has fair rates and benefits as indicated in our competitive and economical bid prices, allowing the Department to do the maximum amount of contract work possible.

A contractor's "labor burden" is the cost of state and federal employment taxes, Social Security and Medicare, workers' compensation insurance, and other employee benefits that are a direct cost of the wages paid to the employee.

Section 2-D:

Rate for Labor Burden on Change Orders May Be Excessive

The Department has established a 55 percent flat rate for the contractor's labor burden resulting from change orders. The Department arrived at the 55 percent rate by benchmarking costs for the various components of a contractor's labor burden. (See Table 5.)

Table 5

Breakdown of the Department's 55 Percent Labor Burden Rate	
Cost Factors	Department Basis
FICA	6.20%
Medicare	1.45%
Federal Unemployment	0.80%
State Unemployment	4.74%
Umbrella Insurance Policy	2.06%
Workers' Compensation	26.45%
General Liability Insurance	14.22%
TOTAL	55.92%

The 55 percent rate may, however, be excessive. Contractors are not required to pay fixed rates for all of the cost factors used in the 55 percent. For example, actual rates for workers' compensation and liability insurance (the two largest cost factors in the formula) may vary by insurance carrier by as much as 50 percent below to 15 percent above book value. The book rate for workers' compensation and liability insurance is

The Department May Be Overcompensating Contractors For Workers Compensation Through 55 Percent Labor Burden Rate

The Department’s 55 percent labor burden rate is based, in part, on a 26.45 percent rate for workers’ compensation insurance. (The workers’ compensation rate accounts for about half of the total rate the Department allows.) However, individual contractors receive discounts from carriers based on volume of business and safety records. When these “modifiers” are figured in, the actual cost of workers’ compensations insurance for five large contractors works out to be much less than the 26.45 percent rate the Department assumed. (These five contractors accounted for more than \$1.3 billion of the Department’s contracts.) As a result, the Department may pay these contractors more than necessary to cover costs for change order payments that include labor burden—between 12.5 and 20 percent more.

Table 6

	Workers' Compensation	Contractor's Modifier	Contractor's Effective Rate	Department Rate	Difference
Contractor	A	B	A x B	C	C - (A x B)
One	28.32	0.49	13.88	26.45	12.57
Two	28.32	0.40	11.33	26.45	15.12
Three	28.32	0.33	9.35	26.45	17.10
Four	28.32	0.25	7.08	26.45	19.37
Five	28.32	0.22	6.23	26.45	20.22

established by the National Council on Compensation Insurance (Boca Raton, Florida). In addition, carriers can apply modifiers and discounts to a contractor’s rate as a result of volume of business and safety records.

The most accurate method would be to pay the contractor for the actual labor burden cost incurred. We agree with the Department that verification of the actual labor burden could a be time-consuming task.

Recommendation:

We recommend the Department consider using an option of a modified flat rate for labor burden. A flat rate of 7.7 percent will cover those fixed charges that should be the same for each contractor. Then the variable costs should be paid at the contractor’s actual rates, including:

- Federal and state unemployment tax
- Umbrella insurance policy
- Workers’ compensation
- Federal liability insurance
- Any other company benefits actually paid

Since verification of the actual labor burden could be time consuming, we recommend the Department at the minimum use actual costs for general liability and worker’s compensation insurance. We recommend the Department periodically review the percentages in the fixed labor rates to ensure each is still accurate.

The Department should also consider periodic labor burden reviews to determine the accuracy of the stated rates. A threshold should be set for a dollar amount on contractor/ subcontractor cumulative labor charges in change orders to decide when to conduct a labor burden review. For example, the Department could audit or verify labor burden when change order labor on a project exceeds a cumulative \$25,000. The

contract specifications should be modified to reflect this change. The Department already performs periodic comprehensive payroll cost audits on design consultants with which it contracts. A contractor labor burden should be no different when significant dollar amounts of change orders are issued.

Table 7
Alternative Breakdown of Labor Burden Rate That Minimizes Risk of Overcompensating Contractors

Fixed Costs	
FICA	6.20%
Medicare	1.45%
Subtotal: Fixed Costs	7.65%
Variable Costs	
Federal Unemployment Tax	Actual Cost
State Unemployment Tax	Actual Cost
Umbrella Insurance Policy	Actual Cost
Workers' Compensation	Actual Cost
General Liability Insurance	Actual Cost

Department should analyze the "modifiers" as part of the study. While there may be some administrative savings by using the fixed rates, the additional amounts the contractors are paid more than the actual costs for general liability and workers' compensation insurance may offset these savings.

Advance funding agreements are contracts between the Department and an outside entity to make various highway improvements. The outside entity requests that the Department make improvements and agrees to pay the Department for the work. These outside entities include cities, counties, other local governmental units, private businesses, and non-U.S. Department of Transportation federal agencies. The agreements are used for improvements such as lane expansions, drainage improvements, signals, and railroad crossings.

Advance funding agreements started in the 1930s. Over the years the number of agreements, their value, and their financial and legal complexity have increased greatly. Advance funding agreements are currently being used to manage hundreds of millions of dollars of work at the Department.

Management's Response:

We will conduct a study with the Association of General Contractors and establish current fixed rates that will equal the average of the rates experienced by individual contractors. There is savings to the Department in administrative costs by using uniform rates instead of tracking down and using individual contractor rates, and that will be the objective of this new study.

State Auditor's Follow-Up Comment:

Individual contractors receive discounts from carriers based on volume of business and safety records. The

Section 2-E:

The Department Should Continue to Improve Controls Over Advance Funding Agreements

The Department should continue implementation of its recently developed contract procedures manuals for advance funding agreements. These procedures, when implemented, should help address areas that need improvement.

At the end of our audit work, a key improvement needed was the completion of documented procedures covering advance funding agreements. Documented procedures help ensure that consistent and appropriate contracting and accounting processes are followed. We also noted other areas that needed improvement:

- Some division financial and contracting staff members said the division advance funding agreement financial records were not always complete and accurate. One reason cited was that the districts were not always entering timely, complete, and accurate information into the financial systems.
- We found that one district did not have adequate procedures for the collection of incremental payments. Incremental payments occur when the outside entity pays its share of the cost through periodic payments, rather than submit their total share up-front.
- At another district we noted large differences between its records of receipts and receivables and the division records.

The primary responsibility for ensuring the accurate and timely accounting for funds rests with the districts. The Department's new contract procedures emphasize the importance of the districts properly accounting for the funding agreements. They also emphasize the necessity of properly entering information into the Department's automated financial systems.

If the districts do not properly record data in the financial systems, the Department will lack accurate information on agreement balances and receivables. Inaccurate information could hinder management decision-making and result in misstated financial statements. If the districts do not properly account for the funding agreements, receivable balances may not be collected in timely manner.

The recently developed contract procedures for advance funding agreements address:

- Identification of need for advance funding agreements
- Division and district responsibilities
- Contracting procedures
- Accounting for agreement funds

The Department reports that it is currently training district staff to help ensure the proper implementation of these procedures.

Recommendation:

We recommend the Department continue implementation of its documented procedures for advance funding agreements. The Department should also consider periodically comparing district and division financial records to ensure districts are accurately and promptly recording information in the financial systems.

Management's Response:

We will continue our efforts to improve controls and accountability of the advanced funding agreements.

Section 3: DESIGN CONTRACT SELECTION AND MONITORING

Improve Controls Over Selection and Monitoring Design Contracts

At the time of our fieldwork, the Department needed to improve controls over the process for contracting for preliminary engineering and the process for monitoring payments to preliminary engineering consultants:

- The process for contracting with preliminary engineering consultants, for the sample tested, took an average of 16.7 months. The process begins when a district submits a request to use external design services and ends with the execution of the contract.

The Department has since developed new procedures to reduce the length of the engineering contractor selection process. New steps to shorten the process include:

- Establishing a time frame for negotiating the fee
 - Delegating selection and approval functions to the districts
 - Initiating fee-negotiation training
- Not all districts prepare cost estimates for design contracts. The cost estimation allows the Department to evaluate the reasonableness of actual bids. In our sample, the districts that prepared cost estimates had variances between the estimated price and the actual price ranging from 53.6 percent below to 626.0 percent above the estimate. Since the cost estimates were prepared prior to contract negotiations, some of the differences between the estimated cost and the consultant's proposed fee were due to changes in scope, time frames, and required work that were not identified prior to the contract execution. However, the range of the variations still suggests that the Department's cost estimates may not be working as an effective management tool in the design contractor selection process.
 - The Department did not have a formal mechanism to hold design consultants accountable for timely completion of their design services contract. The consultants pay no penalty, nor is their fee reduced when project plans are not completed on time. In addition, consultants' past schedule completion record is not taken into consideration during the consultant selection process. When project plans are not completed in a timely manner the Department may have difficulty meeting its planned letting schedule.

Recommendation:

We recommend the Department prepare cost estimates prior to beginning negotiations with all design contractors. Preparing cost estimates includes identifying the tasks, staff level, and numbers of hours needed to complete the work. Cost estimates can be used as a management tool in planning and budgeting contract funds and determining the scope of work. We recommend that management establish performance measures to evaluate the accuracy of the estimates. The more accurate the cost estimate, the more effective the estimate is in negotiating the contracts. The estimates should be updated if the original scope of the project changes.

We recommend that the Department act to ensure that design contractors are consistently and effectively monitored throughout the period of their contracts. The Department should develop an objective method to hold consultants accountable for delays that are within their control and should track any impact these delays have on meeting the letting schedule. Consideration should be given to a penalty or liquidated damages schedule for those situations where the delays were within the consultants' control. In addition, past and current contract performance should be a factor in the consultant selection process.

Management's Response:

Procedures have already been changed that have reduced the time required for selection and contract negotiation. The average for the last five years is well under 12 months. Additionally, significant time reductions are expected for selection and negotiation when consultant precertification procedures become effective September 1, 1997. Additionally, the districts have been provided training in appropriate fee negotiation procedures.

In the selection process consideration of a consultant's past schedule completion record has not been required, nor was consideration precluded in the selection process. Past history on completion records could be addressed through first-hand knowledge, research or letters of reference during consultant selection.

We agree with the recommendations. We will continue to prepare cost estimates for use in consultant contract management. Effective contract monitoring is a department priority including consideration of implementing a "liquidated damages" provision in consultant contracts. Requirements to use past and present performance in the consultant selection process are being implemented September 1, 1997.

Objectives, Scope, and Methodology

Objectives

The objective of the audit was to evaluate the efficiency and effectiveness of selected contract administration processes for design, construction, and maintenance activities at the Texas Department of Transportation.

Scope

The scope of this audit included all design, construction, and maintenance contracts active during fiscal year 1995. Samples of the design, construction, and maintenance contracts were selected. Contracts from the samples were reviewed at the districts that we visited. For the contracts selected, contract activity up to the date of the audit work was reviewed.

Areas addressed during our review included:

- Contract development phase
- Bidding process
- Construction administration phase
- Contract closeout phase

Methodology and Implementation

The methodology used on this audit consisted of collecting information, performing audit tests and procedures, analyzing the information, and evaluating the information against pre-established criteria.

Information collected to accomplish our objectives included the following:

- Interviews with management and staff of the Department. We visited the following 10 of the Department's 25 districts during our fieldwork:
 - Atlanta
 - Austin
 - Bryan
 - Dallas
 - Fort Worth
 - Houston
 - Lubbock
 - Pharr
 - San Antonio
 - Waco

- Interviews with contractor personnel
- Documentary evidence such as:
 - Policies and procedures related to contracting and contract administration
 - Applicable state statutes and guidelines
 - Contract monitoring files, selection records, and payment records

Procedures and tests conducted included the following:

- Review of the sufficiency of contract provisions and tests of compliance with contractual terms
- Review of Department performance and financial monitoring activities to determine if contractors had been monitored in accordance with Department policies and contract provisions
- Review of construction contractor selection procedures to determine if contractors were fairly and objectively selected in accordance with relevant statutes and Department policies
- Review of contract amendments to determine if the changes were supported by adequate documentation
- Data analysis on the design, construction, and maintenance sample items selected

Criteria used:

- Texas Administrative Code
- Contract management model developed by the State Auditor's Office
- Department policies and procedures
- Contract provisions
- Standard audit criteria
- Best business practices related to contract administration and purchasing

Additional Information

Fieldwork was conducted from March 1996 through November 1996. The audit was conducted in accordance with applicable professional standards, including:

- Generally Accepted Auditing Standards
- Generally Accepted Government Auditing Standards

There was one instance of deviation from professional standards. We acknowledge that the report was issued nine months after the completion of field work. We recognize that the delay has limited the usefulness of the information for management and the Legislature.

The audit fieldwork was performed by the following members of the State Auditor's staff:

- Jeanmarie C. Henderson, CPA (Project Manager)
- Leslie G. Bavousett, CPA
- Paul A. Butz
- Nancy Davis, CPA
- Lucien Hughes
- Joyce Inman
- Martin J. Kelly
- Kyleen Piejko, CPA
- Kevin Todd, CMA
- Dorothy J. Turner, CPA
- Nick L. Villalpando, CPA
- Eric B. Williams, CPA
- Chris Munn, CPA (Quality Control Reviewer)

The reporting phase of the audit project was completed by the following members of the State Auditor's Office:

- J. Scott Killingsworth, CIA (Co-Project Manger)
- Joanna B. Peavy, CPA (Co-Project Manager)
- Rebecca Becker (Quality Control Reviewer)

The fieldwork and reporting phase of the audit project was supervised by the following members of the State Auditor's Office:

- Barnie Gilmore, CPA (Audit Manager)
- Craig D. Kinton, CPA (Audit Director)

In addition, the following members of the State Comptroller's Office assisted us in this review:

- Brian D. Amato
- Salvador Bustos
- Reginald Butler
- Priscilla Chamberlin
- Rena Dietrich
- Steve Esquivel
- Sharon L. Gonzalez, CPA
- Michael A. Gonzales
- Christina K. Howard
- Ridel E. Mendoza
- L. Dewayne Morrison, CPA
- Duc Van Phan
- Sylvia Ruiz
- David Shinn

- Roger Thomas
- Juan P. Trevino
- Sherry D. Yeager, CPA

R. L. Townsend and Associates Markup Allowances

The construction auditing firm of R. L. Townsend and Associates, of Dallas, Texas, has performed extensive construction contract audits across the nation and also provided training to construction auditors. R. L. Townsend and Associates developed the sliding scale that applies to the markup percentage of changes orders. The markup schedule applies to all self-performed work, whether accomplished by the prime contractor or the subcontractor.

Table 8

Portion of the Dollar Value of Change	Markup Percentage
First \$25,000	15%
\$25,000 to \$50,000	10%
\$50,000 to \$200,000	7.5%
Greater than \$200,000	5%

The scale applies to:

- Direct labor and allowable labor burden costs applicable to the change order or extra work
- Net cost of material and installed equipment incorporated into the change order or extra work
- Net rental cost of major equipment necessary to complete the change in work

The change order pricing scale by R. L. Townsend and Associates is presented as a guideline for the Department to consider.

Related Reports

The State Auditor's Office has conducted six independent audits at the Department of Transportation related to various aspects of the contract administration process.

- *An Audit Report on Management Controls at the Texas Department of Transportation*, SAO Report No. 95-021, November 1994
- *An Audit Report on Performance Measures at 21 State Agencies and 1 Educational Institution*, SAO Report No. 96-052, February 1996
- *A Report on the 1996 Financial and Compliance Audit Results*, SAO Report No. 97-056, May 1997
- *A Review of the Right-of Way Acquisition Process at the Texas Department of Transportation*, SAO Report No. 97-069, July 1997
- *A Report on Engineering Costs at the Texas Department of Transportation*, SAO Report No. 97-089, August 1997
- *An Audit Report on Performance Measures at 26 State Agencies, Phase II*, SAO Report No. 97-077, August 1997

The Department Exceeded Legislative Expectations in Contracting Out Maintenance Work

The Department met the statutory requirements to contract out half of its maintenance projects. The Seventy-Second Legislature required that no less than 50 percent of the dollar amount of the Department expenditures for maintenance projects be contracted out through a competitive bidding process by fiscal year 1996 (and each year thereafter). The legislation also included milestones for each year.

In fiscal year 1996, the Department records showed that 50.4 percent of its maintenance work was contracted out. In addition, the amount of work which the Department contracted out in each year between the passage of the legislation and fiscal year 1996 exceeded the legislatively established level for that year.

Figure 1

