Texas Department of Transportation

Independent Performance Audit: Transportation Funding

Final Report

August 29, 2007

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Executive Summary

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A. Introduction

This executive summary presents the findings and recommendations from an Independent Performance Audit of the Texas Department of Transportation's (TxDOT) transportation funding. The audit analysis and recommendations do not account for statutory change enacted by the 80th Texas Legislature.[1]

1. Background

This audit evaluates how well positioned Texas is to finance the development, maintenance, and operation of a multi-modal transportation system that meets the performance goals set for mobility, safety, air quality, economic opportunity, and value of transportation assets. The strategic question for Texas is whether the historical funding sources of state motor fuel tax and federal aid combined with new financing mechanisms that generate toll revenue will be sufficient.

Unlike the other audit areas, this audit is prospective and provides a fact-based assessment of the future finance risks, drawing on: revenue forecasting; economic and finance analysis; and experience to date, albeit limited, with the application of the new financing mechanisms. Therefore, many areas of the audit involve a strategic assessment of Texas' transportation finance mechanisms and the developing roles of Regional Mobility Authorities (RMAs) and other local and regional entities in funding transportation.

While this audit addresses the revenue side of the needs versus funding question, the findings and recommendations must be considered in the context of the following strategic trends:

- Persistent and, in recent years, large increases in the cost of transportation projects that have reduced the purchasing power of transportation funds.
- Forecasted population and economic growth in Texas, resulting in increased travel demands.

[1] Transportation Bill S.B. 792, signed by Governor Perry on June 20, 2007, is the principal source of change affecting this audit.

2. Audit Objectives

The following are the overall objectives:

- Enable the clear, straightforward communication of TxDOT funding issues and performance to a policy-maker audience.
- Evaluate whether TxDOT will have enough revenue to address identified needs.
- Determine whether management controls and procedures are in place so that project funding priorities may accomplish Strategic Plan goals.
- Identify the management capacity, organizational requirements, tools and procedures required by TxDOT for successful financial planning, revenue forecasting, cash management, debt management and project financial management.
- Identify the management controls, oversight procedures and accountabilities required to manage risk and use funds effectively as TxDOT empowers local and regional leaders to solve transportation problems.

3. Approach

The audit was divided into three phases:

- A risk analysis to recommend areas for the audit analysis.
- An audit plan to specify audit questions and audit methodology.
- An audit analysis to address the audit questions.

TxDOT established an Audit Oversight Committee (AOC) to provide overall direction to the performance audits. The members of the AOC are:

- Mr. Steven E. Simmons, P.E., Deputy Executive Director.
- Mr. Coby Chase, Director, Government and Business Enterprise Division.
- Mr. William Hale, P.E., District Engineer, Dallas.
- Mr. Mario Jorge, P.E., District Engineer, Pharr.
- Mr. Owen Whitworth, Director, Audit Office.

The audit analysis included:

- Use, refinement and testing of revenue forecasting models for the major TxDOT revenue sources.

- Evaluation of the methods, procedures and practices used to allocate funds to meet Texas Strategic Plan goals.
- Analysis of the experience to date with Comprehensive Development Agreements (CDAs), RMAs and pass-through finance.
- Evaluation of TxDOT practices and business procedures against industry standards for best practice.

B. Findings Overview

Traditionally, transportation finance in Texas was dependent on two main revenue sources: the state motor fuel tax and federal funds from the federal highway trust fund. Recognizing that business as usual will not finance the state's transportation needs, the Texas legislature provided transportation agencies with the ability to implement a new finance strategy through which toll revenue will pay for the transportation improvements needed to address mobility. This included authority to enter into public-private partnerships and CDAs in order to benefit from the lower cost of private capital, as estimated in this report, and bring an infusion of new capital into Texas transportation to fund toll road development.

1. Will there be enough funds?

This audit finds that despite the availability of new funding mechanisms, there are fundamental weaknesses in transportation finance.

Exhibit 1: Revenues Available to Meet TxDOT Needs, Audit Forecast Compared to TxDOT 2004 Assumptions

	TxDOT 2004	Audit Forecast 2007
Traditional committed mobility funds	102	start from 102
Less audit forecast's lower state revenue forecast		(8)
Less audit forecast's lower federal obligation forecast		(7)
Funds from existing sources	**102**	**87**
Funds from new tolls		25
CDA concessionaire payments from cost savings		5
New tools "Business Plan" 2005	12	
Funds from new sources	**12**	**30**
	114	**117**

Exhibit 1 compares two sets of revenue estimates. The left-hand column contains the statewide revenue estimates upon which the 2004 Texas Metropolitan Mobility Plan was founded; expected traditional revenues of $102 billion were compared to needs totaling $188 billion to identify a funding shortfall of $86 billion. The right-hand column contains revenue estimates that were prepared as part of this review. Both sets of estimates are stated in the same terms: in 2005 dollars, covering the period 2005 to 2025, so that they may be compared directly. It is important to note that these estimates include no provisions for inflation, neither in the tax rates in cents per gallon that determine revenues nor in the prices of labor and materials that determine the costs of needs.

The "Audit 2007" forecasts in Exhibit 1 above support the overall findings of this audit:

- **The efficacy of the state motor fuel tax as a user fee will continue to erode.** There is a weakening link between fuel consumption and highway use due to the growth in the number of alternative fuel vehicles and more fuel-efficient vehicles. The motor fuel tax is a cents per gallon tax and therefore in real terms decreases over time. The outcome is that Texas' highway users each year pay less per mile of road driven for a product whose costs have greatly increased in recent years.
- **Eroding motor fuel taxes and the federal government's operating deficit are significant risks to future federal highway funding.** There is a high likelihood that any growth in the future federal program would be modest, and it is not prudent to plan on the federal government addressing Texas' finance needs. In fact, there are some significant risks to the federal program. Like the state, the federal program has historically been financed by motor fuel tax. The federal trust fund is forecasted to be in deficit by 2009, and with a large federal deficit, there will be many competing claims on the federal budget. Predicting the future role of the federal program will require continuing economic analysis and policy-level judgments.
- **TxDOT is trying to benefit from the lower cost of capital usually available to CDAs.** Because private sector investors can capture depreciation tax credits and earn returns on investment on periods of 35 to 50 years, they offer a lower cost of capital for the construction of toll roads. TxDOT has well-developed programs to procure CDAs in these situations.
- **Toll facilities in Texas are generally under-priced.** Local toll authorities face incentives to charge tolls that are as low as possible. Their pricing goal is to meet the life-cycle costs of their own toll road systems; not to raise the revenue required to meet mobility goals in their regions. The tolls charged by local authorities are lower than studies indicate that their customers would be willing to pay.

Toll financing provides Texas' largest metropolitan areas with a mechanism that has the potential to address a large element of their mobility needs. However, the finance strategy depends on setting toll rates at levels that will generate the revenue required to fund the overall system. Many toll projects will require some investment of state funds as toll equity if they are to be built.

2. Do TxDOT programming and project selection processes allocate funds effectively?

Best practice is to manage for results, which requires establishing strategic goals; aligning resource allocation through the budgeting process against these goals; measuring outcomes; and holding the organization, its leaders and managers accountable to customers. The audit finds that TxDOT has in place and continues to strengthen processes, procedures and metrics that provide accountability and ensure effective resource allocation.

- **The TxDOT Strategic Plan for 2007-2011 specifies goals and strategies that guide the allocation of resources through the programming process, project selection and prioritization decisions**. TxDOT is working to strengthen its tools to support performance-based decision-making. For example, if three highway projects have equal outcomes on mobility and air quality but different safety impacts, the data will shortly be available to choose, other things being equal, the project with the best safety outcome.
- **The number of categories in the Unified Transportation Program (UTP), TxDOT's capital program, has been reduced**. TxDOT allocates funds whose use is not prescribed by law between programming categories based on an assessment of the outcome of transportation system performance. Within categories, projects are selected and prioritized using technically sound procedures. Decision-making regarding the "Build It" categories is now decentralized to the appropriate regions.
- **The process should be improved to communicate the level of system performance that the projects programmed in the UTP will buy.** This will provide visibility to the state's progress in meeting mobility, safety, and air quality goals.

3. Is TxDOT using debt effectively?

TxDOT has made a rapid transition from a pay-as-you-go program to one in which debt finance plays an important role in project timing and funding. Debt is used effectively. There are management controls and business-driven procedures in place to ensure that the financial benefits from TxDOT's use of debt offset the cost of borrowing in most cases.

- **TxDOT has established an effective process that applies industry best practice to identify toll-feasible projects**. TxDOT applies appropriate methods and controls to advance projects that are financially viable.

- **Through the Texas Mobility Fund and Proposition 14, TxDOT issues non-toll-backed debt.** This debt has been used mainly to advance mobility projects in the UTP. This debt increases the cost of projects, as they now include the interest payments on the debt; however, this additional cost is mitigated in some cases by avoiding inflation in construction costs.
- **Nationally, Texas is a leader in the development of new funding mechanisms and the use of innovative strategies for bringing additional capital into the transportation sector**. Over 100 traffic and revenue studies have been completed, a dozen CDA agreements are being procured, and 9 pass through finance agreements approved. Texas' new finance mechanisms add greatly to the funds available for transportation; our analysis estimates that they will generate an additional $25 billion in new revenue through 2030.

4. Does TxDOT have the management and organizational capacity required for the new finance mechanisms?

TxDOT's new transportation finance tools and project delivery methods require new management capacity, organizational competencies, and tools. Legislative action will be needed to address the budget and other constraints outside of TxDOT's control that are adversely impacting organizational development.

- **TxDOT is constrained in its ability to recruit, retain and develop the competencies that are required to negotiate, oversee and manage its new roles in project financing and delivery**. Compared to private enterprises, changes to hiring practices, job descriptions, compensation and labor classifications, career development paths and other aspects of human resource management take considerable time and often require legislative or oversight agency approval.

5. Is there an appropriate level of accountability and management controls for the application of the new financing mechanisms?

The state of Texas, through the Texas Transportation Commission and TxDOT, has a large interest in the success of the RMAs and the implementation of CDAs. The state's strategy for addressing metropolitan mobility needs entails empowering local and regional organizations to plan for and finance the transportation infrastructure improvements in their areas that cannot be funded through the state highway fund.

- **TxDOT has issued extensive rules for concession fees and related revenue that TxDOT receives through CDAs.** These rules follow best practices that provide for an open and competitive process in the selection of the public or private entity to fulfill the terms of each CDA.

- **The state has provided local entities with new financing tools and empowered the entities to decide when and where to use these tools.** Through their transportation planning process, Texas' metropolitan areas decide which level of mobility they will plan for and finance. However, there remains a state interest in these localities with respect to addressing TxDOT's Strategic Plan goals.
- **There are some limited rules for RMA accounting and financial reporting with respect to any surplus they earn.** However, detailed guidance and standards for budgeting, accounting and procurement are required, including definitions and procedures for RMAs to follow to determine what constitutes a surplus.

C. Recommendations Overview

The following summarizes the intent of the recommendations**.**

1. Revenue

The recommendations provide a strategy for addressing the principal risks to Texas' ability to finance transportation needs.

- **Make a long-term transition from a motor fuel tax to a Vehicle Miles Traveled (VMT) charge**. Texas needs to lay the ground work to move to a VMT charge over the next twenty years.
- **Continue to develop new toll facilities and CDAs.** Texas needs to increase its highway user charges and diversify the collection of those charges away from a single source, be it a motor fuel tax or a VMT charge. Because they are funded with future toll revenues, toll facilities can be financed and built relatively quickly to capture the benefits for which their users are willing to pay. CDAs can offer cost savings regardless of the level of tolls charged or whether tolls are collected at all.
- **Encourage toll authorities to pursue value-of-time pricing**. Setting tolls to only cover the long-run cost of toll facilities themselves will not generate the equity needed for other projects, nor will it manage demand. As a result, congestion goals will not be met.
- **Use equity investment in toll projects to earn surplus revenue and generate more toll equity**. TxDOT's contributions of equity to toll projects, be they in the form of financing, in-kind contributions or funding of connectors, should provide TxDOT with a shareholder's voice in pricing policy and bring well-defined private sector accounting practices to the definition of surplus revenues. These dividends would be available to fund other transportation priorities in that region, including equity investments in other toll projects.

- **Develop mechanisms that raise revenues to address smaller MPOs' and rural areas' mobility needs outside the largest urban areas.** Transition to a VMT charge is a long-term solution. In the interim, other revenue-generating tools are needed where tolls are not feasible.

2. Programming and Project Selection

The recommendations are to build on the current business direction.

- **Strengthen the link between Strategic Plan goals, programming and outcomes.** This involves showing what level of performance current plans, programs and funding will result in.
- **Ensure accountability for transportation performance.** The largest Metropolitan Planning Organizations (MPOs) should report progress against TxDOT Strategic Plan goals in terms of what level of performance their current funding plans will result in.

3. Use of Debt

TxDOT should continue to use debt to yield a financial return to fund future projects. Specifically, TxDOT should use some of its capacity for debt that is not secured by toll revenues to capitalize a state entity that can make equity investments in toll projects.

4. Management Capacity

Recommendations address the organizational development required for TxDOT to perform its new roles in transportation funding.

- **Legislative action to remove impediments.** TxDOT needs to be able to compete in the labor market for the new competencies. This will require budget authority and other actions.
- **Elevate and systematically address organizational development.** The issues are well defined: TxDOT requires an agency wide action plan to address recruiting, retention, career pathing and training.

D. Audit Questions, Findings, and Recommendations

The principal findings and recommendations from each audit area are summarized in turn on the following page.

Audit Area A: Fiscal Capacity

Question	Findings
A.1 Do the funding tools generate enough revenue? **A.1.1** What is the long-term viability of the motor fuel tax? **A.1.2** What is the capacity of user fees collected directly through tolls or via CDAs? **A.1.3** What are the opportunities and risks to TxDOT from trends in federal surface transportation funding? **A.1.4** What is TxDOT's capacity for debt finance to address transportation needs? **A.1.5** What other future sources of public and/or private finance could be applied to fund transportation?	• TxDOT's ability to finance needs through historical sources – state and federal motor fuels tax – is at risk: – Motor fuel tax is eroded by inflation. – Increased fuel efficiency and use of alternative fuels weaken the link between highway use and revenue. – Federal trust fund is funded by fuel tax with same risks. • New financing mechanisms, such as toll and concession revenue, address large urban areas: – Established toll authorities tend to minimize their tolls. – Limited applicability of new tools in rural areas. • Texas has the fiscal capacity to support at least $5 billion in additional highway-related debt.
Recommendations—Audit Area A	
A.1.1 Texas should move toward replacing its motor fuel tax with VMT charges.	
A.1.2 Develop tools that generate highway-related revenues outside major urban areas.	
A.1.3 Encourage local toll authorities to pursue peak-period pricing as technology allows.	

Audit Area B.1: Programming and Project Selection

Question	Findings
B.1 Do UTP allocations achieve TxDOT's goals? **B.1.1** How effective are the methods and procedures for allocating funds between the UTP funding categories? **B.1.2** Are there management controls and procedures that align TxDOT, MPO, and toll authority project selection with Strategic Plan for 2007 – 2011 goals and strategies? **B.1.3** Are projects of different modes integrated into the UTP? **B.1.4** For each applicable UTP category, do TxDOT's programming and prioritization procedures align with the Strategic Plan for 2007 – 2011 goals and strategies? **B.1.5** For the MPO-led UTP categories, are there policies, procedures, and management controls that ensure that funds are used most effectively to meet plan goals?	• UTP resource allocation – dollars to categories – is goal based. • Process and procedures for allocating funds are transparent. • TxDOT and MPOs select and prioritize projects to meet Strategic Plan goals. • TxDOT is strengthening metrics to select projects against Strategic Plan goals. • The UTP is almost entirely a highway program.
Recommendations—Audit Area B.1	
B.1.1 Report the level of transportation system performance against TxDOT Strategic Plan goals bought by the UTP.	
B.1.2 Require MPOs to report the level of performance against TxDOT Strategic Plan goals anticipated from the implementation of their long-range transportation plans.	
B.1.3 Account for total project cost in the allocation of programming targets between UTP categories.	
B.1.4 Strengthen the link between the Strategic Plan goals, system planning analysis and programming.	

Audit Areas B.2 and B.3: Project Funding and Use of Debt

Question	Findings
B.2 Is debt properly applied to projects? **B.2.1** Does TxDOT benefit financially from the use of debt? **B.2.2** Are effective policies and procedures in place regarding the use of debt? **B.2.3** Are project-specific decisions on debt finance integrated into the program?	• TxDOT is using debt effectively. • TxDOT seeks to benefit from the lower cost of capital that CDAs usually deliver. • TxDOT and MPOs have exemplary practices for identifying toll viable projects and procuring private participation. • RMAs' lack of equity increases their borrowing costs and reduces their competitiveness in CDA negotiations.
B.3 Are revenues properly derived from, and applied to, projects? **B.3.1** Which decision-making procedure for CDAs is used to determine the preferred delivery method: concession versus another type of public private partnership? **B.3.2** Is there an effective process to allocate toll projects with prospective net revenues between private concessionaires and public toll authorities? **B.3.3** Are there controls or procedures governing the selection and prioritization of projects funded through pass-through finance and user-pay tolls? **B.3.4** Are regional and local toll authorities charging optimal tolls?	• TxDOT follows best practice in CDA procurement to meet financial objectives. • Toll facilities in Texas are generally underpriced. Local toll authorities and RMAs have incentives to minimize their tolls and retain investment equity they earn in their own toll systems. • State, regional and local toll authorities' toll minimizing strategies are counter to TxDOT's statewide funding strategy of generating concession revenue, then capitalizing that revenue for the funding of other projects.
Recommendations—Audit Area B.2 and B.3	
B.2.1 Use capacity for debt that is not backed by toll revenues as a source of equity for toll projects.	
B.2.2 Develop a project– and program–level test of financial benefits to apply to projects that are funded with Proposition 14 debt or general obligation debt.	
B.3.1 TxDOT should establish a funding plan at the program level for each of the eight Transportation Management Areas in the state.	
B.3.2 TxDOT should use equity investment in toll projects to earn what House Bill 3588 defines as "surplus revenue to the credit of the Texas Mobility Fund."	
B.3.3 TxDOT should make equity available as a last resort to fund the inclusion of transit facilities in toll-viable rights of way.	
B.3.4 In all procurements of CDAs for toll roads in the counties in which the North Texas Tollway Authority or the Harris County Toll Road Authority operate, those toll authorities should be offered the opportunity to be a public sector comparator at risk.	

Audit Area C.1: Management Capacity – Organizational Development for New Finance Tools

Question	Findings
C.1 Is TxDOT's organizational development and human resource planning aligned with the competencies and staffing required in the new "deal-driven" environment? **C.1.1** What are TxDOT's organizational development and management requirements to perform new roles? **C.1.2** Will TxDOT have enough personnel with the right skills and competencies? **C.1.3** Do TxDOT's classification and compensation structures align with new organizational requirements? **C.1.4** Will TxDOT's recruiting and career development procedures and plans meet the agency's future requirements?	• The TxDOT Workforce Plan identifies strategic challenges which are magnified for the new competencies – but no action plan is in place. • TxDOT has established centers of competency in headquarters and districts that will need to be scaled to address an increasing work load. • Need legislative support to address budget constraints to organizational development. • TxDOT will require increased staffing in headquarters and districts to perform CDA-related work. • TxDOT's recruiting and career development is not aligned with the requirements for the new "deal-driven" environment.
Recommendations—Audit Area C	
C.1.1 Implement an agency-wide organizational development plan to recruit, retain and develop the competencies TxDOT required to perform its new roles in transportation finance.	
C.1.2 Establish a competency development and training program to meet the new organizational requirements.	

Audit Area C.2: Management Capacity – Financial Management Tools

Question	Findings
C.2 Does TxDOT's cash management system need strengthening to address new revenue sources, project financing, and delivery methods? **C.2.1** Does TxDOT have appropriate risk-based target cash balances? **C.2.2** Is TxDOT able to manage to the target cash balances?	• Cash management tools are able to address use of debt and new revenue sources. • TxDOT has appropriate cash balance targets although they are not risk based. • TxDOT has the tools to manage to the target balances.
Recommendations—Audit Area C	
C.2.1. Consolidate forecasts before finance committee meetings.	

Audit Area D: Controls, Oversight, and Accountability

Question	Findings
D.1 Are controls, oversight mechanisms, and accountability mechanisms sufficient for new revenue sources, project financing, and delivery methods? **D.1.1** Is TxDOT putting in place the tools for monitoring and mapping CDAs' revenue back to districts? **D.1.2** Does TxDOT require management controls and accountability mechanisms for funds provided or loaned to RMAs? **D.1.3** Are management controls and procedures in place to ensure that decision-making regarding projects financed through CDAs, pass through finance, or other RMA actions is integrated into TxDOT procedures for compliance with federal requirements? **D.1.4** What are TxDOT's accountabilities with respect to pass-through tolls with counties and municipalities?	• The state has a strong interest in the success of RMAs. The Commission approves their creation, issues rules regarding auditing and financial reporting. • There are well–defined rules established for accounting for the source and use of CDA revenue TxDOT receives. • Rules will be required to define what constitutes an RMA surplus. • Guidelines will be required specifying minimum standards for RMA budgeting, accounting, and financial management. • TxDOT has a workable plan to ensure that federal requirements are addressed where applicable.
D.2 Which controls and accountabilities should be placed on RMAs? **D.2.1** What are the risks of duplication of functions and competencies between RMAs, MPOs, and TxDOT? **D.2.2** Are management controls sufficient to properly account for sources and uses of funds in multi-modal projects? **D.2.3** Should the financial securities offered by RMAs be back-stopped? **D.2.4** Are there economies of scale that can be realized across RMAs and concessionaires?	• There is little risk of duplication of function between TxDOT, RMAs, toll authorities and local jurisdictions. • RMAs have higher borrowing costs than other units of government. This reduces competitiveness in their CDA procurement. • There are economies of scale in toll collection that will likely be realized.
Recommendations—Audit Area D	
D.1.1 Define what constitutes an RMA surplus and a method for calculating said surplus.	
D.1.2 Finalize, document and issue the rules and procedures that ensure CDA revenues are used as required by law.	
D.1.3 Establish agreement guidelines encompassing approved uses of state funds provided to RMAs.	
D.2.1 The State should specify minimum accounting, budgeting and related standards for RMAs.	
D.2.2 The State should establish a mechanism to improve the creditworthiness of RMA projects.	

I. Introduction

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The Texas Department of Transportation (TxDOT) commissioned this *Independent Performance Audit of Transportation Funding.* This is one of five performance audits that address the Texas Transportation Code, Title 6, Chapter 201.109(b) (5) requirement for independent performance audits of TxDOT management and business operations. TxDOT's overall objectives across the five performance audits are to:

- Improve the quality of statewide transportation services by providing counsel to better manage resources.
- Identify opportunities for enhancing revenue to maximize available financial resources.
- Develop strategies to remove operational barriers and improve the efficiency and effectiveness of operations.
- Highlight exemplary and innovative practices, both internal and external to TxDOT.
- Provide a conclusion relevant to the audit objectives and recommend opportunities for reducing risks and improving operations.

A. TxDOT Audit Approach

To meet the objectives for the overall audit program, each audit was divided into three phases–a risk analysis, audit plan development, and audit analysis. This approach was to ensure that the audits analyze the audit areas with the greatest potential for risk and opportunity.

- **Risk Analysis**

The purpose of the risk analysis is to recommend areas for audit analysis. Each audit encompasses a large area of TxDOT's business. The risk obtained input from TxDOT leadership, policy-makers, and business partners as well as perspective from industry experts regarding risks and opportunities.

- **Audit Plan Development**

This phase involved developing a methodology and audit plan for performing the audit.

- **Audit Analysis**

The audit analysis involved the fact-finding, data collection, and analysis required to address the audit questions. The results from this analysis are presented in this report.

1. Audit Oversight

TxDOT established an Audit Oversight Committee (AOC). The role of the AOC is to provide overall direction to the performance audits. The members of the AOC are:

- Mr. Steven E. Simmons, P.E., Deputy Executive Director.
- Mr. Coby Chase, Director, Government and Business Enterprise Division.
- Mr. William Hale, P.E., District Engineer, Dallas.
- Mr. Mario Jorge, P.E., District Engineer, Pharr.
- Mr. Owen Whitworth, Director, Audit Office.

B. Risk Analysis

The transportation funding area is both broad and of strategic importance to TxDOT. The risk analysis was designed to ensure that the audit addresses the most important factors. The risk assessment resulted in a detailed specification of audit objectives and recommended focus areas for audit analysis.

1. Risk Analysis Approach

This was accomplished by identifying risk areas through interviews and applying Dye Management Group, Inc.'s industry knowledge. The risk analysis involved:

- **Issue identification interviews.** Targeted interviews were conducted with AOC members, senior managers, policy-makers, and TxDOT's business partners. The interviews were structured to obtain input on the issues and areas of business practice that are most important materially (financially) to TxDOT. Interviews with policy-makers and TxDOT leadership provided perspective on desired audit objectives and the outcomes or criteria against which to evaluate TxDOT's performance.
- **Summary review of TxDOT statutory authority, policies, documents, and business practices.** The most pertinent statutes, policies, and procedures governing TxDOT's practices in the different business areas were reviewed. This review was supplemented through information provided in interviews. This fact finding provided a high-level introduction to current policies, management controls, and procedures from which to identify potential risk areas and validate input provided in the interviews. Areas reviewed included:
  - TxDOT's strategic management and policy direction.
  - Sources and use of funds.

- Current and future revenues.
- Project financing and management practices.
- Cash forecasting and management practices.
- Process for establishing and administering the Unified Transportation Program (UTP).
- Evolving business process and business rules for Comprehensive Development Agreements (CDAs).
- Roles of Regional Mobility Authorities (RMAs) in project development.
- Roles of metropolitan planning organizations and other partners in programming and project funding decision-making.
- Federal funds management practices.

- **Identification of risk and opportunity areas.** The information assembled in the risk assessment was supplemented by applying Dye Management Group, Inc.'s existing understanding of industry best practice and evolving or innovative transportation finance practice.
- **Application of criteria to assess magnitude of opportunities and risks.** Each risk area was evaluated against the criteria of materiality and the likelihood or risk of occurrence of the impact. This was used to recommend the focus areas for audit analysis.
- **Recommended audit areas and detailed audit objectives.** The results from the risk analysis were used to recommend audit focus areas and to specify audit objectives for each area. The AOC concurred with the risk assessment recommendations subject to broadening the analysis areas regarding RMAs to include other entities that may participate in CDAs and addressing multi-modal considerations.

2. Audit Objectives

The overall objectives established for the funding audit are:

- Enable the clear, straightforward communication of TxDOT funding issues and performance to a policy-maker audience.
- Evaluate whether TxDOT will have enough revenue to address identified needs.
- Determine whether management controls and procedures are in place so that project funding priorities may accomplish Strategic Plan goals.
- Identify the management capacity, organizational requirements, tools, and procedures required by TxDOT for successful financial planning, revenue forecasting, cash management, debt management, and project financial management.

- Identify the management controls, oversight procedures, and accountabilities required to manage risk and use funds effectively as TxDOT empowers local and regional leaders to solve transportation problems.

3. Audit Questions

To accomplish the audit objectives, the audit was organized into four audit areas. For each audit area, specific objectives were established and general and specific audit questions identified.

The final scope of the audit is summarized in Exhibit I-1; it is arranged into audit areas, general questions, and specific questions.

Exhibit I-1: Audit Scope Overview

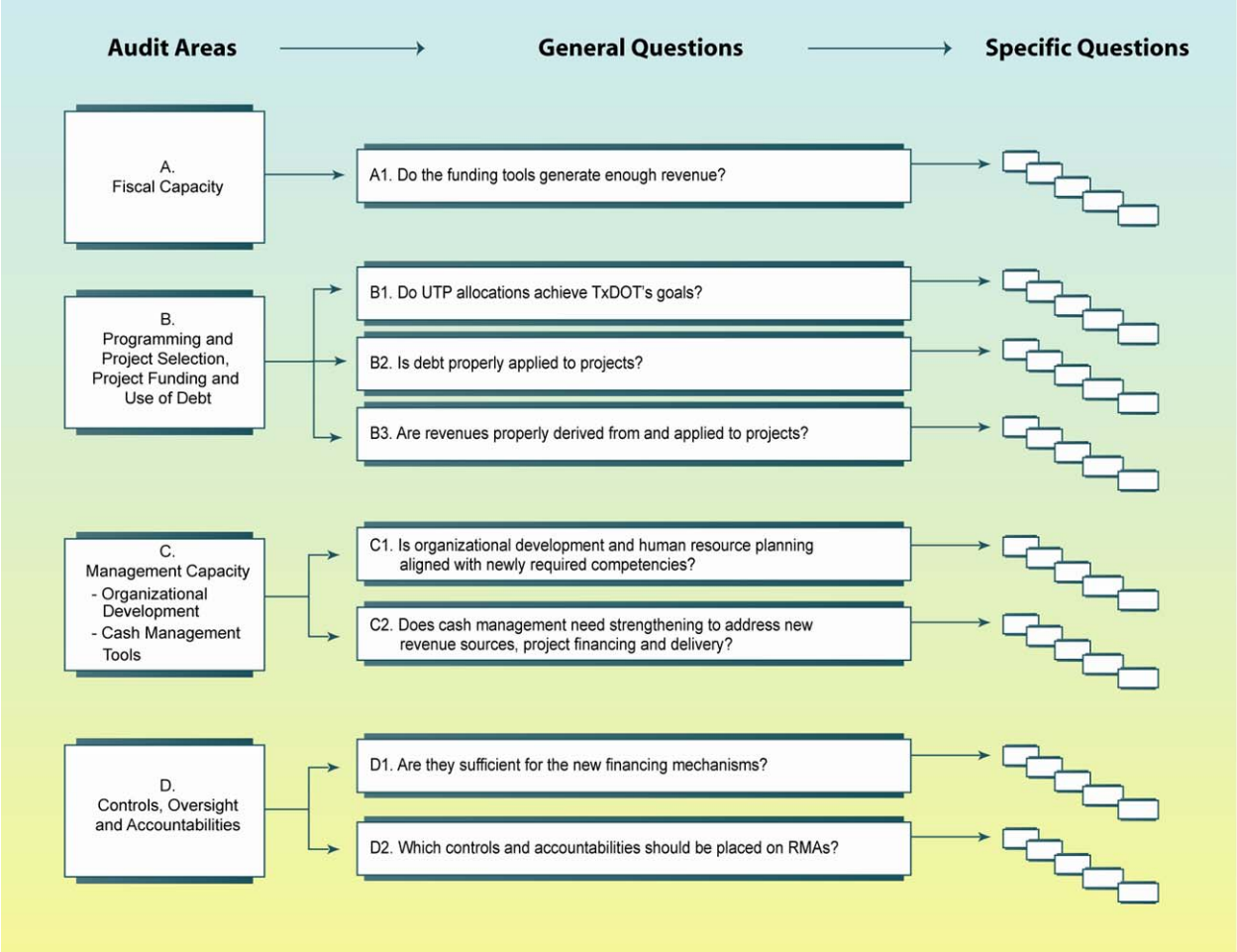


Exhibit I- 2: Audit Objectives and Questions

Audit Area A: Fiscal Capacity

A.1 Do the funding tools generate enough revenue?

Specific Questions:

A.1.1 What is the long-term viability of the motor fuel tax?

A.1.2 What is the capacity of user fees collected directly through tolls or via CDAs?

A.1.3 What are the opportunities and risks to TxDOT from trends in federal surface transportation funding?

A.1.4 What is TxDOT's capacity for debt finance to address transportation needs?

A.1.5 What other future sources of public and/or private finance could be applied to fund transportation?

Audit Area B: Programming, Project Selection and Funding

B.1 Do UTP allocations achieve TxDOT's goals?

Specific Questions:

B.1.1 How effective are the methods and procedures for allocating funds between the UTP funding categories?

B.1.2 Are there management controls and procedures that align TxDOT, MPO and toll authority project selection with Strategic Plan for 2007–2011 goals and strategies?

B.1.3 Are projects of different modes integrated into the UTP?

B.1.4 For each applicable UTP category, do TxDOT's programming and prioritization procedures align with the Strategic Plan for 2007–2011 goals and strategies?

B.1.5 For the MPO-led UTP categories, are there policies, procedures, and management controls that ensure that funds are used most effectively to meet plan goals?

B.2 Is debt properly applied to projects?

Specific Questions:

B.2.1 Does TxDOT benefit financially from the use of debt?

B.2.2 Are effective policies and procedures in place regarding the use of debt?

B.2.3 Are project-specific decisions on debt finance integrated into the program?

B.3 Are revenues properly derived from, and applied to, projects?

Specific Questions:

B.3.1 Which decision-making procedure for CDAs is used to determine the preferred delivery method: concession versus another type of public private partnership?

B.3.2 Is there an effective process to allocate toll projects with prospective net revenues between private concessionaires and public toll authorities?

B.3.3 Are there controls or procedures governing the selection and prioritization of projects funded through pass-through finance and user-pay tolls?

B.3.4 Are regional and local toll authorities charging optimal tolls?

Audit Area C: Management Capacity

C.1 Is TxDOT's organizational development and human resource planning aligned with the competencies and staffing required in the new "deal-driven" environment?

Specific Questions:

C.1.1 What are TxDOT's organizational development and management requirements to perform new roles?

C.1.2 Will TxDOT have enough personnel with the right skills and competencies?

C.1.3 Do TxDOT's classification and compensation structures align with new organizational requirements?

C.1.4 Will TxDOT's recruiting and career development procedures and plans meet the agency's future requirements?

C.2 Does TxDOT's cash management system need strengthening to address new revenue sources, project financing, and delivery methods?

Specific Questions:

C.2.1 Does TxDOT have appropriate risk-based target cash balances?

C.2.2 Is TxDOT able to manage to the target cash balances?

Audit Area D: Controls, Oversight, and Accountability

D.1 Are controls, oversight mechanisms, and accountability mechanisms sufficient for new revenue sources, project financing, and delivery methods?

Specific Questions:

D.1.1 Is TxDOT putting in place the tools for monitoring and mapping CDAs' revenue back to districts?

D.1.2 Does TxDOT require management controls and accountability mechanisms for funds provided or loaned to RMAs?

D.1.3 Are management controls and procedures in place to ensure that decision-making regarding projects financed through CDAs, shadow tolls, or other RMA actions is integrated into TxDOT procedures for compliance with federal requirements?

D.1.4 What are TxDOT's accountabilities with respect to pass-through finance with counties and municipalities?

D.2 Which controls and accountabilities should be placed on RMAs?

Specific Questions:

D.2.1 What are the risks of duplication of functions and competencies between RMAs, MPOs, and TxDOT?

D.2.2 Are management controls sufficient to properly account for sources and uses of funds in multi-modal projects?

D.2.3 Should the financial securities offered by RMAs be back-stopped?

D.2.4 Are there economies of scale that can be realized across RMAs and concessionaires?

C. Audit Plan

The audit plan provided a methodology to accomplish the audit objectives. Addressing the audit objectives required a prospective fact-based assessment of risks to TxDOT's transportation funding drawing on revenue forecasting, economic and finance analysis, and experience to date, albeit limited, with the application of the new financing

mechanisms. This information is important to determine how well positioned Texas is to finance the development, maintenance and operation of a multi-modal transportation system that meets the performance goals set for mobility, safety, air quality, economic opportunity, and increasing the value of transportation assets. Therefore, many areas of the audit involve a strategic assessment of Texas' TxDOT's transportation finance mechanisms and the developing roles of RMAs and other local and regional entities in funding transportation.

While the funding audit addresses the revenue side of the needs rather than funding question, the findings and recommendations must be considered in the context of the following strategic trends:

- Persistent, and in recent years large, increases in the cost of transportation projects that has reduced the purchasing power of transportation funds.
- Forecasted population and economic growth in Texas, resulting in increased travel demands.

1. Audit Methodology

To meet the objectives of the review, a methodology that reaches beyond perceptions through quantitative and qualitative analyses to develop fact-based recommendations was employed. The findings and recommendations contained in this report are based on information assembled through the following means:

- **Review of existing documentation on policies, procedures, agreements, rules, standards, and regulations.**

The team collected and reviewed documented policies, procedures, agreements, and other guidance materials available to TxDOT managers, staff, and business partners in the applicable business areas.

- **Collecting and analyzing data.**

For each audit area, to the extent possible, given data source constraints, data were assembled to establish a quantitative information base from which to develop findings. The analysis strategy involved sampling and to the extent possible evaluating outcomes.

- **Conducting interviews in TxDOT headquarters, districts, and with other entities.**

Numerous interviews were conducted to evaluate management controls, assess accountability structures, and identify current business procedures in the different analysis areas. Interviews were conducted using structured interview guides to ensure consistency of the information gathered. The interviews were used to confirm procedures and identify business practices. They provide information from which to assess what happens in practice.

- **Using and applying revenue forecasting and finance analysis tools.**

  As part of the audit work, revenue forecasting was performed to evaluate risks to funding. This work used and refined existing revenue forecasting tools.

- **Evaluating TxDOT against best practice.**

  In each of the audit areas evaluated, TxDOT practices were evaluated against industry best practice. Best practice assessment applied Dye Management Group, Inc.'s understanding of best practice nationally and internationally, conducted as part of other engagements, in many of the subject business areas. This was supplemented in a number of cases by targeted best practice and other benchmarking.

D. Audit Analysis

The results from the audit analysis are presented in a question-and-answer format. The answers to the audit questions are organized into the following sections that provide background, findings, and recommendations:

- II – Audit Area A: Fiscal Capacity.
- III – Audit Area B.1: Programming and Project Selection.
- IV – Audit Area B.2: Use of Debt and Project Funding.
- V – Audit Area B.3: Application of Revenues.
- VI – Audit Area C.1: Management Capacity – Organizational Development for New Finance Tools.
- VII – Audit Area C.2: Management Capacity – Financial Management Tools.
- VIII – Audit Area D: Controls, Oversight, and Accountability.

In a separate volume, technical appendices provide background on transportation finance mechanisms, revenue forecasts, and guidance on accounting and financial management controls for RMAs, prepared as part of this audit.

II. Audit Area A: Fiscal Capacity

■

This audit area addresses TxDOT's role in funding the development, operation, and management of the Texas transportation system. This audit area focuses on whether there will be enough revenue to meet transportation funding needs as well as the risks to transportation finance in Texas. The audit area addresses current and future revenue available to address identified transportation needs.

Through the 2004 mobility planning process, Texas identified about $188 billion of surface transportation mobility needs through 2030. TxDOT estimated that the revenues available from the traditional revenue sources to meet those needs, primarily state and federal motor fuels taxes, would be about $102 billion. The $86 billion gap between needs and anticipated revenues has been highlighted by TxDOT in public policy discussions; it is a principal focus of the department's 2007 Strategic Plan and was an impetus that led to the availability of the new funding tools for the Texas highway system. In addition, TxDOT has substantial ongoing financial needs for system preservation and maintenance. Texas has responded to the transportation finance challenge with new funding tools and enacted new revenue, financing, and project delivery measures through House Bill 3588 in 2003 and House Bill 2702 in 2005.

The audit investigates whether the revenues available from traditional sources and the new funding tools are enough to address these needs. This audit area focuses on revenue rather than the magnitude of the needs that TxDOT faces. Objectives for the audit area are provided, and each audit question is discussed in turn.

A. Audit Area Objectives and Questions

1. Audit Area Objectives

The objectives for this audit area are to:

- Identify revenues potentially available from traditional sources and from new sources that were authorized in House Bill 3588 (2003) and House Bill 2702 (2005).
- Determine risks to these TxDOT revenue sources over time.
- Ascertain the sensitivity of these revenue projections to different assumptions.
- Identify any other viable sources of revenue or transportation funding.
- Assess TxDOT's capacity to use debt to accelerate non-toll projects.
- Analyze risk transfer through CDAs to identify the benefits of public private partnerships.

2. Audit Questions

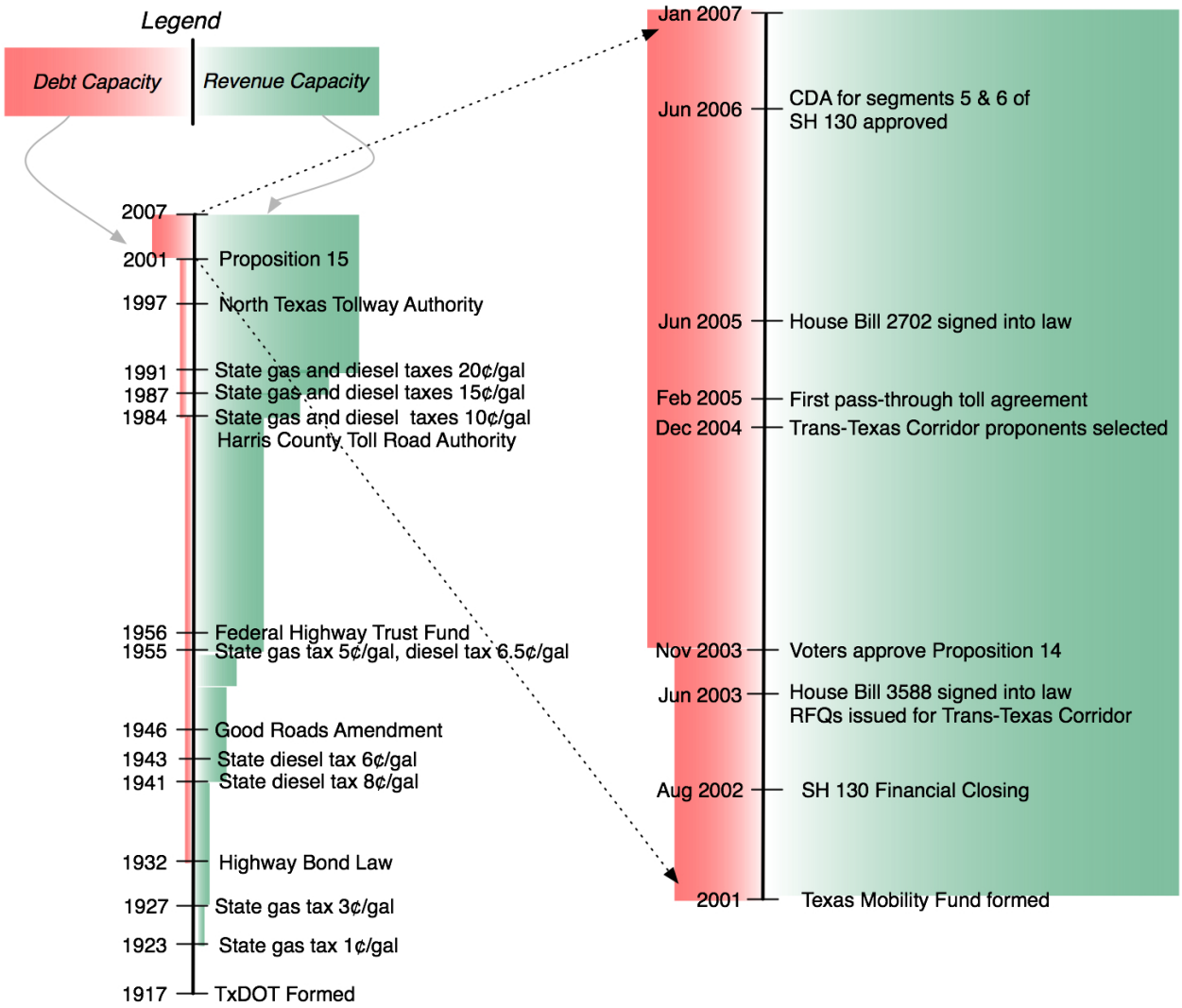
The following questions are evaluated:

- **Question A.1.** How well positioned is TxDOT to fund current and future transportation needs? Do the funding tools generate enough revenue?
  - **A.1.1** What is the long-term viability of the motor fuel tax?
  - **A.1.2** What is the capacity of user fees collected directly through tolls or via CDAs?
  - **A.1.3** What are the opportunities and risks to TxDOT from trends in federal surface transportation funding?
  - **A.1.4** What is TxDOT's capacity for debt finance to address transportation needs?
  - **A.1.5** Which other future sources of public and/or private finance could be applied to fund transportation?

B. Background

The new finance tools are a marked and dramatic change in transportation finance in Texas. When viewed from the perspective of TxDOT's financial history, they are relatively new and mark the first change in many years as shown in Exhibit II-1, which summarizes the history of Texas transportation finance.

Exhibit II-1: A Timeline of TxDOT's Financial History[2]



The enactments of House Bill 3588 in 2003 and House Bill 2702 in 2005 expanded TxDOT's bonding capacity and the potential for tolled highway projects throughout the state. The bills also brought two entities forward to work in partnerships with TxDOT on the funding and management of the Texas highway system:

- Private sector concessionaires that would design, build, fund, operate, and maintain toll roads under Comprehensive Development Agreements (CDAs).
- Regional Mobility Authorities (RMAs) with the authority within their regions[3] to build tolled highway and transit systems.

TxDOT was empowered to do business with private concessionaires and RMAs, and private concessionaires and RMAs were empowered to do business with each other.

[2] From TxDOT History http://www.dot.state.tx.us/about_us; FHWA Highway Statistics, Table MF 205; Senate of Texas, Senate Finance Committee: Interim Report on Texas Taxes, December 2002; Texas Comptroller of Public Accounts, Sources of Revenue Growth, http://www.window.state.tx.us/taxbud/sources/sources2004.pdf

[3] A region is either a metropolitan statistical area and any county contiguous to it, or two adjacent TxDOT districts.

Question A.1. How well positioned is TxDOT to fund current and future transportation needs? Do the funding tools generate enough revenue?

Issue: Texas has identified a funding gap of $86 billion of mobility needs that cannot be financed through its traditional revenue sources at current levels. In addition, TxDOT has substantial ongoing financial needs for system preservation and maintenance. The principal issue is whether traditional and new revenue sources are enough to address these needs.

Risks: The following are the principal risks to TxDOT revenue:

- Decreasing yields and purchasing power from the motor fuel tax.
- Uncertainty regarding future federal funding levels and program structure.
- Evolving understanding and real-world experience with new financing tools.
- Limited public understanding and emerging debates over public acceptability of new funding mechanisms.
- Expected continued diminution in federal funding solutions.
- Constraints on the ability to fund multi-modal or non-highway solutions to meeting mobility needs.

1. Answer

TxDOT is vulnerable to its eroding foundation of motor fuel taxes and federal aid funds. Due largely to increased fuel efficiency, the federal government's current operating deficit, and the impacts of inflation on a cents-per-gallon tax, these vulnerabilities will reduce TxDOT's traditional revenues by about $15 billion, in nominal terms, over the next 25 years relative to historical trends and relative to the expected growth in population and vehicle-miles traveled in Texas over that period.

Revenues from TxDOT's traditional state and federal sources are expected to decline in the future due to increased engine efficiency, alternative fuels, and the federal government's deficits. These declining revenues, when combined with the increased investment and maintenance expenditures that TxDOT must make to meet strategic goals, require that Texas find new revenues from diverse sources.

In the long run (20 years and more into the future), distance-based road user charges will provide a more direct and reliable means for state governments and the federal government to collect road user fees than their current proxy for those fees: motor fuel taxes. In the meantime, Texas, along with most states, will have to augment baseline motor fuel tax revenues with other revenues at the margin. House Bill 3588 (2003) and House Bill 2702 (2005) provide TxDOT with important new funding tools that can enable Texas to address the limitations of the traditional funding mechanisms and make progress in addressing mobility needs in its largest metropolitan areas.

The new funding mechanisms, if fully used, will position TxDOT to address mobility needs in the largest urban areas. Audit analysis indicates that TxDOT can expect the new funding tools to yield about $30 billion by 2030, of which about $12 billion is already included in TxDOT's 2004 forecast of $102 billion in available revenues. The $18 billion gain is largely offset, however, by the estimated $15 billion loss in traditional revenues. To state this forecast in the same terms as TxDOT's 2004 forecasts of revenues available against the $188 billion in needs identified at that time:

- The 2004 forecast of revenues totaled to about $114 billion, consisting of $102 million in status quo revenue from traditional sources and $12 billion of new revenues; while
- The audit forecast totals to about $117 billion, consisting of about $87 million in status quo revenue from traditional sources and about $30 billion of new revenues.

All of these estimates are stated in the same terms as they were stated in 2004: with no provision for inflation. While stating these updated estimates in these terms may be consistent, it is not realistic. Revenue can be expected to rise at some rate equal to or less than general inflation, while construction costs, if the recent past is any indication, may rise at rates above the rate of general inflation. On the other hand, this audit does not evaluate the needs identified in the metropolitan mobility plans to assess their relative importance and whether they could be addressed with less costly measures.

TxDOT districts and MPOs outside of the largest urban areas will not have sufficient funds to address mobility needs over the next 25 years. This is because in these areas, there will be few toll-viable projects from which to generate additional revenue. These areas will be dependent on the traditional state and federal funding sources, which the audit shows will have a decreasing yield and falling purchasing power and will be distributed across a growing system. Even with their ability to raise new toll revenues, the largest urban areas are also likely to have insufficient funds.

2. Analysis Strategy

The analysis steps are detailed as follows:

- Separated revenues and debt: Sufficient revenue is what must be available over the long run to fund Texas' highway programs; debt is merely a means to change the timing of expenditures within a long period of time.
- Payments available from concessionaires under comprehensive development agreements are handled separately from other revenues, as payments from concessionaires involve transfers of risk under those agreements.
- Focused analysis on revenue and debt trends over 25-year planning horizons and over 30-year bond maturity periods. The units of analysis are annual totals, to avoid seasonality and other short-term effects. Such short-term effects are dealt with in the cash management section.

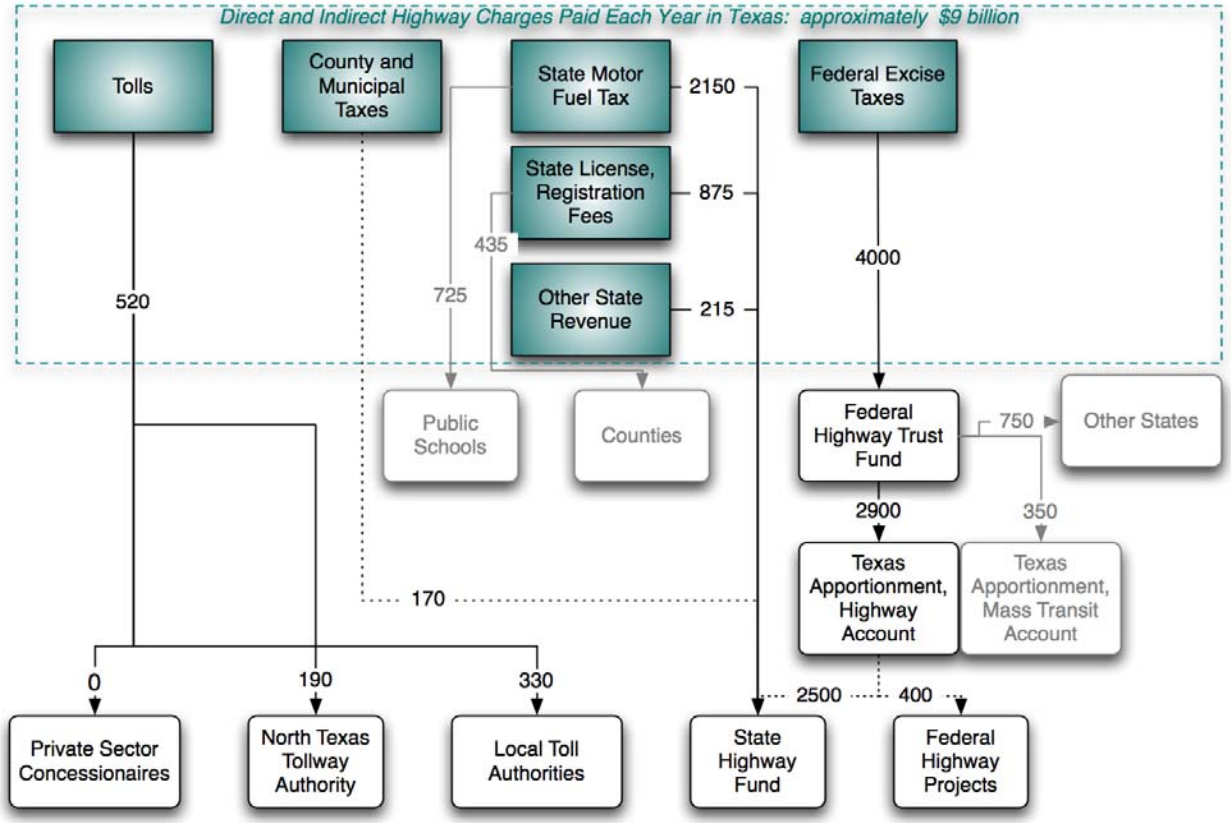
- Compiled the consensus of expert opinion on future revenues from motor fuel taxes and federal aid apportionments.
- Built upon TxDOT's current revenue and debt capacity forecasts, as maintained by TxDOT Government and Business Enterprises Division (GBE) and Transportation Planning & Programming Division (TP&P) and Finance Division, to estimate future revenues and debt capacity.
- Tested forecasts for sensitivities to changes in assumptions.
- Compared TxDOT's forecasting methods to best practices.

3. Findings

- **Texas, along with other states, relies heavily upon a combination of state-level motor fuel tax revenues and federal-aid programs to fund its highway systems.**

Exhibit II-2 illustrates at a very high level and with approximate data the sources and distribution of the approximately $9 billion paid annually in direct and indirect highway fees and taxes in Texas at the state, regional and local levels.

Exhibit II-2: Overview of Highway-Related Revenues in Texas, $ millions[4]



Almost $2 billion in user fees and transportation taxes collected in Texas is transferred into the operating budgets of Texas public schools, counties, and the federal aid highway programs of other states. The remainder, less than $7 billion annually, is available to fund the projects in TxDOT's Unified Transportation Program (UTP) and collected through the toll road authorities, to fund their toll facilities.

The federal highway funds that flow through federal apportionments to TxDOT are nominally about $2.9 billion per year. However, these funds are reimbursements, not revenues, and they can vary widely from year to year. The complex reimbursement process requires TxDOT to advance sufficient cash to fund all expenditures until the federal portion of those expenditures are reimbursed. The federal legislation that authorizes these reimbursements directs at least $400 million per year into earmarked projects. These federal funds are then not available to TxDOT in the UTP, and these earmarked projects usually require additional amounts of state match funds and other federal program funds to complete them.

[4] All amounts are in $ millions. The amounts are drawn from different sources among TxDOT accounting and research reports; and from FHWA Highway Statistics. Some amounts are stated on a cash basis; some on an accrual basis. The amounts are annual amounts but are drawn from different time periods: some from the Texas 2004/05 fiscal year ending 31 August and some from the calendar year 2004.

Counties and municipalities participate in the funding of certain classes of highways within their boundaries. Their participation is governed by cost-sharing agreements, and the amounts, nominally about $170 million annually, can vary significantly from year to year.

- **In 2004, TxDOT included about $12 billion of revenue from new funding tools in its revenue forecast.**

The 2004 Texas Metropolitan Mobility Plan (TMMP) for the eight Transportation Management Areas (TMAs) in Texas concluded with the mobility needs analysis presented in Exhibit II-3.

Exhibit II-3: 2004 Texas Metropolitan Mobility Plan Needs Analysis

$ billions from 2005 to 2025/2030, without "Mobility Rehab"	*Eight TMAs*	*Statewide*
Mobility Funding Needs	(135.87)	(188)
Traditional Committed Mobility Funds	68.35	102
Mobility Funding Shortfall	(67.52)	(86)
New Tools "Business Plan" 2005	12.35	12

The mobility funding shortfall, estimated to be $68 billion in the eight TMAs, was estimated in 2004 by TxDOT to be $86 billion statewide. These forecasts were used by TxDOT in legislative documents as recently as late 2006.[5]

- **This audit forecasts all traditional and new revenues for the 2004-2030 period at $117 billion, whereas the TxDOT mobility plan forecast of existing revenues and new revenues that were reasonably expected in 2004 was $114 billion.**

The audit analysis included the development of revenue forecasts by the Dye Management Group, Inc. team, which were compared to the forecast used in the 2004 metropolitan mobility needs analysis; the results are summarized in Exhibit II-4.

[5] TxDOT: Meeting the Texas Transportation Challenge. Legislative Strategies Addressing the Goals of…… Submitted to the 80th Texas Legislative Session.

Exhibit II-4: Revenue to Meet TxDOT Needs, Audit Forecast Compared to TxDOT 2004 Assumptions

$ billions from 2005 to 2025/2030, without "Mobility Rehab", state-wide	*TxDOT 2004*	*Audit Forecast 2007*
Traditional Committed Mobility Funds	102	start from 102
Less audit forecast's lower state revenue forecast		(8)
Less audit forecast's lower federal outlays forecast		(7)
Funds from existing sources	**102**	**87**
Funds from new tolls		25
CDA concessionaire payments from cost savings		5
New Tools "Business Plan" 2005	**12**	**30**
	114	**117**

It is important to note that these estimates include no provisions for inflation, neither in revenues nor in the costs of needs.

The forecasts, both those compiled by TxDOT in 2004 and those completed for this audit, rest upon many assumptions about future technologies, the economy and geo-politics. The assumptions underlying the audit forecasts are detailed in the following sections, along with the forecasts that they support. In aggregate, they are conservative assumptions and provide a somewhat pessimistic picture for funding in future years. Conservative assumptions are appropriate for the audit forecasts, the principal purpose of which is to illustrate risks to the expected stream of revenues in future years.

A.1.1. What is the long-term viability of the motor fuel tax?

Issue: Until recently, the motor fuel tax has provided the main approach for implementing a user fee-based philosophy to transportation finance. In Texas and nationally, it is now recognized that there are a number of long-term issues affecting the motor fuel tax, listed as follows:

- It is an imperfect user fee.
- The purchasing power of a fixed rate tax, that is a fixed amount per gallon, is eroded over time by inflation.
- The increase in engine efficiency, measured in miles per gallon, and the uptake of alternative fuels will reduce motor fuel tax yields.
- There are better technology-enabled approaches to levying user fees such as Vehicle Miles Traveled (VMT) charges.

Risk: Like most other states, Texas relies heavily on motor fuel taxes as a proxy for highway user fees. Over half of the state's approximately $9 billion of highway revenues are drawn from motor fuel taxes, about $2.2 billion directly from state motor fuel taxes and about $2.5 billion[6] indirectly, through federal excise taxes on motor fuels.

All motor fuel tax receipts, state and federal, have been eroded by increases in engine efficiencies, measured in miles driven per gallon of fuel burned (MPG). The introduction of carbon taxes or differentiated fees based on engine size or emissions would accelerate the uptake of alternative fueled vehicles and vehicles with higher miles per gallon.

1. Answer

This audit forecasts the state motor fuel tax for the 2004–2030 period at about $100 billion, whereas the TxDOT forecast in 2004 was about $108 billion. This forecast rests on the following assumptions:

- Prices remain constant, i.e., there is no inflation built into the forecast in order to make the result consistent with the 2004 TMMP forecast of revenues and of needs.
- Fuel efficiency increases, in accordance with the prediction made by The Transportation Research Board's *Committee for the Study of the Long-Term Viability of Fuel Taxes for Transportation*, as detailed below.

The details of the model and the estimates are provided in the technical appendices volume that accompanies this report.

The TxDOT 2004 forecast of state motor fuel tax revenues is based on a historical trend; it relies on that history to assume a forward trend of annual growth between 2% and 2.5% to 2030. Our forecast, the details of which are provided in Appendix B, estimates the historical relationships between state motor fuel taxes and state measures of:

- Population.
- Lane miles of national and state highways.
- State gross domestic product (GDP).
- Personal income.
- Average fuel efficiency of the light vehicle fleet.

[6] Texas apportionments from the Highway Account in the Federal Highway Trust Fund are, typically, about $2.9 billion per year. However, about $4 billion of the $31 billion in revenues deposited into the Highway Account Revenues in 2004 were generated by excise taxes charged on tires, trucks, trailers, and other items other than motor fuel. FHWA Highway Statistics, 2004, table fe10.

Upon determining the significant variables to be population, GDP, and fleet fuel efficiency, we forecast state tax receipts to 2030, assuming no changes in the tax rate. The forecasted growth declines in percentage terms over time: Between 2005 and 2006, the annual growth rate was 2.5%; between 2029 and 2030, the annual growth rate is predicted to be 1.4%.[7]

2. Analysis Strategy

In GBE's model of motor fuel tax revenue, we compared the definition of variables (the specification) and the mathematical structure (the functional form) with the known best practice forecast models in comparable agencies.

We compiled expert opinions and findings on the future values of those causal variables that have significant impacts upon forecast revenues: fleet fuel efficiency and substitution rates for alternative fuels. We inserted those future values into the modified models to estimate the funds available from the revenue sources that are used now by TxDOT or are included in the new funding tools available to TxDOT.

3. Findings

- **The audit forecasts state motor fuel tax revenue of about $100 billion over the 2005-2030 forecast period, about $8 billion less than in the TxDOT's 2004 forecast.**

The difference is because TxDOT's prior forecast uses trend data. The audit analysis is based on the relationships among population, lane miles of national and state highways, state GDP, personal income, average fuel efficiency of the light vehicle fleet, and motor fuel consumption.

- **The motor fuel tax provides the main approach for bringing a user-pay philosophy to transportation finance.**

Currently, across the nation, highway operations and programs derive most of their funding from user fees – special taxes and charges incurred by vehicle operators in relation to their use of roads. The primary source of user fees is fuel taxes: Over 50 percent comes from state motor fuel taxes, which are almost always a flat rate per gallon collected by the state on gas and diesel sold for highway use; about 30 percent comes from federal aid, funds provided to states from the federal government whose main source is a federal excise tax on gas and diesel sold for highway use. At present, about 90 percent of highway funding comes from these two sources.

[7] These rates of growth are lower than projected growth rates in the Texas population primarily due to two assumptions: Fuel efficiency of engines will continue to increase at the rates projected by the US Energy Information Administration and an aging population will make fewer trips per year. Also, they are lower than the corresponding percentage increases forecast for the federal fuel excise tax receipts because the current vehicle mix in Texas has proportionately more large cars and pickup trucks than the national average and, as a result, is forecast to go through a larger adjustment in response to high fuel prices.

Like all other states, Texas relies heavily on motor fuel taxes as a proxy for highway user fees. Over half of the approximately $9 billion in highway revenue is drawn from motor fuel taxes, approximately $2.2 billion directly from state motor fuel taxes, and approximately $2.5 billion indirectly through federal excise taxes on motor fuels.

Transportation officials in all states are concerned that the current sources of highway program revenues, in particular fuel taxes, will become unreliable in the future. Threats to their reliability include:

- Fuel consumption and consequently fuel tax revenue is being depressed by changes in automotive technology resulting in more fuel-efficient cars, including hybrids and alternative fuel vehicles.
- Rising fuel prices and new energy or environmental regulations are changing driving behaviors, leading to reduced fuel consumption and consequently proportionally less fuel tax.
- Voters have traditionally opposed increases in fuel taxes, and taxes have not kept pace with inflation.

A comprehensive study of the future viability of motor fuel taxes was undertaken by the Transportation Research Board in 2006. The committee appointed to oversee the research concluded:

"The risk is not great that the challenges evident today will prevent the highway finance system from maintaining its historical performance over the next 15 years; that is, it should be able to fund growth in capacity and some service improvements, although not at a rate that will reduce overall congestion. [Then, beyond that time] A reduction of 20 percent in average fuel consumption per vehicle mile is possible by 2025 if fuel economy improvement is driven by regulation or sustained fuel price increases."[8]

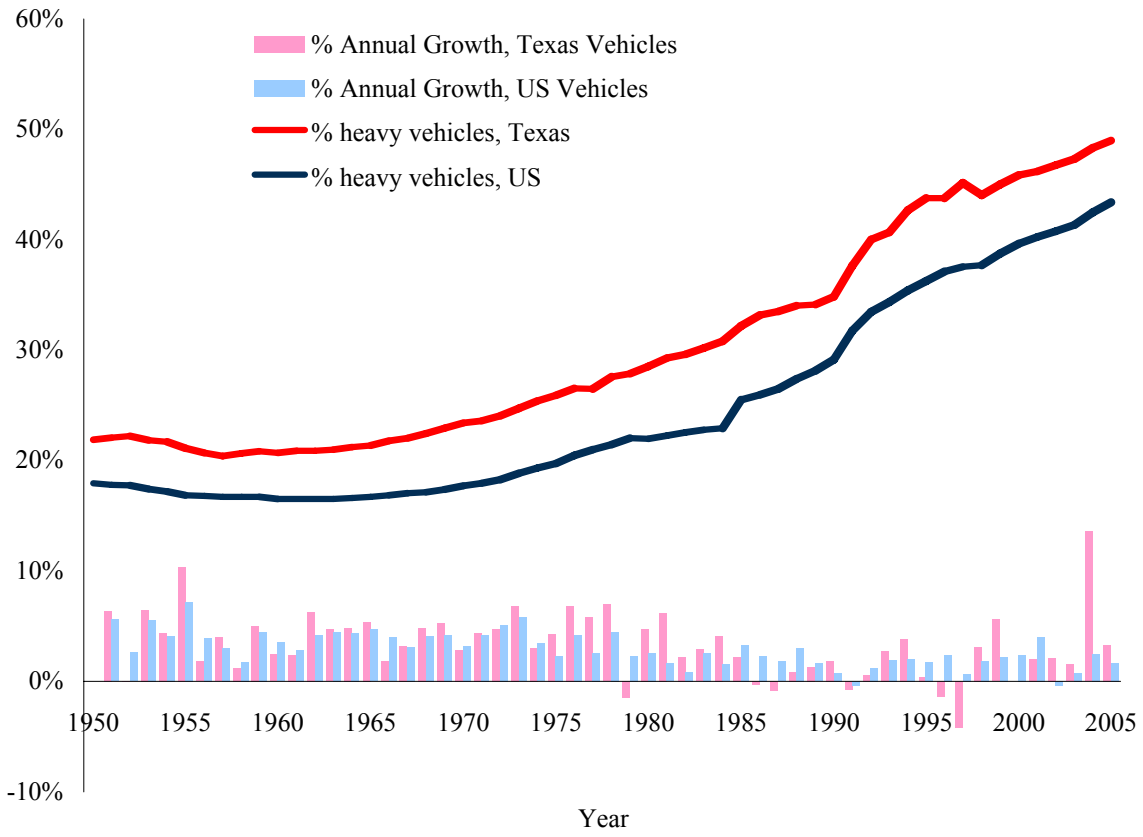
- **Texas's vehicle fleet has a higher proportion of heavy vehicles, which increases the financial risk from long-term capital replacement with increased fuel efficiency and alternative fuel vehicles.**

Texas has more heavy vehicles than the national average. Therefore, the increased costs of fuel have a much greater impact on the use of the Texas fleet than the nation as a whole. This will likely make the state motor fuel tax more vulnerable to the effects of long-term capital replacement and within multi-vehicle households that choose to use the more fuel-efficient vehicle.

Historical data on the makeup of the Texas vehicle fleet and the national vehicle fleet are shown in Exhibit II-5.

[8] Committee for the Study of the Long-Term Viability of Fuel Taxes for Transportation Finance The Fuel Tax and Alternatives for Transportation Funding. Special Report 285. Transportation Research Board, 2006

Exhibit II-5: Registered Private and Commercial Vehicles, US and Texas 1950-2005



The data shows that the Texas vehicle fleet is significantly different from the national average vehicle fleet: Texas has a higher proportion of heavy vehicles, and that proportion is growing at faster rate. A national average forecast of fuel efficiency is likely to overestimate fuel efficiency in Texas, both in terms of its absolute value and in terms of year-over-year gains in efficiency.

- **GBE's revenue model could be improved with a fleet cohort model that predicts the fuel efficiency of the Texas vehicle fleet.**

The GBE Division of TxDOT has recently acquired a model with which to forecast state motor fuel taxes. The model assumes a year-over-year increase in state motor fuel tax revenues as a baseline forecast and then allows for the adjustment of that forecast with the *Changes in Fuel Efficiency* forecast issued by the U.S. Energy Information Administration.[9] This forecast is a national average, i.e., it predicts the fuel efficiency of the national light vehicle fleet in future years.

[9] U.S. Energy Information Administration. *Transportation Module*, Annual Energy Outlook. http://www.eia.doe.gov/oiaf/aeo/assumption/pdf/transportation.pdf

Best practices for estimating fuel efficiency call for the construction of a separate model that forecasts the age cohorts of the Texas vehicle fleet: how many new vehicles are added each year and how many vehicles are scrapped each year. The EPA CAFE estimates for each model year can then be applied directly to the total number of vehicles from that model year that are predicted to be in the Texas vehicle fleet. The GBE Division advised that they have recently undertaken this improvement.

A.1.2. What is the capacity of user fees collected directly through tolls or via CDAs?

Issue: Texas' market-driven approach to funding mobility needs has charted new ground in the United States. There are about a dozen CDAs under procurement, and over 100 traffic and revenue studies have been completed to a Level One analysis. An outstanding issue is identification of the upper limits of revenue that can be yielded from toll-financed debt. To analyze this issue involves an assessment of the capacity of TxDOT's new financial tools to address transportation needs. The analysis would entail an assessment of the capital available to fund transportation projects through user fees.

Risk: There is the policy expectation that the new finance mechanisms can address Texas' mobility needs. Interviews with TxDOT leadership and advisors indicate that there are relatively large amounts of private capital that can be accessed to finance transportation needs. Given the critical role of these new mechanisms in meeting mobility needs, the risks warrant analysis.

1. Answer

In total, some $30 billion in additional revenue is forecast through the new financing tools. The audit forecasts new toll revenues collected in the eight Transportation Management Areas in Texas during the 2004–2030 period at about $25 billion on a gross basis, that is before the capital or operating costs of the new toll facilities that generate those revenues. The forecast of additional payment that may come available to the state under CDAs is for the 2004–2030 period is about $5 billion, all arising from savings in financing costs.

2. Analysis Strategy

To estimate toll revenues, we obtained and reviewed the toll revenue forecast model recently developed by the GBE Division. We tested and operated the models to ensure their correct functions, then modified them wherever they made implicit assumptions about the variables that impact toll revenues: the proportion of an urban system that is tolled and the willingness of travelers in an urban area to pay tolls. We operated the modified models to assess their sensitivities to variations in these variables.

Using the analyses of the costs of private and public capital outlined in Audit Area B.2, we estimated the savings in the costs of capital that could be achieved by a comprehensive development agreement.

3. Findings

- **The audit forecasts new toll revenues collected in the eight Transportation Management Areas in Texas during the 2004–2030 period at about $25 billion.**

In the 2004 Texas Metropolitan Mobility Plan for the eight TMAs in Texas, TxDOT includes an estimate of about $12 billion in funds available from the new funding tools, i.e., from new toll roads, from payments made by concessionaires under CDAs, and from local participation.

The audit forecasts new toll revenues collected in the eight TMAs in Texas during the 2004–2030 period at about $25 billion, upon the following assumptions:

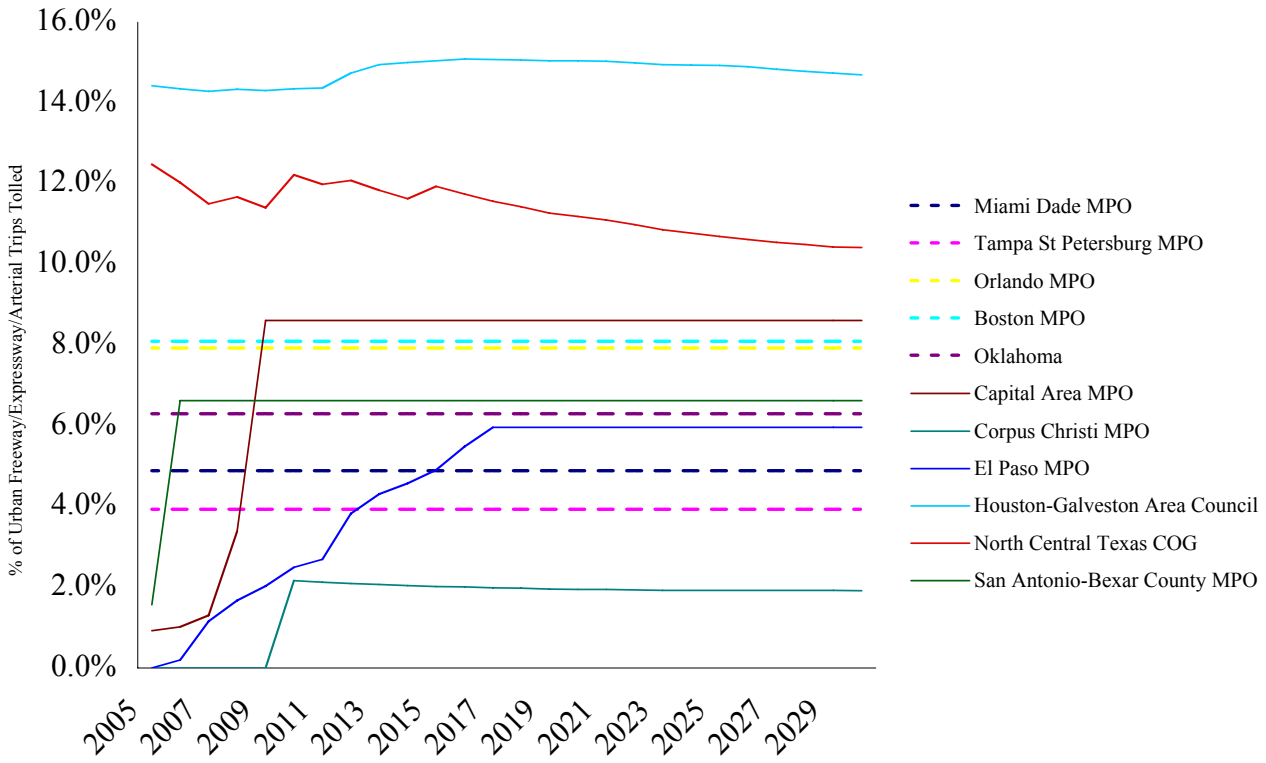
- Toll prices remain constant, i.e., there is no inflation. The assumption is built into the forecast in order to make the result consistent with the 2004 TMMP forecast of revenues and of needs.
- Toll rates on new projects continue to be based on the value of traveler's time.
- Included in this forecast are the portions of CDA payments that private sector concessionaires are able to fund by achieving traffic growth higher than the traffic and revenue studies predicted.

This forecast is produced with a modified version of the policy-level model of toll revenues that is held in the GBE Division of TxDOT. This model does not generate a forecast of specific toll roads that are open to traffic today or planned for construction. The outputs of the forecast are estimates of the total number of trips on all toll roads and the toll revenues that could be collected on all toll roads throughout Texas at different levels of average price per tolled vehicle, assuming that sufficient toll roads exist to supply the demand for tolled travel. This model predicts toll revenue at the project level for two different classes of toll projects:

- For existing toll roads, toll revenues are forecast as functions of population and state GDP and are excluded from the $25 billion reported above as new toll revenues.
- For new toll projects that have been defined and are predicted to come into service, growth in traffic and toll revenues are forecasted as functions of population and state GDP, using coefficients from the Level 2 traffic and revenue studies produced for the Texas Turnpike Authority.

Beyond the toll roads already operating and beyond the specific potential toll projects already defined, there is some further potential for additional toll facilities throughout Texas in future years. This future potential is expressed as a market share: the percentage of highway trips within a TMA that are tolled trips. The market shares assumed in this forecast for the eight Texas TMAs are shown in Exhibit II-6.

Exhibit II-6: After Caps, Floors and Price Elasticities: Shares of Traffic Tolled in the Revenue Forecast



These additional unspecified toll facilities are assumed to be located in the same densely traveled urban areas in which existing and potential toll projects are already defined. The values of time, the proportions of toll traffic that are diverted and generated, and the price elasticities of traffic with respect to toll pricing associated with these additional unspecified projects are assumed to be the same as the existing and defined future toll projects in the same urban area. These estimates are available from three of the traffic and revenue studies that have been completed, using methods that include independent estimates of the average value of time, time savings, total traffic and revenue.

- **The audit forecasts an additional $5 billion in revenue as part of CDA concession fees.**

The forecast of additional payment that may become available to the state under CDAs for the 2004–2030 period is about $5 billion, all arising from savings in financing costs.

Concessions are toll highway projects for which both the costs and revenues have been passed to the private sector. Private sector firms have paid significant fees to the governments for these concessions in the past, and Texas can reasonably expect revenues from concession fees in the future.

From the perspective of a private sector concessionaire, a concession fee payable to the state represents a share of the relatively better financial performance that the concessionaire expects to achieve in its management of the toll highway. In theory, such relatively better financial performance is possible from one or more of the five following sources:

- **Higher tolls.** A private sector operator of a toll highway, not facing the direct public accountability of public sector agencies, may raise tolls to higher levels than would a public toll authority. This is not likely to be the case in Texas, where CDA tolls are regulated. In our forecast of $25 billion in toll revenues, we assume that private sector concessionaires would not be permitted to charge tolls that are higher than those charged by a public sector toll authority if that authority was setting tolls based on the value of time saved by their customers.
- **More traffic.** As discussed in Audit Area B.3.2, investment-grade traffic and revenue studies have a tendency to under-estimate traffic. An investor of equity into a toll project can reasonably expect that the traffic that actually travels on the toll highway will be more than its traffic and revenue study predicts and can share that risk and reward with the state.
- **Reduced financing costs.** As estimated in Section IV Audit Area B.2, the combination of private equity and private activity bonds available to a concessionaire have a lower cost than the state or municipal bonds that can be issued by public sector toll authorities.
- **Reduced operating or construction costs.** Within the toll revenues that either a private sector firm or a public toll authority would charge, the private sector investor may incur lower capital and operating costs, including a reasonable return on investment. We estimate these to be less than 2% of the project's life cycle cost.[10]
- **Net revenues from other activities that are adjunct to the toll highway, such as real estate development outside the boundaries of the toll highway right-of-way.** We make the conservative assumption that these are negligible. Such opportunities have not, to date, been made available to concessionaires in Texas.

[10] Dye Management Group Inc. Case Studies of Major Capital Projects Implemented by Washington State Government and Review of the General Contractor/ Construction Manager (GC/CM) Contracting Method. State of Washington, Joint Legislative Audit and Review Committee. July 2004.

The private sector investor could make such a payment as a lump sum —i.e., the present value of these expected incremental financial gains — at the commencement of the concession or as earned on a year-to-year basis.

Negligible incremental revenues are assumed to be available from local participation because they are most likely to arise as an alternative to tolls rather than as an addition to them: counties and municipalities in California, for example, pursued local option taxes as an alternative to tolls.

- **Outside of TMAs and, perhaps, inside them, the new funding tools will not provide the revenue required to address needs.**

The MPOs in Texas, other than the eight TMAs, and other districts will not yield revenue from the new funding mechanisms to fill the needs gap arising from growth and the limitations of motor fuel taxes. These areas will be dependent on the allocation of funds to the "build it" categories, which cannot keep pace with inflation or growth. For these areas, an additional funding mechanism will be required over time.

A.1.3. What are the opportunities and risks to TxDOT from trends in federal surface transportation funding?

Issue: Federal funds have represented an important but decreasing proportion of funds available to develop TxDOT's transportation system. The federal highway funds that flow through federal apportionments to TxDOT have totaled approximately $2.9 billion per year. Reimbursements in any one year directly related to state payments on federal aid projects and the percentage of state participation required in those projects.

The complex reimbursement process imposes a significant administrative load on departments of transportation in all states and requires those departments, including TxDOT, to raise the sufficient cash to fund expenditures until they are reimbursed.[11] The federal legislation that authorizes these reimbursements has limited TxDOT's flexibility with regard to the way some of those funds can be programmed.

Related to the risks to TxDOT from anticipated trends in federal policy and funding for surface transportation are the impacts of the funding of discretionary projects and the federal funding structure on TxDOT's ability to use funds in the most effective manner to address Strategic Plan for 2007–2011 goals.

The Federal Highway Administration (FHWA) offers several innovative financing programs that allow federal aid funds to be combined with state debt[12] to accelerate highway projects. These programs represent a source of funds that TxDOT has and will continue to use; TxDOT has accelerated the inflow of federal funds through its use of innovative financing tools in recent years. There may be additional ways in which these programs could be used by TxDOT.

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[11] Usually this happens within one business day.

[12] E.g. state infrastructure banks, GARVEE bonds, and TIFIA loans.

Risks: There are short-term risks within the current life of the *Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users* (SAFETEA-LU) and longer-term risks associated with subsequent reauthorization. Short-term risks arise from the level and timing of continuing budget resolutions, while the longer-term risks relate to federal funding. Recent analysis by the American Association of State Highway Transportation Officials (AASHTO) has raised concerns about the draw down of the federal Highway Trust Fund (HTF). AASHTO forecasts that the highway account will require, at a minimum, an additional $5 billion annually beyond 2009 to maintain the current level of apportionments.

In addition, there is some expectation that the overall structure of federal funding for surface transportation, especially highways, will be evaluated as part of the policy process for reauthorization of the Surface Transportation Act in 2009. This offers both opportunity and risk to TxDOT, depending on the outcome of reauthorization on the federal program structure.

1. Answer

The audit forecasts federal aid funds available for obligation between 2004 and 2030 at about $7 billion lower than TxDOT's forecast from 2004. The audit forecast is compiled according to the following key assumptions:

- The rescissions required by SAFETEA-LU in 2009 will take place.
- After 2009, successive authorizing bills will be passed such that continuing resolutions may be required but not so much as to constrain the funds available over periods of several years.
- The annual growth rate of federal HTF revenues, historically about 2%, will fall below 2% in 2025 to due to increasing fuel efficiency.
- The United States Congress will reduce obligation limitations within the highway firewall by about $3 billion per year, commencing in 2012, to reduce the federal deficit.
- The United States Congress will not increase the federal excise taxes on motor fuel nor increase any other taxes that would result in revenue increases for the Highway Trust Fund.

The basis for each of these assumptions are explained in the findings section below.

The Audit (DMGI) forecast is compared in Exhibit II-7 below to the forecasts produced by the Congressional Budget Office (CBO) and FHWA. An explanation of the exhibit follows in the text below it.

Exhibit II-7: Audit Forecast of Federal Funds

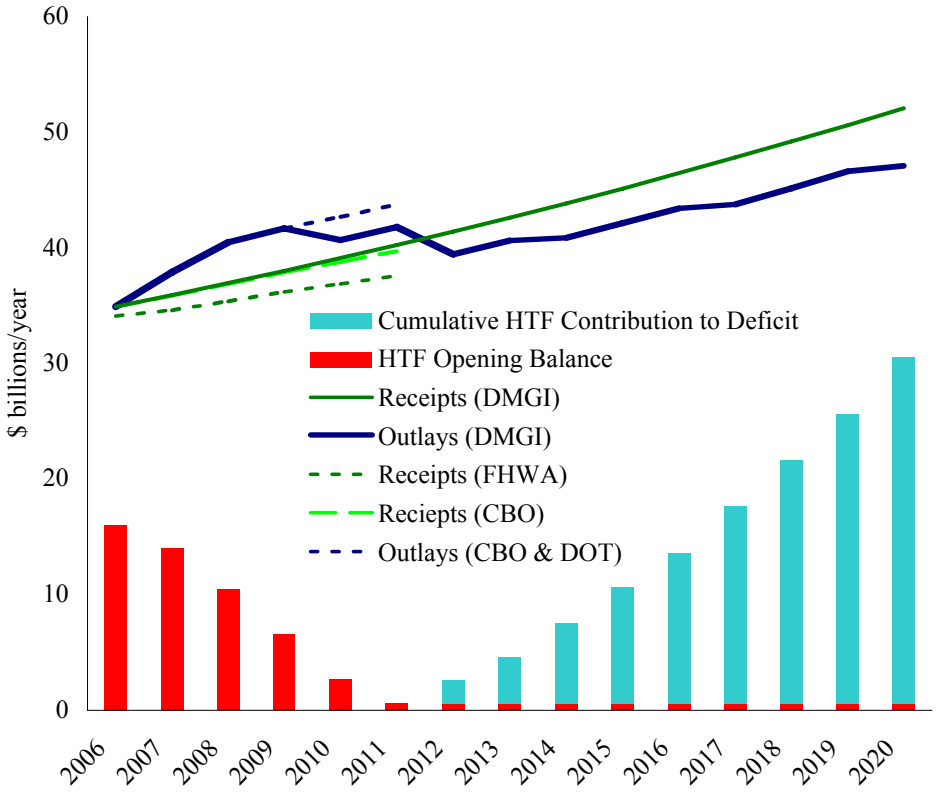

Exhibit II-7 is read as follows:

The green lines are forecasts of receipts into the federal Highway Trust Fund: with the FHWA and CBO forecasts shown with dashed lines and the Dye Management Group, Inc. forecast shown with a solid line. The Dye Management Group, Inc. and CBO forecasts are the same until 2011.

The dark blue lines are forecasts of outlays from the federal Highway Trust Fund, with the CBO and U.S. Department of Transportation forecasts shown with a dashed line and the Dye Management Group, Inc. forecast shown with the solid line. The Dye Management Group, Inc. forecast for outlays falls below the two US government forecasts from 2009 to 2011 to keep the HTF cash balance from becoming negative and to fund contributions from the Highway Trust Fund to reduce the federal government's operating deficit, commencing in 2012.

The red bars show the closing balance of the federal Highway Trust Fund, falling to almost zero in 2011, as outlays are reduced from 2009 to 2011 to keep the balance positive, then remaining just above zero beyond 2011 as outlays are reduced further.

The blue bars show the accumulating contributions from the federal Highway Trust Fund toward the reduction of the federal operating deficit. The contributions are assumed to be $3 billion per year, commencing in 2012. By 2020, nine years' worth of these contributions total to $27 billion.

Across all states, authority for obligations will remain flat or will decline from 2006 to 2013, then increase by about $1 billion per year thereafter, which translates to increases in obligation authority of less than $100 million annually for Texas.

2. Analysis Strategy

The analysis steps are detailed as follows:

- Reviewed the structure of the Federal Aid Highway Program and the authorizations and apportionments contained in the SAFETEA-LU.
- Built a simple model for forecasting the long-term net receipts to the Highway Account of the federal Highway Trust Fund and tested this model for sensitivities to key economic and demographic variables, then compared the resulting forecast trend lines to those used by the TxDOT TP&P Division.
- Compared the results of this model to the ten year forecasts produced in the federal budget process by the U.S. Department of Transportation and the Congressional Budget Office.

3. Findings

- **The Federal Highway Trust Fund is vulnerable to the erosion of motor fuel taxes and the Federal Government's operating deficit.**

The U.S. Government, through the FHWA in the U.S. Department of Transportation, makes about $30 billion available each year to share in the costs of eligible and approved highway projects that are undertaken by state departments of transportation across the country.[13] These funds, which amount to over a third of capital expenditures on highways in the United States by all levels of government,[14] are raised from federal excise taxes of 18.4¢ per gallon on gasoline and gasohol in highway use, 24.4 ¢/gal on diesel in highway use, and various rates on the sale of tires, trucks and trailers.[15]

[13] Federal Highway Administration. Highway Statistics, 2005: Table FE-10
[14] Federal Highway Administration. Highway Statistics, 2004: Table HF-2
[15] Federal Highway Administration. Highway Statistics, 2005: Table FE-10

Because over 90% of the Federal Aid Highway Program consists of discretionary programs,[16] we assume that the growth rate in appropriations and obligation limitations will not exceed the growth rate in Federal Excise Taxes receipts into Highway Trust Fund. In other words, the federal aid funds available for obligation will be determined by the growth rates in motor fuel tax receipts that, in turn, are influenced by VMT, fleet fuel efficiency (CAFE)[17] and the use of alternative fuels. These factors are taken into account in the long-term forecast presented below.

At about $30 billion, the Federal Aid Highway Program represents about 1% of approximately $265 billion total U.S. government expenditures and about 4% of all discretionary program expenditures. The current federal deficit is about $250 billion, approximately 10% of all government programs. We assume that the deficit must be eliminated by 2025 and, to accomplish this, Congress will reduce obligation limitations within the highway firewall by $3 billion per year, commencing in 2010. Deducting this contribution to the operating deficit from projected HTF receipts leaves funds sufficient to increase outlays by about $8 billion nationwide between 2013 and 2020.

- **The consensus of expert forecasts is that, nationwide, the capacity for new obligations will remain stagnant from 2006 to about 2013.**

To forecast which funds may be available to Texas for obligation, it is necessary to examine the future prospects for each of the measures that the U.S. Congress and the FHWA take to determine the availability of federal funds for obligation in each fiscal year. The assumptions in the forecast are arranged according to these measures in the sub-sections below.

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[16] The term "discretionary program" is used here as it was defined in the U.S. *Budget Enforcement Act* (1990), which established deficit reduction goals for the U.S. government. This Act divides all federal spending into two categories, based on the ability of Congress to control the spending through the annual appropriations process:

- Mandatory programs, which are subject to binding legal obligation of the U.S. Government to provide funding. Mandatory programs account for about two-thirds of all U.S. government spending and include food stamps, social security, Medicare, veterans' benefits and interest on the national debt. Congress cannot alter spending for these programs in a given year without changing their authorizing legislation. Only two surface transportation programs are mandatory programs: Emergency Relief and part of the Minimum Guarantee program.
- Discretionary programs, which are subject to annual funding decisions in the appropriations process. The Congress may reduce spending for a discretionary program by reducing its annual appropriation or, in the case of a contract authority program, by imposing an obligation limitation upon it. Discretionary spending includes defense, the Federal Bureau of Investigation, the Internal Revenue Service, the Environmental Protection Agency, and transportation programs.

[17] "Corporate Average Fuel Economy" sales weighted average fuel economy, expressed in miles per gallon (mpg), of a manufacturer's fleet of passenger cars or light trucks with a gross vehicle weight rating (GVWR) of 8,500 lbs. or less, manufactured for sale in the United States, for any given model year. The National Highway Traffic Safety Administration (NHTSA)is responsible for establishing and amending the CAFE standards; promulgating regulations concerning CAFE procedures, definitions and reports; enforcing fuel economy standards and regulations.

We presume that the reader is acquainted, but not intimately familiar, with the ins and outs of the process by which the availability of funds is determined for the Federal Aid Highway Program.[18]

With the passage of SAFETEA-LU, authorizing legislation is in place until 2009 and there is no threat that the availability of funds will be constrained by continuing resolutions before that time. We assume that, after 2009, successive authorizing bills will be passed such that continuing resolutions may be required but not so much as to constrain the funds available over periods of several years. We also assume that the rescissions required in 2009 will take place.

Apportionments are subject to a rule defined in the Byrd Amendment that there is enough cash in the HTF to make reimbursements. Unfunded authorizations, i.e., unpaid commitments in excess of amounts available in the HTF at the end of the fiscal year in which the apportionment is to be made, must be less than the revenues anticipated to be earned in the following 24-month period. This rule translates approximately to a three-year rule: obligations at the beginning of a fiscal year should not be more than three years' worth of apportionments. If unfunded authorizations exceed the limit, then all apportionments are reduced in the current year to make sufficient funds available for the unfunded authorizations of prior years. We assume that outlays can reduce the cash balance in the HTF to zero but not below zero, such that the HTF barely complies with the Byrd Amendment in the long term after the firewalled reduction in outlays is transferred to the General Fund to reduce the federal government's operating deficit.

With outlays from current commitments expected to exceed HTF receipts until 2009, the HTF cash balance will be eliminated in that period. Thereafter, new outlays are assumed to equal receipts less firewall reductions in obligation limitations that will generate a $30 billion surplus within the HTF by 2020. This surplus is assumed to be the HTF contribution to the operating deficit of the federal government; HTF cash balances are kept to negligible levels.

The forecast assumes that the political ability of the Texas delegation to Washington does not change and nor does Texas' share of apportionments. The forecast also assumes that other states have not succeeded in committing the Federal-Aid Highway Program beyond the next five years, i.e., all current obligations are reimbursed by 2011.

The forecast assumes that current and future federal governments will not increase federal excise taxes on motor fuels; behavior that differs from that of prior governments, as Exhibit II-8 illustrates.

[18] To assist the reader in their acquaintance with the complex administration of this program, a basic description of the process and a glossary will be appended to the final report.

Exhibit II-8: Summary of Changes in the Federal Excise Tax on Gasoline[19]

Tax Rate, ¢ per gallon	Effective Date
18.4	Oct 1997
18.3	Jan 1996
18.4	Oct 1993
14.1	Dec 1990
9.0	Sep 1990
9.1	Jan 1987
9.0	Apr 1983
4.0	Oct 1959

- **Historically, net receipts of the Federal Highway Account have grown at a rate of over 2% per year. This growth rate will not be sustained in the long run but will drop below 2% per year in about 2025.**

By applying ordinary least squares (OLS) regressions to historical data from 1980 to 2005, we estimated the relationships between federal excise taxes deposited into the federal HTF and national measures of:

- Population.
- Lane miles of national and state highways.
- GDP.
- Median household income.
- Average fuel efficiency of the light vehicle fleet.

Details of the estimates are provided in Appendix B to the report. Upon determining the significant variables to be population, GDP, and fleet fuel efficiency, federal excise tax receipts were forecast to 2030, assuming no changes in the relevant tax rates. The forecasted growth declines in percentage terms over time: Between 2005 and 2006, the annual growth rate was 2.9%; between 2029 and 2030, the annual growth rate will be 1.8%.

- **TxDOT does not maintain a structural model, such as one with the form and functions of the model used in this report, to forecast the availability of federal funds.**

The TP&P Division is the unit within TxDOT that makes periodic forecasts of federal funds availability in future years. To do so, TP&P estimates the historical rate of annual growth (its current estimate is about 2% per year), makes a baseline projection of revenues into future years at the historical growth rate, then adjusts

[19] Talley, Louis. A. RL30304: *The Federal Excise Tax on Gasoline and the Highway Trust Fund – A Short History*. CRS Report for Congress. March 2000.

the baseline projection in a qualitative fashion to account for some of the explanatory variables that are listed above. TP&P does not maintain a model that incorporates those explanatory variables in a systematic way.

A.1.4. What is TxDOT's capacity for debt finance to address transportation needs?

Issue: There are always different perspectives regarding the desirability of using debt and the extent to which debt should be used to finance a highway program. These questions are addressed in Section IV Audit Area B.2 of this audit. Regardless of conclusions about the desirability of using debt, a first consideration in evaluating the current level of programming within the UTP is understanding the additional borrowing capacity, which debt instruments should be considered, and what the benefits and costs associated with the use of debt would be.

Risk: Theoretically TxDOT would use debt where there were positive net financial benefits to the state as the owner of infrastructure. The risk is that TxDOT will forego the opportunity to finance such projects and capture less than the maximum achievable financial benefit.

1. Answer

TxDOT has the immediate capacity to issue a further $1.4 billion in debt within the state's current limits on highway-related debt: None in the Texas Mobility Fund (TMF) and about $1.4 billion of Proposition 14 debt. Beyond the currently authorized $1.4 billion of un-issued debt, Texas could issue a further $5 billion of highway-related debt and still keep its debt service/highway revenue ratio below 10%, the approximate average of all U.S. states.

The TMF is authorized to issue debt subject to three conditions:

- The TMF must maintain a debt service coverage ratio of at least 110%.
- The Texas Comptroller must certify that the revenues to the TMF will produce a minimum of 100% debt coverage.
- The Texas Bond Review Board must approve the debt issuance.

To June 2007, the Bond Review Board has approved $4 billion in debt for this program. Outstanding TMF debt was approximately $1.8 billion as of August 2006 and is almost $4 billion as of June 2007.

In 2003, the Texas Legislature authorized bonds to be issued for the State Highway Fund, with debt service to be met by the revenues of that fund, subject to two limits: total issued debt must not exceed $3 billion, and no more than $1 billion can be issued in any one year. TxDOT had issued approximately $600 million as of August 2006 and about $1.6 billion as of June 2007 under this provision, all for the acceleration of UTP projects.

Not included in this estimate of authorized but unissued debt is any additional amounts authorized by the Texas Legislature in 2007. Also not included in this estimate is the state infrastructure bank, formed in 1997 under the FHWA's National Highway Designation Act pilot project. Self-funding after receiving its initial capitalization, the Texas state infrastructure bank has approved over $290 million of loans[20] against applications totaling to about $443 million.[21]

TxDOT's current debt service requirements are estimated to be over $100 million per year, as shown in Exhibit II-9.

Exhibit II-9: TxDOT's Debt Service Requirements[22]

	$ millions/year
TTA Series 2002-A	37
TTA Series 2002-B	5
TMF Series 2005-A	56
TMF Series 2005-B	6
TTA Bond Anticipation Notes, replaced by TIFA loan:	44
TMF Series 2006-A	49[23]
SHF Proposition 14 Series 2006 A & B	24[24]

2. Analysis Strategy

The analysis steps are detailed as follows:

- Examined the amount of debt issued by TxDOT relative to the limits on debt that are authorized by the Texas Legislature.
- Examined TxDOT's limitations on debt in the context of best practices among state governments.
- Examined the total indebtedness for highway-related debt of Texas relative to other states at the current levels of issued debt.
- Projected how Texas' standing relative to other states would change if TxDOT issued all of the debt that is currently authorized by the Texas Legislature.

[20] FHWA Highway Statistics, 2005. Finance Table Fa-22.

[21] Total SIB applicants: http://www.dot.state.tx.us/publications/finance/total_applicants.pdf

[22] SHF Proposition 14 Bond debt service and debt service for all TTA series from TxDOT Annual Financial Report, 31 August 2006.

[23] TxDOT Annual Financial Report, August 31 2006. Notes to the financial report Series 2006-A as an issue of $1.04 billion, with interest rates ranging from 4% to 5% and a final maturity date of 2035.

[24] Approximately $49 million biannually.

3. Findings

- **The state government of Texas has, until now, used relatively little debt to fund its highway system.**

With respect to the non-tolled portion of the state highway system, Texas was a "pay-as-you-go" state until:

  - 2001, when Proposition 15 allowed for general obligation bonds to be issued and serviced from the revenues dedicated to the Texas Mobility Fund; and
  - 2003, when Proposition 14 allowed for State Highway Fund revenue bonds.

The amounts of authorized and issued debt are summarized above.

Texas Mobility Fund debt is secured by the revenues that the legislature undertakes to pay into the fund and "backstopped" by a general obligation of the state. That general obligation is only considered "on-book" and "on-rating" for the state to the extent to which it must be called upon to service Texas Mobility Fund debt.

State Highway Fund revenue bonds receive high ratings. The most recent series, issued in November 2006, was rated as Aa1 by Moody's and AAA by Standard and Poor's.[25] Texas Mobility Fund debt also receives high ratings: the most recent issue was rated Aa1 by Moody's, AA by Standard and Poor's and AA^+ by Fitch.[26]

The Texas Turnpike Authority Division began issuing debt and assuming obligations under TIFIA loans in 2002 to fund the Central Texas Turnpike System. These liabilities are secured by expected facility revenues with no recourse to the state.

- **Local governments and toll authorities issue debt extensively to fund highway construction, with the result of over $14 billion in debt currently outstanding when combined at both state and local levels of government.**

County and municipal governments raise revenues, issue debt and expend funds on roads within their jurisdictions. Texas taxpayers are ultimately responsible for the highway-related debt of all levels of government and will respond to proposals for further issues of state debt with the debts of local governments in mind.

Exhibit II-10 shows, at a very high level and with very approximate data, the amounts of highway-related debt authorized and outstanding in Texas as of late 2006 and early 2007.

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[25] Texas Transportation Commission. Official Statement: State Highway Fund First Tier Revenue Bonds, Series 2006-A. November 2006. TXDOT3-OS.pdf.
[26] James Bass, TxDOT Chief Financial Officer, July 2007.

Exhibit II-10: Highway-Related Debt in Texas, $ billions[27]

	Authorized	*Outstanding*	*Description*
Toll Roads			
Private Concessionaires	1.8	0.0	Private activity bonds
Harris County Toll Road Authority		1.6	
North Texas Tollway Authority		1.4	
Other Local Toll Authorities		0.2	
Texas Turnpike Authority		2.2	Mostly for the Central Texas Turnpike
Local Highways			
Municipalities, Counties, Regions		4.6	
Texas Public Finance Authority	0.2	0.1	State general obligation bonds to assist border counties
State Obligations for Local Highways		0.0	
State			
Texas Mobility Fund	4.0	4.0	State bonds backed by dedicated state revenues
State Highway Fund	3.0	0.7	State revenue bonds
Other State Obligations	0.3	0.1	Cash management commercial paper
Federal Innovative Financing			
State Infrastructure Bank*		0.2	Revolving fund backed by federal and state match apportionments.
TIFIA loan	0.9	0.0	for TTA Central Texas Turnpike System
All State and Local Obligations		**15.1**	

*State Infrastructure Bank loans appear on the financial statements of municipalities and counties as liabilities and on the financial statements of the State of Texas as assets.

Local toll authorities have been issuing municipal bonds for many years to finance their systems. The outstanding debt of these toll authorities is about $3 billion, secured by toll authorities' revenues with no recourse to the state.

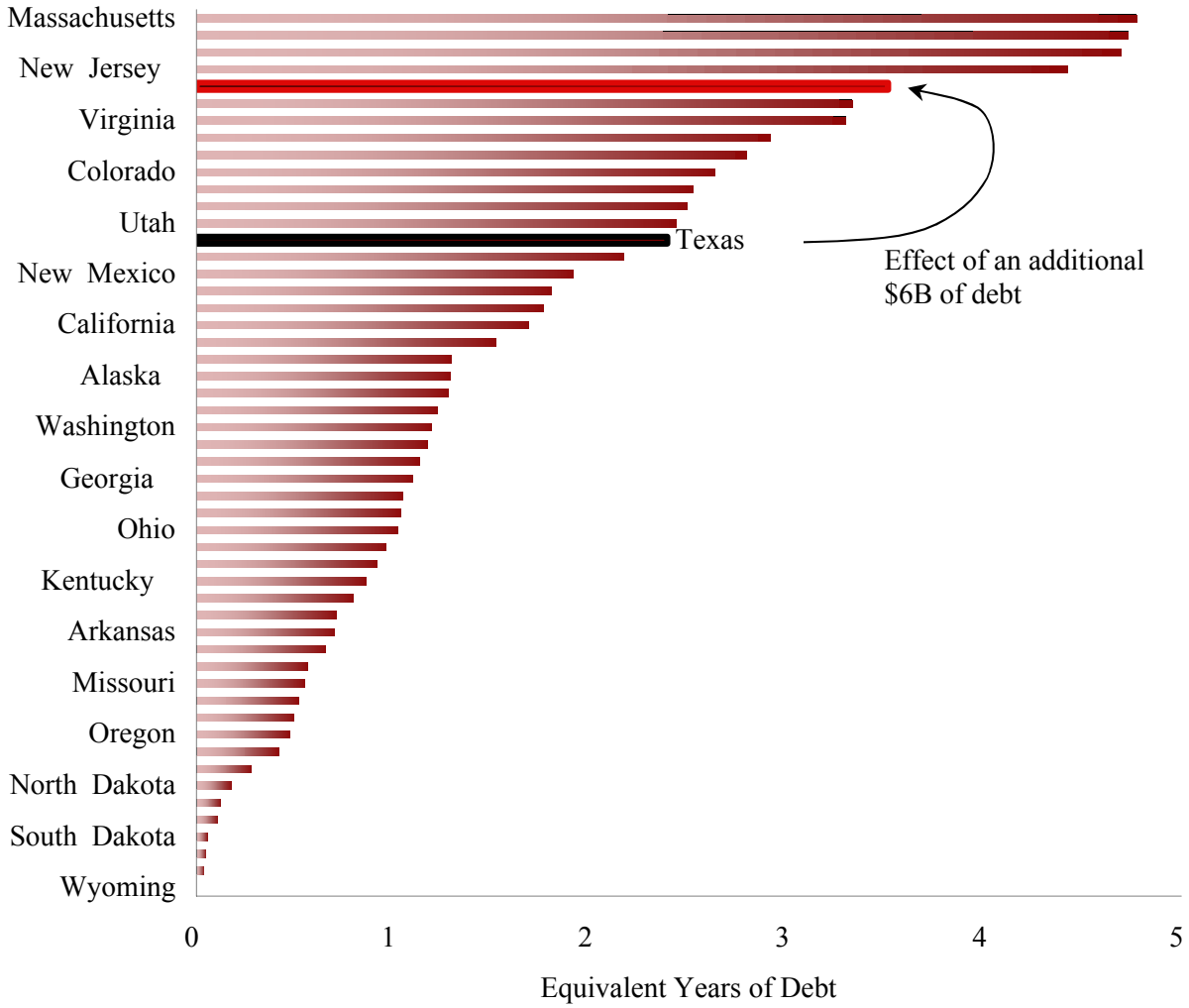
- **Because of the intensive use of highway-related debt by local authorities, further issues of highway-related debt authorizations would make Texas, at both levels of government, relatively heavily indebted with respect to highway debt.**

The judicious uses of debt, explained in Audit Area B.2, are generally the same from state to state. It follows that the use of highway debt in Texas should not appear to be significantly different than in other states.

In Exhibit II-11, Texas is ranked along with all other states in its levels of highway-related debt for state governments, local governments, and toll authorities. In order to compare these across states of different sizes, the amount of outstanding debt in each state is divided by the size of the highway program in that state, to create a common index of how many years of highway construction expenditures are represented in the total highway-related debt in that state.

[27] All amounts are in $ billions. The amounts are drawn from different sources among Texas state government reports for 2004/05 and 2005/06 and from FHWA project financing and Highway Statistics from 2002 to 2004. Because they are drawn from unreconciled sources and from different times, they should be taken only as illustrative data.

Exhibit II-11: Highway-Related Debt Divided by Annual State Highway Disbursements[28]



To illustrate the sensitivity of this ranking to additional debt, if an additional $5 billion of state government debt and an additional $1 billion in local government debt is incurred, those additions would make the total outstanding debt equal to about 3.5 years of total TxDOT highway program expenditures, a very high level of indebtedness compared to other states.

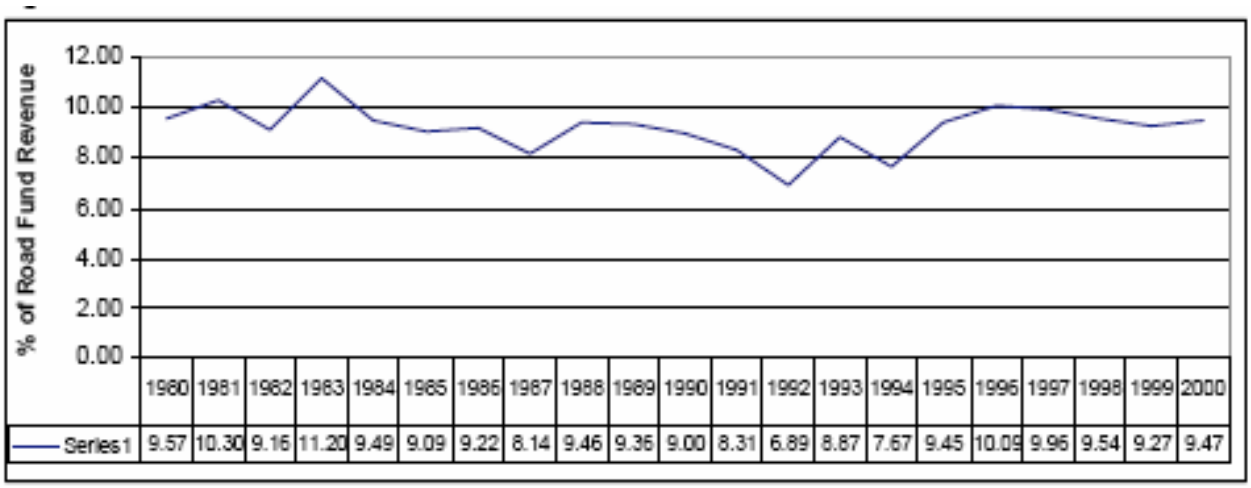
In 2002, 33 U.S. states reported their ratios of debt service to all revenues for state-wide debt as ranging from 0.9% to 5.25%, with a mean of 3%. That ratio for all state-level highway debt in Texas was 1.33% as of August 31, 2006.[29]

Over the past two decades, the indebtedness of U.S. states with respect to highway related debt has resulted in ratios of highway debt service to highway revenues that are on average approximately 10%, as is illustrated in Exhibit II-12.

[28] FHWA Highway Statistics, 2004. Numerator is all state and local highway-related debt outstanding at year end. Denominator is all state highway-related disbursements.

[29] Texas Office of the Comptroller. Treasury Operations Report: Bond Appendix A. November 2006. http://www.window.state.tx.us/treasops/0611bond.pdf

Exhibit II-12: Debt service as a percentage of highway fund revenue, all states 1980 to 2000



	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Series1	9.57	10.30	9.16	11.20	9.49	9.09	9.22	8.14	9.46	9.36	9.00	8.31	6.89	8.87	7.67	9.45	10.09	9.96	9.54	9.27	9.47

Source: Calculated from University of Kentucky Transportation Center Survey-2003

Should TxDOT issue another $5 billion in debt, the resulting total debt service requirements would be about 10% of highway-related tax revenues.

- **The current limit on all state general obligation debt services costs, 5% of general revenues, is conservative but reasonable when compared to best practices.**

Article III, Section 49j of the Texas Constitution prohibits additional State debt[30] if the resulting annual debt service exceeds 5% of the average amount of general revenue for the three prior years, excluding revenues constitutionally dedicated for purposes other than payment of debt service.

There are no hard and fast technical limits on this ratio; in each jurisdiction in which it is applied, it encapsulates the decisions of policy-makers about borrowing and saving. The World Bank notes:

"Sustainable debt principles…argue that the proportion of revenues allocated to debt services must be limited by the debt service tolerance of a jurisdiction's constituents. How high the limits of debt service tolerance varies…[with debt service] payments in the U.S. [states that] average 4 percent of revenues; in Germany 8 percent and in Canada, 12 percent."[31]

A recent survey of 37 U.S. states[32] found that 23 of those states had limits set on their debt service/revenue ratios for statewide debt. Of those states, 16 are enshrined in either their constitutions or their legislations and are, in effect, fixed. From this perspective of collective preference, there is no basis from which to suggest that Texas' self-imposed 5% limit of the state's debt service/revenue ratio is inappropriate.

[30] Defined in the constitution to mean debt payable from general revenues, including authorized but unissued bonds and lease purchase contracts in excess of $250,000 or for a term of greater than five years.
[31] Dillinger (2000).
[32] Hackbart, M; Sapp, S P; Hur, Y. (2004) Debt Capacity and Debt Limits: A State Road Fund Perspective. University of Kentucky, Lexington; Kentucky Transportation Cabinet; Federal Highway Administration

- **Texas has availed itself of the innovative financing measures offered by the Federal Highways Administration.**

TxDOT has an active state infrastructure bank and a $900-million *TEA-21/Transportation Infrastructure Financial and Innovation Act* (U.S.C.) (TIFIA) loan for the Central Texas Turnpike System. Texas is the first state to receive federal approval for private activity bonds to be issued for highway funding. Defined under Section 141(a) of the U.S. Internal Revenue Code of 1986, the income earned from private bonds was exempted from income taxes if the bonds were issued to fund specified public purposes — purposes that, until the passage of the SAFETEA-LU in 2005, focused primarily on utilities and social housing, included ports and airport but excluded roads and highways. The uses and benefits of these innovative financing measures are outlines in Audit Area Section B.2.

A.1.5. Which other future sources of public and/or private finance could be applied to fund transportation?

Issue: Texas has set a goal of reducing and not just managing congestion. This will likely require continued changes to transportation funding in Texas. In addition, TxDOT is responsible for managing its assets and, as specified in the Strategic Plan, "seeks to increase their value." The issue for TxDOT is whether there are other sources of funding or other approaches to transportation finance that TxDOT should consider.

Texas is pursuing new funding approaches to a far greater extent than any other state. However, the issues of determining other approaches to be used and other mechanisms for the future funding of transportation in Texas are key. Within the industry, there is an emerging consensus that over time, a user fee-based approach to finance will most likely involve transition from a motor fuel tax to VMT charges that are electronically collected and involve time-of-day charges. Other modes of transportation, such as public transit and rail, have long-established fee structures that give multi-modal projects some advantage in securing sufficient funds to build them.

With the introduction of RMAs and the expansion of local and regional toll authorities, Texas has created a decentralized multi-jurisdictional approach to meet its transportation needs. The complex organizational structure increases costs but also, by putting the authority for system planning and project selection into local hands, may encourage local authorities to dedicate additional revenues to transportation from sources not normally open to a state department of transportation.

Risk: Like other states and many nations, public funding for transportation will compete with the needs for other public goods and services. Public funding will depend on the acceptability of increasing taxes or levying fees either at the state, regional, or local levels. Private funding will be constrained by the ability to generate on-road revenue, based on motorists' willingness to pay (value of time),

and competition for private capital. In order to mitigate these risks as travel demand in Texas continues to grow, it will be important to assess other approaches that might be considered to build on the current transportation finance approach.

1. Answer

TxDOT and local governments in Texas are at the forefront of developing CDAs and public toll roads. Market penetration of tolls, meaning the percentage of all vehicle trips on the highway system that are tolled, is about 12% in the metroplex area and almost 15% in Harris County. These penetration rates exceed those of any other major metropolitan areas in the southern United States. As is explained further in Section V Audit Area B.3 of this report, the established local toll authorities in these two areas have a significant opportunity in peak pricing, both to increase their revenues and to manage demand: their current tolls are cost-based and tend to be between 10¢ and 12¢ per mile; extensive and recent studies in northern Texas suggest that regular travelers would be willing to pay as much as 16¢ per mile in off peak periods and over 20¢ per mile in peak periods.

Increasing the toll road network in Texas will likely not increase statewide highways greatly but would support critical highway improvements, provide a tool for managing congestion, and build public acceptance for distance-based road pricing.

Even as technological innovation erodes motor fuel tax revenues, it also lowers the barriers to distance-based charging, i.e., VMT charges, on the highway and road networks in the United States. VMT charges are already widely applied to trucks in Europe because trucks can be retrofitted with viable technology. Retrofitting VMT technology to cars and light trucks is more problematic, as the recent trials in Oregon demonstrated, and AASHTO believes that implementing a nationwide VMT charge system will take about 20 years. TxDOT, along with 14 other states, is leading the development effort. The Public Policy Research Centre, University of Iowa was awarded between $12 million and $16 million for a SAFETEA-LU demonstration project of road user fees over the years 2007-2009. Austin is one of the six field test locations.[33]

Highway tolls are economically feasible where there are high volumes of traffic that are subject to delays due to congestion, i.e., urban highways and major intercity routes. They do not work in rural environments, where lower traffic volumes move around a road network in several directions. The economic benefits of improvements to rural highways tend to be captured by users in the form of increased land values and match costs to those values, as local governments have several forms of land development charges available to them. Because a development permit often triggers these charges, they are usually within the purview of local governments. In the long run, the need for TxDOT to develop funding tools that are rural equivalents to tolls will be overtaken by VMT charges, which apply in urban and rural environments.

[33] See SAFETEA-LU, Title I, Section 1919.

2. Analysis Strategy

The analysis steps are detailed as follows:

- Surveyed peer-reviewed journals, research reports of the National Academies of the Sciences, the Organization for Economic Cooperation and Development and the World Bank, several U.S. states, and other sources.
- Contacted and interviewed officials in several jurisdictions in the United States, the United Kingdom, New Zealand, and Canada to determine the current thinking of those jurisdictions with respect to new sources of revenue for funding surface transportation systems.
- Throughout these literature searches and interviews, we focused on their current reliance and on their use or consideration of:
  - VMT charges, axle weight charges, local option taxes, or congestion charges.
  - Yield management pricing in tollways, HOT lanes, or dedicated truck ways.
  - Industrial development charges, paid by sole users of industrial access road.
  - Commercial or residential development charges, paid by real estate developers for highway capacity above a rural standard.

3. Findings

- **Technology is Allowing Wider Use of VMT Charges.**

Officials in some jurisdictions have concluded that the increasing fuel efficiency of engines has made motor fuel taxes a poor proxy for road user charges and that a more direct levy of a road user charge is needed. Road users are not required to pay the user fee portion of fuel taxes;[34] instead, they pay a rate per mile and/or a rate per ton. In the United States, distance-based road user charges are called VMT charges.

Several European countries, including Germany, Switzerland, the Czech Republic, and Austria have successfully introduced nationwide, distance-based road user fees for trucks. Sweden is in the process of implementing similar schemes, and the United Kingdom is considering a national road user charging system for all vehicles. The long-term intent of the European Union appears to be an integrated Europe-wide road user fee system for trucks.

Due to public policy issues, technological implications, and the complexity and cost of implementation, VMT studies and experiments are not widespread in

[34] Outside the United States, most jurisdictions do not dedicate all or even any of their taxes on motor fuels to funding transportation expenditures. In many jurisdictions, fuel taxes are regarded as a carbon tax.

the United States. The exception is Oregon, which is currently giving serious consideration to the introduction of a vehicle mileage road user charge. Oregon completed a pilot program involving 260 vehicles in March 2007. Preliminary conclusions are:

- The technology worked and gained 91% acceptance by participating motorists.
- Speed and accuracy of data transmission from each vehicle needs improvement.
- Retrofitting existing vehicles with mileage counting technology is problematic.

ODOT is drafting legislation for consideration by the State Legislature in 2009.[35]

Current applications of VMT charges in other jurisdictions are summarized in Exhibit II-13 on the next page.

Exhibit II-13: VMT Charges in Other Jurisdictions

Jurisdiction	*Revenue Source*	*Pricing*	*Collection*
Oregon	VMT charge on passenger vehicles in pilot program phase.	VMT varies by time of day and whether vehicle is driven in Portland area.	On-board mileage counter, service stations equipped with mileage readers at pump, gas tax deducted automatically, and road user fee added automatically.
New Zealand	Road user fees for trucks and non gas vehicles.	VMT charges vary by vehicle weight but not by time of day or location.	Distance licenses purchased in advance and vehicles fitted with distance recorders.
Germany	HGVs pay per distance traveled on select major roadways.	Heavy road users pay for rate charged depends on vehicle weight, emissions, axle class, and time of day traveled.	On-board units store geographical coordinates and GPS determines area and distance traveled.
Switzerland	HGVs pay per distance traveled on all roads.	Fixed rate per kilometer.	On-board unit connected to tachograph and smart card measures distance.
Czech Republic & Austria			Gantries cameras over roadways identify vehicles and measure distance traveled.

- **Congestion Charges Are Not Widely Used.**

Congestion pricing schemes reduce congestion on a road network by increasing the cost of travel. They differ from tolls and user fees in two important aspects: Congestion prices are set to manage demand rather than to

[35] www.oregon.gov/ODOT/HWY/RUFPP/ruftf.shtml

recover costs, and governments do not provide any special assets, e.g., a toll road or a bridge, to those who pay the fee. Simply put, cities place tolls on a road in the hopes that their citizens will use it; they place congestion fees on a road in the hopes that their citizens won't use it.

Congestion pricing schemes are not widely used, and their application appears to be confined to high-density urban centers, the likes of which are not found in Texas. Current applications are summarized in Exhibit II-14.

Exhibit II-14: Congestion Charges in Other Jurisdictions

Jurisdiction	*Revenue Source*	*Pricing*	*Collection*
Singapore	Zone pricing for entering certain areas.	Price per entry varies with congestion levels throughout the day.	Electronic road pricing by short-wave radio link identifying vehicle and automatically debiting on-board prepaid smart card.
London	Zone pricing for entering central London.	Fixed price for one day's access.	Vehicle license plate identified by roadside cameras and registration logged against a payment database.
Norway	"Toll rings"	Fixed price for boundary crossing.	Graduated from windshield sticker to full electronic tolling by microwave radio link that identifies vehicles.
Stockholm		Boundary crossing price varies by time of day.	

New York City is considering a congestion fee of $8 for cars that enter central Manhattan between 6 a.m. and 6 p.m.

- **Local Option Taxes Are Primarily within the Purview of Local Governments.**

Local option transportation taxes are imposed on county or municipal taxes bases to raise incremental funding for state and local transportation systems within their boundaries. Where local governments support local option taxes, they appear to do so for two reasons:

- The local option tax is part of an agreement in which the state government cedes decision-making powers to the local government.
- Tolling is more expensive or less practical than the alternative of local option taxes.

Local option taxes produce significant revenue; in particular, an increment of a general sales tax has powerful leverage. They are not equitable, however: Taxpayers do not pay in proportion to how much they use the transportation system.

California counties have used local option taxes for almost 20 years, now generating revenues equivalent to the state's motor fuel tax with sales taxes ranging from 0.25% to 1%. The 20 counties appear to divide the resulting revenues evenly among highways, local roads, and public transit. Each county that collects local option taxes for transportation has a designated transportation authority providing joint oversight by the city and county governments.

The province of British Columbia in Canada has ceded the planning, funding, and management of provincial highway and transit systems in the greater Vancouver region to an agency that is directed by a council of the mayors in the region. Along with that responsibility, the provincial government has transferred significant

portions of provincial tax and user revenues as well as the power to impose additional property taxes in the region as the mayors see fit. The rationale for using property tax as one of the ways to pay for the regional transportation system is that the system provides benefits to all residents, regardless of how much they themselves use it.

Local option taxes often require significant changes in the governance of transportation at the regional level, as the legitimate interests of the state and of the local governments have to be reconciled. The case of Vancouver provides some interesting lessons that are described in the appendix, rather than here, as governance issues are beyond the scope of this audit.

- **Land Development Charges Are Well Used by Local Governments.**

The transportation component of land development charges that are paid by land developers serve two policy objectives:

- *Matching of costs and benefits*. Most land developments confer a benefit on landowners while imposing costs on the transportation system. Some of those costs are direct costs, such as the costs of building and maintaining the roads in and around the development, and some costs are indirect, such as the costs imposed on the entire road network by the additional traffic that the development generates. A development charge places some or all of those costs upon the landowners who enjoy the benefit.
- *User fees in sparsely traveled areas*. In rural and other sparsely traveled areas, traffic volumes are so low as to make the direct collection of tolls unfeasible. A charge placed on landowners in such areas can serve as a proxy for user fees.

Because these approvals are in the hands of municipal and county authorities, these fees are most often levied by local governments.

Land development charges can take several different forms:

- *Incremental capacity charges*, paid by developers whose projects create highway capacity requirements above a rural two-lane highway standard.
- *Reimbursement provisions*, in which the initial land developer funds the entire cost of off-site road improvements and is reimbursed proportionately by subsequent developers.
- *Industrial development charges*, paid by sole users of industrial access roads, for which access by other users is restricted.
- *Road impact fees*, a one-time charge that is linked to the expected increase in property values in the assessment district, rather than the incremental costs imposed by the pending development.

– *Value capture*, in which the local government increases transportation capacity with borrowed funds and pledges the expected increase in property tax assessments to repay those funds.

C. Recommendations

A.1.1 Texas should move toward replacing its motor fuel tax with VMT charges.

The intent of this recommendation is that Texas will continue to be a leader in ensuring that there is a transportation finance system that is user fee-based that can support the future development, preservation, maintenance, and operation of the state's highway system. The recommendation is that Texas recognizes that the motor fuel tax has severe limitations and that the state begins the work necessary to plan for its replacement with a VMT charge. The consensus among transportation finance experts and economists is that such a charge will be the most efficient and most market-based approach. There is much national and international experience that demonstrates the feasibility of collecting VMT charges. Oregon successfully tested a VMT-measuring and charging system but reported problems fitting the after-market devices to cars. Several European countries, including Germany, Switzerland, the Czech Republic, and Austria, have successfully introduced nationwide, distance-based road user fees for trucks. Germany has developed a system that allows peak period pricing. The European Union appears to be considering the German system for an integrated Europe-wide road user fee system for trucks. The consensus is that a national road pricing scheme in the United States will be about 20 years of national effort. TxDOT is at the forefront of that effort and should continue to be so.[36]

A.1.2 Develop tools that generate highway-related revenues outside major urban areas.

An approach that is consistent with the tolling philosophy — whereby those who benefit from the road also pay for it — is for TxDOT to capture some of the value that highway improvements confer on land developments. In this way, TxDOT could develop means by which incremental fees can be collected and invested in rural roads, much as tolls are collected and invested in urban roads. This returns to the transportation sector some of the increase in value off the roadway from investment on the roadway.

A.1.3 Encourage local toll authorities to pursue peak-period pricing as technology allows.

As is explained further in Section V of this report, the North Texas Tollway Authority and the Harris County Toll Road Authority each have significant

[36] SAFETEA-LU authorized a three-year comprehensive field test of a proposal based on the Oregon *New Approach to Road User Charges Study*. Supported by TxDOT and 14 other state departments of transportation, the proposed road use metering system would be designed to be implemented nationwide but would provide flexibility so that each state could decide independently to charge mileage fees and establish its own rate structure. Austin is one of the six locations in which field tests will be carried out.

opportunities to increase their revenues with peak-period pricing. Their current tolls are cost-based and tend to be between 10¢ and 12¢ per mile; recent and extensive traffic and revenue studies in northern Texas suggest that regular travelers would be willing to pay as much as 16¢ per mile in off-peak periods and over 20¢ per mile in peak periods.

A.1.4 Strengthen highway revenue forecasting process.

The revenue forecasts produced for this report are simple policy-level forecasts, prepared for comparative purposes based on many assumptions. This recommendation is for TxDOT to elevate the forecasting process and discussion of the assumptions among the interested transportation agencies in Texas.

To conform to best practices, revenue forecasts must be underpinned with strong technical procedures and with equally strong institutional support. TxDOT's forecasts of revenues from state and federal sources would benefit significantly from the following improvements in the institutional arrangements that support them:

- *Consensus*: That all of those who must use the forecast have an opportunity to understand and approve the all-important assumptions that are used in the forecast.

In Texas, a consensus-based forecasting approach would require changes in TxDOT's relationships with MPOs in particular: TxDOT and the MPOs would meet at least once per year to agree on their definitions of status quo revenues and reasonably expected revenues; they would also agree upon the ranges and sensitivities of the underlying statewide assumptions about the expected demographic, economic, political, and environmental conditions that will determine revenue forecasts.

- *Awareness*: Senior officials are briefed frequently on revenue forecasts and the demographic, economic, political, and environmental assumptions that underlie them.

In Texas, the Texas Transportation Commission should be briefed on forecasted revenues twice per year, the purpose being to ensure that the Commission is aware of possible changes to revenues before they occur. A recent example would be the discussion of federal aid rescissions in March 2007.

III. Audit Area B.1: Programming and Project Selection

■

This audit area addresses the effectiveness with which TxDOT's programming and project selection process allocates funds to projects to accomplish Strategic Plan for 2007–2011 goals and strategies. Although a related issue, the recommended audit scope here does not address TxDOT's agency-wide management process for budgeting and budget management, because this is anticipated to be addressed within the management and support functions performance audit. The focus here is on the allocations of funds and prioritization of projects for funding.

A. Audit Area Objectives and Questions

1. Audit Area Objectives

The objectives for this audit area are to:

- Assess TxDOT's programming and project selection process against the five strategic plan goals:
  - Reduce congestion.
  - Enhance safety.
  - Expand economic opportunity.
  - Improve air quality.
  - Increase the value of transportation assets.
- Evaluate the effectiveness of the allocation of funds to programs and projects.
- Evaluate the decision-making process regarding debt finance for projects.
- Evaluate procedures through which the choices of project finance methods are made.
- Assess the effectiveness of TxDOT and MPO partnerships in project selection and prioritization.

2. Audit Questions

The following questions are evaluated:

- **Question B.1:** Do UTP allocations achieve TxDOT's goals?
  - **Question B.1.1:** How effective are the methods and procedures for allocating funds between the UTP funding categories?

- **Question B.1.2:** Are there management controls and procedures that align TxDOT, MPO and toll authority project selection with Strategic Plan for 2007–2011 goals and strategies?
- **Question B.1.3:** Are projects of different modes integrated into the UTP?
- **Question B.1.4:** For each applicable UTP category, do TxDOT's programming and prioritization procedures align with the Strategic Plan for 2007–2011 goals and strategies?
- **Question B.1.5:** For the MPO-led UTP categories, are there policies, procedures, and management controls that ensure that funds are used most effectively to meet plan goals?

B. Background

1. Planning and Programming

Planning

Planning is the process through which objectives are set for the management, operation, and development of Texas' transportation system. Contemporary best practice is to establish a series of measurable performance objectives for the current and planned future transportation system. Typically, these are identified in strategic plans and long-range plans that provide strategies that guide tactical management and operational decisions. Where most effective, strategic planning links the agency business objectives to budgetary decisions and provides guidance for management and operational decision-making.

Transportation planning at the state level focuses on the planned performance of the transportation system. Typically, this involves transportation system analysis at the statewide level, the metropolitan planning organization level, and for major corridors. Such planning can provide the information and analysis to support agency strategic planning. It quantifies broad system-level needs for meeting the planned level of performance for the transportation system. Needs are generally grouped into categories such as capacity or mobility, system preservation, and safety among others.

Best practice involves using the results of system planning analysis to identify what level of transportation system performance is "bought" when different investment decisions are made. In this way, planning analysis is used by policy-makers to establish strategic investment priorities by allocating funds between broad policy objectives such as mobility, system preservation, safety, or economic development. Under best practice, the process is policy-driven and supported by technical analysis that explains the level of performance implications of different investment decisions. For example, if a state funds pavement preservation at a level that minimizes life cycle costs, the analysis explains which funds are left over to address capacity projects. Such analysis enables policy-makers to make broad system level trade-offs between different categories of need.

Programming

Programming is the process by which projects are selected and funds are committed to projects. TxDOT's major work activity in this area is selecting projects for inclusion in the UTP and updates to this plan. The selection of projects is constrained by the availability of funds for each type of project. Under best practice, planning analysis is not just conducted at the project level but also at the corridor and system levels. The preferred approach is to identify and prioritize projects to implement corridor and system plans. This requires a strong link between planning and programming, such that projects are selected to implement the plan. In this way, individual project selection decisions, when added together, develop the planned transportation system.

In general terms, best practice can be characterized as having a program structure that allocates resources between broad categories of need and then applies prioritization criteria within these categories of need to build the program. In this way, the overall program structure is planning-driven and based upon the types of needs or planning objectives such as mobility, safety, or economic development. With such an approach, the "color of money" does not drive programming, and to the extent possible, funds, within the constraints governing their use. Regardless of source, funds are allocated to meet planning and programming priorities.

Project prioritization

Project prioritization is the process through which projects that meet a particular programming category are prioritized. Generally, this involves evaluating the merits of comparable types of projects. Prioritization approaches within categories will reflect policy, stakeholder, and technical criteria. Under best practice, the categories are based on type or category of need and not funding categories.

Best practice involves a transparent and reproducible process. In this way, the decision-making criteria used to allocate resources between categories of projects and prioritize projects within categories are known. In general, best practice requires that objectives be defined for each category of project and then a procedure be established for ensuring that the project achieves these objectives. For example, many states have established a policy-driven objective that supports economic development and economic development projects. Best practice would involve establishing a reproducible procedure for determining economic benefit and prioritizing projects according to the anticipated benefit. In the areas of pavement management, bridge management, and benefit/cost analysis of capacity improvement, there are well established technical procedures for prioritizing projects.

2. TxDOT's Planning and Programming

The principal planning documents are:

- **TxDOT's Strategic Plan for 2007–2011.** The Strategic Plan sets the overall direction for transportation decisions in Texas. It establishes a vision, a mission, and a series of goals and objectives as well as the strategies to meet those goals.

  Texas Government Code Chapter 2056 requires that each state agency prepare a five-year strategic plan every biennium. The Legislative Budget Board and the Governor's Office of Budget, Policy, and Planning determines the elements required to be included in each agency's strategic plan. Under this law, each even-numbered year, TxDOT must issue a plan covering five fiscal years beginning with the next odd-numbered fiscal year.

  In the three update cycles covered by the Strategic Plan for 2003–2007, the Strategic Plan 2005–2009, and the current Strategic Plan for 2007–2011, the updates reflect changes in policy priorities. They also incorporate the TxDOT Transportation Commission objective for the strategic plan to be a clear concise document that is used by management to guide decision-making and is embraced by employees as a guide to priorities for their day-to-day work.

  The Strategic Plan for 2007–2011 incorporates the following five strategic plan goals:

  - Goal 1: Reduce congestion.
  - Goal 2: Enhance safety.
  - Goal 3: Expand economic opportunity.
  - Goal 4: Improve air quality.
  - Goal 5: Increase the value of transportation assets.

  The strategic plan provides the following strategies to achieve the goals:

  - Strategy 1: We will use all available financial tools to build transportation projects.
  - Strategy 2: We will empower local and regional leaders to solve local and regional transportation problems.
  - Strategy 3: We will increase competitive pressure to drive down the cost of transportation projects.
  - Strategy 4: We will demand consumer-driven decisions that respond to traditional market forces.

Unlike the prior Strategic Plan for 2005–2009, the current Strategic Plan for 2007–2011 does not specify measures of progress or measurable targets. The prior Strategic Plan for 2005–2009 set five objectives for measuring performance: reliable mobility, improved safety, system preservation, accelerating project delivery, and economic vitality. Four of the five objectives are fairly specific in their goals. For mobility, they involved urban areas with less congestion than comparable areas in other parts of the country. For safety, they were to reduce the fatality rate by 5% over a ten-year period. For preservation, they were to keep 90% of roads and 80% of bridges in good condition within ten years. For project delivery, they were to reduce the time required to plan, design, and build a project by 15%.

The area of enhancing economic vitality is more difficult to measure. The plan chose to monitor growth in Gross State Product (GSP). Since transportation is only one of many factors that influence GSP, it may be difficult to determine whether changes in GSP are the result of changes in transportation system performance or of other factors.

- **Statewide Transportation Plan.** Since the enactment of the federal Intermodal Surface Transportation Efficiency Act (ISTEA) of 1991, TxDOT has been required to develop a long-range transportation plan for all modes of transportation that address a number of planning factors. These factors have been altered as a result of changes to federal law enacted as part of subsequent federal reauthorization legislation. Metropolitan transportation plans fall under the umbrella of the state transportation plan. Inside the metropolitan areas, the plan is project-specific and financially constrained. Outside the metropolitan areas, there is more latitude in terms of financial constraints. Also, the plan may focus on policies, system needs, allocating funds among programs and regions, and identifying corridors that require further studies.
- **Metropolitan Planning Organization long-range plans.** Since 1962, the federal government has required each metropolitan area to develop a long-range transportation plan in order to receive federal funding for projects. In 1991, ISTEA also required states to develop long-range transportation plans. The metropolitan transportation plans are incorporated into the state's transportation plan. MPOs prepare the long-range plans for their areas in consultation with the state DOT. These plans are project-specific and must demonstrate that there will be sufficient funds to implement them. In this way, the plans are considered to be financially constrained by the requirement to demonstrate how a project will be funded.

- **The Unified Transportation Program.** The UTP is the mechanism through which projects are selected and prioritized for inclusion in a multi-year program. There are 12 program categories in the UTP, each with their own specific set of business rules and procedures regarding the allocation of funds, project eligibility, and project selection and prioritization.[37] The UTP is comprised of two elements: the Statewide Mobility Program and the Statewide Preservation Program.

  The UTP update process is the mechanism through which projects are programmed to implement TxDOT and MPO long-range transportation plans. The UTP then provides an orderly, predictable pipeline of projects from which to manage project delivery. It is a financially constrained ten-year list of projects. Projects in the UTP pass through two levels of authority, then develop a construct which represents successive levels of authority for implementing a project. Each level of authority must be approved by the Texas Transportation Commission. The first four years are for construction projects, the next six years are for construction or design projects, and beyond ten years, projects could be in any of the three phases. To be approved for inclusion in the UTP project must have a financial plan, which means that the planned source of funds for construction must be identified in advance of development.

  In order to simplify the UTP, TxDOT consolidated their programs from 34 categories to 12, effective in 2004. The consolidation also aligns programming categories with TxDOT's business-based budgeting categories, "plan it, build it, maintain it." Each UTP category receives funds from specific sources, each is restricted to specific types of work and to specific systems of roads and each has different methods for allocating funds and selecting projects. Exhibit III-1, on the following page, provides a summary listing of each category, the type of projects eligible for funding within that category, and the allocation of funds between the categories for FY 2007.

[37] Texas Department of Transportation, 2007, Statewide Mobility Program and 2007 Statewide Preservation Program http://www.dot.state.tx.us/publications/transportation_planning/2007_smp.pdf

Exhibit III-1: Overview of UTP Categories, Project Selection Roles, and Procedures

FUNDING CATEGORY	FY 2007 Allocation $ Million	PROJECT SELECTION
1 - Preventive Maintenance and Rehabilitation	$1,163.0 (24.2%)	Funds sub allocated to districts. Projects selected by districts to meet technically driven pavement condition targets.
6 - Structures Replacement and Rehabilitation	$538.2 (11.2%)	Technically driven statewide identification of project priorities based on cost-benefit basis using the Texas Eligible Bridge Selection System (TEBSS). The Texas Transportation Commission approves projects.
8 - Safety Federal Programs	$87.2 (1.8%)	Includes four subcategories that are federally funded programs. Districts and local jurisdictions nominate projects that are then subject to a technical ranking that is used to prioritize and select projects.
2 - Metropolitan Area Corridor Projects	$891.6 (18.6%)	Programming targets based on sub-allocation formula. MPOs now take the lead in consultation with districts in selecting new projects for inclusion in the UTP. The Texas Transportation Commission approves projects in corridors. Projects scheduled by consensus of districts.
3 - Urban Area Corridor Projects	$95.4 (1.9%)	Programming targets based on sub-allocation formula. MPOs now take the lead in consultation with districts in selecting new projects for inclusion in the UTP. The Texas Transportation Commission approves projects in corridors. Projects scheduled by consensus of districts.
4 - Statewide Connectivity Corridor Projects	$840.6 (17.5%)	Funds remaining high priority sections of the Texas Trunk System. The Texas Transportation Commission approves projects in corridors. Projects are scheduled by consensus of districts.
5 - Congestion Mitigation and Air Quality Improvement	$125.0 (2.6%)	Projects selected by MPOs in consultation with TxDOT. MPOs establish their own project selections and evaluation procedures. The Texas Transportation Commission allocates funds based on population percentages within areas failing to meet air quality standards.
7 - Metropolitan Mobility/Rehabilitation	$203.0 (4.2%)	This category aligns with a federal sub-allocation of surface transportation program, programming authority to TMAs. Projects are selected by MPOs in consultation with TxDOT. Sub-allocation formula to TMAs are based on population.
9 - Transportation Enhancements	$70.9 (1.4%)	This category aligns with a federal sub-allocation of surface transportation program to enhancements. Local entities make recommendations and a TxDOT committee reviews them. Projects are selected and approved by commission on a per-project basis. Projects in the Safety Rest Area Program are selected by the Maintenance Division.
10 - Supplemental Transportation Projects Includes various dedicated programs including Congressional High Priority Projects.	$310.8 (6.4%)	Various, mainly dedicated.
11 - District Discretionary	$312.0 (6.5%)	Projects selected by districts. By state law, a fixed amount is sub-allocated to each TxDOT district for discretionary spending.
12 - Strategic Priority	$151.0 (3.1%)	The Texas Transportation Commission uses this category to address policy goals and various contingencies—used for pass through finance.
Total	$4,789.2	

The following provides background on each of these twelve categories:

Category 1 (preservation) includes federal National Highway System (NHS), federal Surface Transportation Program (STP), federal Equity Bonus (EB) and 100% state funds. These funds are further sub-allocated to two categories: one for preventative maintenance and the other for rehabilitation. Each sub-category is allocated to the districts by different formulas. Projects are selected by districts based on technical criteria.

Categories 2, 3 and 4 (mobility) receive funds from NHS, STP, EB, and 100% state and from the Mobility and Proposition 14-bond issues. The amount each category receives is roughly proportionate to the population in that area.

Category 2 (metropolitan mobility corridors) funds are for mobility projects in urbanized areas over a population of 200,000. The funds are sub-allocated to the larger urbanized areas and the MPO working in coordination with the TxDOT district select projects.

Category 3 (urban mobility corridors) funds are for mobility projects in smaller urbanized areas**.** The funds are sub-allocated to the districts. Projects are selected by the district and MPO.

Category 4 (inter-city mobility corridors) funds are for mobility projects outside of urbanized areas. The funds are generally used on sections of the Texas Trunk Highway System that are not yet four-lane divided or a few miscellaneous systems such as the Farm to Market (FM) roads. The funds are not sub-allocated, and the Central Office selects projects in consultation with the districts.

Category 5 (congestion mitigation and air quality (CMAQ)) funds are sub-allocated to air quality non-attainment areas based on population**.** Projects are selected by the MPO.

Category 6 (bridge) receives some STP and EB as well as Federal Bridge funds. TxDOT allocates 25% of these funds for off-system bridges. Every two years, each bridge is inspected and assigned a bridge sufficiency rating. If the bridge scores below 80, it is eligible for rehabilitation. If it scores below 50, it is eligible for reconstruction**.** District offices review and comment on the list of eligible projects, but the Central office selects the projects.

Category 7 (metropolitan mobility) includes Federal STP funds attributable to metropolitan Transportation Management Areas (TMAs) these are MPOs with a population over 200,000. Projects are selected by the MPO.

Category 8 (safety) consists of four sub-categories that are federal funding programs: highway safety, high accident rural roads, railroad grade crossings and safe routes to schools. Districts and local jurisdictions nominate projects. Each project gets a score based on data submitted by the districts. The Central office selects projects based on those scores. Each sub-category uses different criteria.

Category 9 (transportation enhancements) receives most of its funds from the federal STP Transportation Enhancements program. Projects are nominated by local governments and reviewed by districts for eligibility. In some cases, MPO may prioritize projects in their area. A special committee of stakeholders in Austin makes the final selection.

Categories 10, 11, and 12 Category 10 is mainly for federal earmarked projects. Category 11 (district discretionary) funds are allocated to districts by formula; each district is guaranteed a minimum amount by state law. Category 12 is at the discretion of the Texas Transportation Commission and is usually for projects that would have a positive impact on economic development.

- **Texas Metropolitan Mobility Plan (TMMP).** The intent of the TMMP is to identify the level of investment in mobility improvements that will be necessary to meet the TxDOT Strategic Plan for 2007–2011 goal to reduce congestion. This is expressed as the dollar value of funding needs and is measured in lane mile equivalents. The TMMP is a long-range, high-level plan developed in close collaboration with each major metropolitan area—MPOs with populations over 200,000.[38] These MPOs each have established and technically sophisticated planning processes that produce financially constrained long-range plans. The TMMP methodology involves each of the major MPOs identifying their needs beyond those identified in their financially constrained long-range transportation plans to meet the congestion policy goal.

  The development of the needs estimates was done in two phases. The first phase involved the major metropolitan areas with a population of over population, and these plans were called Texas Metropolitan Mobility Plans. After they were completed, the smaller metropolitan areas developed their plans that are called Texas Urban Mobility Plans (TUMP). Both of these types of plans are developed at a sketch planning level. They include estimates of additional lane miles needed using average costs per mile. They are not specific about corridors, projects, and strategies. Their main purpose is to identify needs that are not being met through the traditional funding sources and to encourage local decision makers to consider some of the new revenue tools to finance those needs if they are to address congestion.

  The TMMP and the TUMP were used as input on the needs side to develop the estimated $86 billion funding gap reported in the TxDOT Strategic Plan for 2007 – 2011. TxDOT is approaching the third iteration of the TMMP, which will involve a further refinement and improvement of the methodology as noted by TxDOT management in response to a recent State Auditor's Office report on the TxDOT's reported funding gap.[39]

[38] Austin, Corpus Christi, Dallas Fort Worth, El Paso, Hidalgo County, Houston, Lubbock, and San Antonio.
[39] An Audit Report on The Department of Transportation's Reported Funding Gap and Tax Gap, Information. Texas State Auditor's Office, April 2007, Report No. 07-031.

- **Federal transportation programs and the UTP.** The federal government provides a substantial, albeit declining, portion of the funds for the UTP. At the national level, funds are authorized for specific programs like Interstate Maintenance, Bridge, or Safety. Most of these funds are apportioned to states by formulas. Each program has specific rules on eligibility and most have state or local matching share requirements. Over time, there has been a trend toward greater flexibility to move funds from one category to another; however, the federal funding structure still provides large constraints on how funds can be used.

  Another feature of federal funding is the limitation that Congress sometimes imposes on how much funding can be spent annually. These obligation limits are not program-specific, so states can decide whether to apply the limit to all federal programs or to apply it to selected programs. Overall, the structure of federal transportation programs still leaves a significant impact on the structure of state transportation programs. The amounts allocated to several UTP categories are primarily determined by the corresponding federal program.

  Federal transit programs operate somewhat differently. For urbanized areas, formula funds are apportioned to specific urbanized areas. Discretionary funds are earmarked by Congress. For non-urbanized areas, the funds are apportioned to states by formula.

Question B.1. Do UTP allocations achieve TxDOT's goals?

Issue: The UTP is TxDOT's capital project programming and budgeting process for transportation projects. The number of programming categories has been reduced to twelve, and the UTP is organized into the Statewide Mobility Program and the Statewide Preservation Program, which then align with TxDOT's budget categories "plan it, build it, maintain it" that provide a business-based view of TxDOT's activities. The overall issue is whether the programming process results in the effective allocation of funds to implement plans. In the simplest sense, TxDOT and MPO plans state the desired or planned outcomes from investments. For TxDOT, the issue is whether the programming process aligns resources to meet the Strategic Plan goals. There are many factors affecting the outcomes expressed in the Strategic Plan goals.

Risk: The principal risks are that the procedures used to allocate resources between UTP funding categories do not align resources effectively against policy and plan objectives, that project-level decision-making does not result in the most effective programmatic outcomes, and that TxDOT's funds are not used in the most effective way to meet Strategic Plan goals.

1. Answer

Yes, with regard to the allocation of funds for the annual incremental updates to the UTP. Historically, TxDOT has allocated funds to achieve goals that preserve the transportation system through cost-effective life cycle management. For TxDOT to continue to meet preservation goals there will be less funds available for other UTP categories. Further, funds are allocated into various categories to accomplish mobility and safety, among other goals.

However, it is important to note that the UTP includes funded projects that together comprise a commitment of funds for ten years to a defined set of projects. In the current project delivery environment of large construction cost inflation, the UTP understates TxDOT's capital project spending plan. Therefore, TxDOT's investment plan for meeting strategic plan goals is largely set because the UTP effectively encumbers ten-plus years of capital project expenditures.

The current UTP structure was established before the Strategic Plan for 2007 – 2011 was formulated, so it is not in complete alignment with those goals. In general, the program categories align with goals. (This is addressed in more detail following Question B.1.4 below.) For example, the strategic goals of keeping 90% of pavements in good condition and 80% of bridges in good condition by 2011, as established in the Strategic Plan for 2005–2009, are on track to being accomplished.

The goals for economic development are closely tied to the goal of maintaining mobility. The strategy for achieving mobility is to provide local and regional governments the responsibility, authority, and tools to address mobility through toll financed projects. Many of the larger metropolitan areas have embraced this strategy and are conducting traffic and revenue studies for financing UTP mobility projects. A number are in the process of establishing RMAs, and CDA or expanding the scope of existing toll authorities. In smaller metropolitan areas, there is less enthusiasm for this strategy and concern of its applicability. Transportation professionals in Amarillo do not think it would work in their area and Tyler only expects it to finance a small portion their high priority projects.

Various methods, procedures, and controls are in place to select and prioritize projects against the UTP goals applicable to each category. (This is addressed in more detail under Question B.1.1 below). TxDOT's Design Construction Information System (DCIS) provides a further control because it defines the eligible work activities that can be included in projects in each UTP category. For example, this ensures that work more applicable to a mobility project can not be performed on a project selected and funded in Category 1.[40]

[40] This control addresses a project delivery issue that overlaps with programming. Namely, if project scope is not managed and projects that are programmed to meet one goal are designed and built to address other goals then the planning and programming process is not effective because projects are not built that implement agreed plans. TxDOT's project scope management – outcomes and controls are not addressed in this Transportation Funding audit.

2. Analysis Strategy

The overall analysis strategy involved an assessment of whether:

- There are management controls and technical procedures in place to ensure that funds are effectively allocated to meet TxDOT goals.
- The management controls and procedures are followed in practice.
- TxDOT follows best practice.

The analysis steps are detailed as follows:

- Evaluated the structure of the UTP. Meetings were conducted with TxDOT Transportation Planning and Programming division (TP&P) staff to obtain all pertinent documentation and an explanation of the UTP structure.
- Reviewed the methods and procedures used to allocate resources between UTP funding categories. This was accomplished through interviews with TP&P staff to obtain all pertinent documentation and for a walk through on the process used to allocate resources between funding categories. Planned allocation by category was evaluated for fiscal years 2001 through 2007. The amounts spent as a percentage of total funds by each funding category were compared between years to determine consistency, and/or patterns of change.
- Identified the methods and procedures used to select and prioritize projects for each district and MPO-led UTP category. Walkthroughs were conducted in a sample of four districts and four MPOs to explain procedures used to select and prioritize projects. This also provided input on TxDOT district and MPO relative roles in programming and project selection for the applicable UTP categories. As part of this walkthrough, we requested copies of any documented procedures and practices and obtained perspective on the outcomes from the process.
- Evaluated UTP structure and programming procedures against industry standards and best practices. There is an established technical body of knowledge and best practice regarding project selection and prioritization procedures. Where applicable this was used to evaluate the TxDOT procedures against.
- Determined whether procedures are followed in practice and their outcomes. The evaluation was accomplished by obtaining input from process managers and participants regarding the actual application of procedures. The procedures used to advance or prioritize projects once included in the UTP were assessed for each programming category. The TxDOT program managers responsible for each applicable program category were interviewed and the technical procedures used to select and prioritize projects assessed.

3. Findings

- **Successive updates to the TxDOT Strategic Plan provide clear goals and strategies with which the UTP can be aligned.**

Although the current UTP structure predates the Strategic Plan, the individual categories can be aligned with one or more UTP goals. For example, the Strategic Plan for 2005-2009 established a clear and measurable goal of maintaining 90% of the roads and 80% of the bridges in good condition. The 2007-2011 Strategic Plan expresses the goal as increasing the value of transportation assets. UTP categories align with these goals. Other areas such as economic opportunity are addressed through mobility projects that aim to reduce congestion and hence the associated cost to road users and businesses.

The Texas Transportation Commission has directed TxDOT to develop tools for evaluating the contribution that individual projects would make to meeting Strategic Plan goals. TxDOT has work underway to develop project evaluation indices.[41] The goal of this work is to provide information from which to evaluate the relative contribution of different projects to TxDOT goals.

- **The UTP provides a framework for aligning funding allocation with TxDOT Strategic Plan goals.**

At the program level, the UTP provides a framework for allocating funds between TxDOT goals. The process TxDOT follows is to first apply all funds that are tied to specific funding programs. Funds are then assigned to the "maintain it" category to meet the preservation-related goals. Remaining funds are then allocated between other categories that address mobility.

- **There is no systematic information on the extent to which the UTP meets TxDOT goals, that is the level of performance bought by the UTP.**

TxDOT does not have a business process for determining what level of transportation system performance is bought by the UTP. This type of information is valuable because it would enable TxDOT to communicate to policy-makers, the public, and other agencies how well the transportation system will perform when all UTP projects are delivered. Further, it would enable system-level consideration of how to use funds most effectively in the budget process.

B.1.1. How effective are the methods and procedures for allocating funds between the UTP funding categories?

Issue: This audit area involves evaluating the procedures used to allocate funds between UTP categories. Addressing this audit area involves evaluating TxDOT's practices against industry best practices.

[41] Project Evaluation Indexes Proposed and Submitted by the Project Evaluation Indexes Workgroup to the Assistant Executive Director for Engineering Operations May 2006

Risk: The allocation of resources between UTP categories determines the funds available from traditional revenue sources for mobility ("build it") and preservation and maintenance ("maintain it") needs. While it appears that there is a well-defined process for quantifying mobility needs, it is not clear what the planned outcome or level of service is for preservation and maintenance.

1. Answer

TxDOT follows industry standards for best practice regarding the allocation of funds between UTP categories. Funds are allocated between UTP categories which are in turn aligned with TxDOT goals. The supporting management process and technical procedures align the allocation of funds with TxDOT policy goals and strategies.

TxDOT places a high priority on preserving the highway system. TxDOT has sound pavement and bridge management systems from which the department knows how much funding these categories need to meet plan goals. They allocate corridor mobility funds among the three corridor mobility categories in a rational manner that reflects the population and traffic conditions in those areas. Funding for several other categories is primarily determined by the amount of Federal funds available for those purposes and Federal requirements governing the use of funds in these categories.

2. Analysis Strategy

The analysis strategy was designed to evaluate whether the procedures enable TxDOT to allocate resources through a well defined, reproducible process that allocates funds according to agency policy goals and priorities.

The analysis steps are detailed as follows:

- Reviewed allocation of funds between UTP categories. TxDOT TP&P Division data on the allocation of funds between UTP categories was evaluated to identify funds allocated for programming to each category per year. The programming allocations between each category were compared to evaluate changes in policy priorities.
- Conducted interviews with TxDOT staff in headquarters and districts**.** Interviews were conducted with TxDOT staff to obtain input on how funds are allocated in practice between UTP categories
- Compared TxDOT procedures with industry best practice**.** TxDOT procedures were compared to acknowledged industry standards of best practice regarding allocation of funding in the programming process.

3. Findings

- **TxDOT reduced the UTP from 34 categories to 12 beginning FY 2004 and these categories are now well aligned with TxDOT's budget structure**

The UTP was simplified by reducing the number of programming categories from 34 to 12. Exhibit III-1 provides a summary listing of the allocation of funds for programming, which constitutes the budget, for each category between 1 and 12.

- **TxDOT's ability to allocate funds between categories is reduced by federal requirements governing the allocation of federal funds.**

Federal program requirements are reflected in the UTP funding categories. For example, Category 5 Congestion Mitigation and Air Quality Improvement and Category 9 Transportation Enhancements both align entirely with federal program requirements.

Within these constraints, the consolidation of categories has reduced the impact of "color of money" on programming and prioritization. Nonetheless, federal funds management (the plan for obligating federal funds and management of actual implementation) and some laws governing state funds require that TxDOT identify for each category the planned source of funds so that their use for eligible work can be monitored. This is necessary because federal requirements specify the specific types of work and the specific systems of roads that circumscribe improvement project eligibility in each category.

- **TxDOT's management processes and procedures for allocating funds between categories in the UTP are transparent and enable management to align resources with agency policy goals.**

To support the allocation of funds to UTP categories TxDOT applies a 4% inflation factor to already programmed projects[42] and then estimates additional funds that will be available for programming when future state revenue is forecast and federal funds predicted. Before any funds are allocated to specific categories, funds for right of way, environmental analysis and engineering are taken off the top and allocated into the "plan it" budget category. This practice effectively increases the allocation to mobility projects in urban areas because these projects have the highest percentage of total project costs that include "plan it" budget expenditures. TxDOT has work underway to transition to project financial management that addresses all costs which will provide tools to address this.

[42] This is per recent federal guidance regarding how to address inflation factors in programming.

The following steps are then followed to establish a preliminary allocation between categories:

- Allocations are made to Categories 5, 6, 7, 8, 9 and a large majority of 10 based on federal rules governing the use of funds and the overall level of federal finds that is available.

  The size of the Federal programs has the most influence on the amounts allocated to Category 5 (CMAQ), Category 6 (Bridge) Category 7 (Metropolitan Mobility) and Category 8 (Safety). Category 9 is primarily for transportation enhancements. Category 10 is comprised mainly of Federal earmarks.

- State bond restrictions, state goals, and state legislation – the Texas Mobility Fund and Proposition 14 requirements are addressed.

  The amounts allocated to the corridor mobility categories 2, 3 and 4 are tied to the two bond issues (Mobility and Proposition 14). In addition, it receives some of the remaining Federal funds that are eligible for this type of work

- A preservation needs target is identified and recommended by staff.

  Preventive maintenance and rehabilitation (Category 1) has historically been a top priority for TxDOT as reflected in strategic plan goals. Funds have historically been allocated to this category determined by how much is needed to pursue optimal lifecycle management strategies and the amount needed to achieve the goal of 90% of state roads in good condition. Staff develop a preliminary allocation based on the requirement to meet these goals.

- Categories 11 and 12 are for discretionary purposes and their level is determined in the policy process.

  Category 11 is at the district offices' discretion and category 12 is at the Texas Transportation Commission's discretion. State law requires each district to receive a minimum amount of category 11 funds.

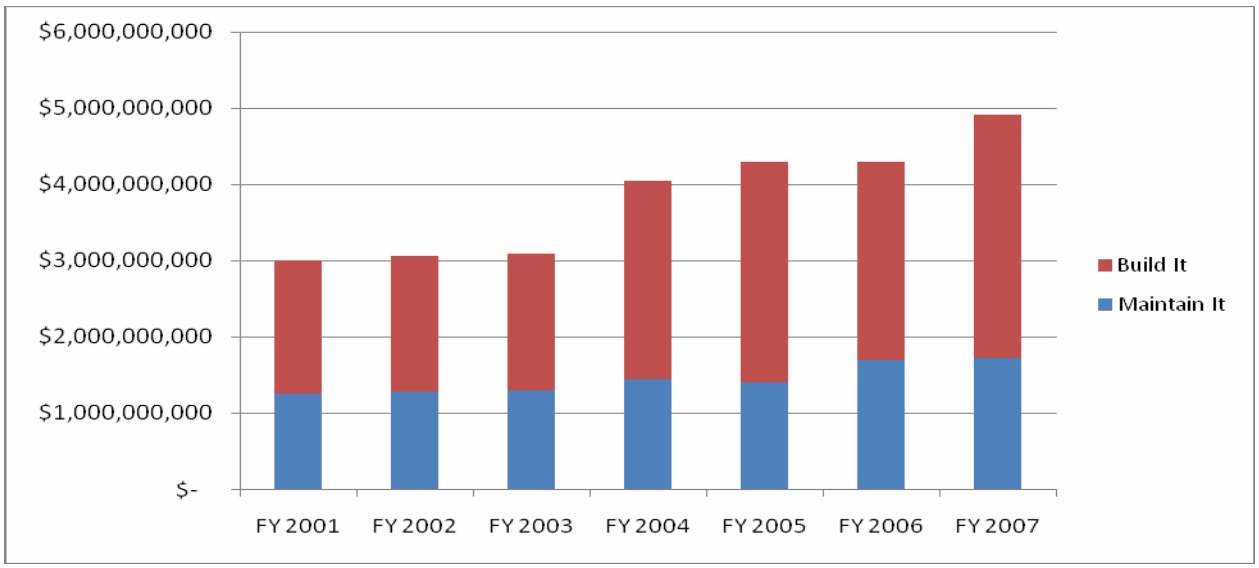
  A preliminary allocation between categories using the approach detailed above is then provided to TxDOT leadership for review. This is adjusted and finalized. Interviewees reported that in general the proposed allocations are followed.

- TxDOT allocation of resources through the UTP has been aligned with policy goals in recent years.

  As shown in Exhibit III-2, TxDOT has allocated resources to the "maintain it" category and preventive maintenance and rehabilitation, at a fairly consistent level. This reflects the policy goal of system preservation. Funds above those required to meet preservation goals have then been targeted on metropolitan mobility.

The only significant increase in program allocation in terms of both dollar amounts and percentages has been in the "build it" category. Much of this increase has been due to programming the proceeds from debt issued through Prop. 14 and the Texas Mobility Fund starting in 2004.

Exhibit III-2: UTP Programming Allocation Distribution Between "Build It" and "Maintain It" 2001 to 2007

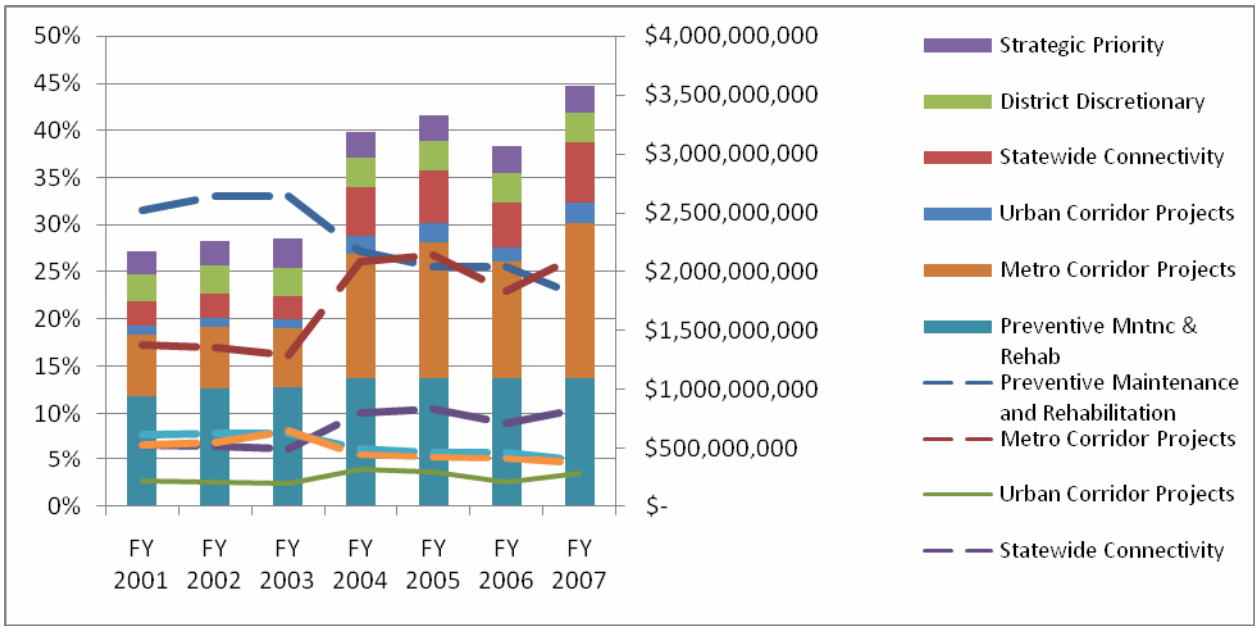


Source: TxDOT proposed UTP programming documents TxDOT Transportation and Program Division

As shown in Exhibit III-3, the biggest increase in the "build it" budget category has been in the *Metropolitan Corridor Projects* category. The sheer increase in the amount of funds in this category reduced the percentage of the program in the "maintain it" category – of which the *Preventive Maintenance and Rehabilitation* category forms the biggest part.

Overall, all TxDOT categories have been funded consistently, the allocations not fluctuating more than 5% per year, except for safety (7% in FY 2006) and the two categories mentioned above (*Metro Corridor Projects* and *Preventive Maintenance and Rehabilitation* in FY 2004). Exhibit III-3 shows the changes in funding allocations between FY 2001 and FY 2007 for categories that are not heavily dependent on Federal funds (1, 2, 3, 4, 11, 12).

Exhibit III-3: UTP Programming Allocation Between Texas Discretionary Categories, FY 2001 to FY 2007



Source: TxDOT proposed UTP programming documents TxDOT Transportation and Program Division

- **There are opportunities for further strengthening the link from TxDOT policy, planning, and budgeting to the UTP.**

As a programming document and process, the UTP provides a well defined orderly approach to obligation planning and management and project delivery. This is critical given the scale of TxDOT's program and the length of time required for the delivery of complex construction projects. However, the UTP also represents TxDOT's multi-year plan of transportation investments. To support decision making regarding the allocation of resources between categories in the UTP it would be valuable to be able to report the level of performance against Strategic Plan goals that the UTP will buy. This will require a further alignment of UTP categories against Strategic Plan Goals and system planning analysis to be able to measure and report system-level performance under different resource allocations.

B.1.2. Are there management controls and procedures that align TxDOT, MPO and toll authority project selection with Strategic Plan for 2007–2011 goals and strategies?

Issue: TxDOT has specified clear outcome-based goals for project-level investments in the transportation system. Through the audit, it is not feasible to evaluate whether the projects that are built accomplish their policy goals. This is the subject of detailed transportation planning analysis and can be performed only on projects that are open to traffic. This audit area can, however, evaluate whether there are management controls and procedures in place to ensure that projects are selected and prioritized based on their expected contribution to plan goals.

Risk: The risk evaluated in this audit area is that projects are not prioritized based on their superior contributions to meeting Strategic Plan goals.

1. Answer

Yes, for each major UTP category that TxDOT has the lead responsibility for. There are defined project selection and prioritization procedures in place that align project selection with the goals and objectives for that category. These categories in turn align with one or more TxDOT Strategic Plan goals. Within categories, TxDOT has technical procedures for project selection and prioritization that select projects that best accomplish the objectives for the UTP category (these are detailed under question B.1.4).

For mobility projects, where MPOs working with TxDOT districts now make UTP selection decisions, there is no control or requirement that project selection align with Strategic Plan goals and strategies. For mobility related categories, project decision-making authority is now at the regional level. Interviewees indicated that to date few mobility projects have entered the UTP through the new decision making authority due to the limited funds available to bring new projects into the UTP. Therefore, MPOs and TxDOT districts have yet to establish formalized procedures for administering the changed programming responsibilities. The principal focus for attention is establishing agreements on which projects to fund through funds that will flow back to districts through negotiated CDA agreements such as for State Highway 121.

In the case of Toll Authorities there are no controls to align strategic plan goals with project selection. However, the outcome of toll authority projects will broadly address mobility goals; the pricing approach used could run counter to the Strategic Plan goals of maximizing value of assets and the overall approach to funding mobility needs. Although all major capacity improvements are candidates for tolling, the existing authorities in both Houston and Dallas-Fort Worth are more focused on the counties they represent than the entire metropolitan area. How they might use excess revenue is still evolving.

2. Analysis Strategy

TxDOT and Texas MPOs perform transportation planning on an ongoing basis that results in long-range plans for the development, maintenance, and operation of different elements of the transportation system. These plans are implemented through individual transportation improvement projects that are programmed in the UTP. Transportation improvement projects, especially major construction projects that address mobility, take many years to develop. Therefore, there is a considerable lag between when investments are made and the outcomes they are intended to achieve can be measured. In the intervening time other events can occur that also affect these outcomes.

Because transportation plans specify the plan for accomplishing the goals set for transportation system performance, the key issue for project selection is whether there are procedures in place that ensure projects are selected, and hence resources allocated, in the most effective way to meet plan goals. Put simply, are projects selected that build the plans. There is a further very important issue and that is whether the scope of projects changes once projects are selected such that what is built does not reflect what was selected. This is an important project delivery issue and is addressed through scope management and control.[43]

The analysis strategy taken involved evaluating the methods and procedures that are in place to select and prioritize projects in each UTP category and whether they are followed.

The analysis steps are detailed as follows:

- Conducted interviews with TxDOT technical specialists and managers responsible for each UTP category that TxDOT has the lead role in project selection to identify procedures used.
- Conducted interviews with a sample of TxDOT districts and MPOs regarding the procedures that they use for each UTP category that they have a lead role and a participatory role in.
- Conducted interviews with selected transit agencies and other authorities regarding their perspective on project selection.
- Evaluated and documented technical procedures and methods used in each applicable UTP category concentrating on those categories that accounted for the largest amount of TxDOT's program.
- Compared TxDOT procedures to best practice.

3. Findings

- **The UTP aligns with Strategic Plan Goals that address safety and the prior Strategic Plan for 2005-2009 goals that address preservation.**

The UTP resource allocation between categories and the methods and procedures used to select and prioritize projects by TxDOT align expenditures with goals. In the case of preservation, there are outcome based measures. For safety technical procedures result in the prioritization and selection of projects that will have the greatest impact on the accomplishment of safety objectives. However, the most recent Strategic Plan (2007-2011) includes a revised goal—Increase the Value of Transportation Assets. For the purpose of the audit we have assumed that pavement and bridge condition is an indicator of whether TxDOT is preserving the value of Texas' transportation assets.

[43] Project delivery issues are not addressed in this audit. However it is important to note that if there is widespread scope change such that the projects built do not reflect original scope when programmed then the effectiveness of the project selection procedures is undermined because the resources might have been allocated differently if the project when proposed for programming had included the full scope.

Strategic Plan goals regarding preserving the value of transportation assets and safety are addressed through TxDOT programs. Pavement preservation and rehabilitation, bridge, and safety projects are selected based on sound technical criteria.

There are some inconsistencies between the Strategic plan for 2005-2009 and the more recent one that covers 2007-2011. Two of the goals have changed but it is not clear if the former goals are no longer being pursued. The goal of increasing the value of transportation assets includes the concept of how much of a projects cost could be contributed by existing traffic through fuel taxes. This may be a useful concept for communicating to the public that there is a need to supplement these revenues, but it is difficult to use this goal to guide programming decisions. The previous plan's goal of improving system preservation seems more direct and appropriate. The goals and strategies for the strategic plans should be reconciled.

- **Decision-making regarding mobility project selection and prioritization is now driven by local decision making involving TxDOT districts, MPOs, and local units of government.**

One of the primary strategies in the most recent Strategic Plan for 2007 to 2011 was to shift project selection and funding decisions for mobility projects down to local and regional levels. Project selection for new projects entering the UTP now starts with the MPOs in coordination and collaboration with TxDOT districts. Under best practice, programming would involve selecting projects that most effectively implement MPO plans. The relative weight or policy priorities reflected in these plans need not align with TxDOT's goals and plans. However, in practice all such plans address mobility goals and include strategies and capital improvement projects to move towards them. There is no control, requirement, or mechanism to ensure that MPO plans address the TxDOT Strategic Plan. The state through its participation on MPO policy boards is involved in the process.

With respect to metropolitan mobility goals, local and regional agencies now have authority for addressing mobility goals. Moving forward, as the current UTP projects are built, the overall approach to meeting mobility goals will depend on the planning, finance, and project selection decision making in those areas. In terms of mobility, the state is establishing broad goals through the Texas Transportation Commission, but funded transportation plans for meeting those goals are established locally with TxDOT transitioning to the role of implementer.

Corridor mobility projects in urbanized areas are selected from project needs identified in those areas' MPO plans by the districts in consultation with the MPOs. The sample of MPOs reviewed does not use a formal project ranking process, but prioritize projects that implement their long-range plan. Both the North Central Texas Council of Governments (NCTCOG) and the Houston Galveston Area Council (HGAC) have formal project selection criteria that track project selection against their respective goals.

- **Under the current programming and financing structure, local and regional agencies are responsible but not accountable for metropolitan mobility and hence accomplishment of TxDOT Strategic Plan mobility goals.**

TxDOT has set mobility goals for the state; however, responsibility for addressing mobility using traditional revenue sources and new funding tools is now at the local and regional level. Decision-making that addresses Strategic Plan mobility goals will be determined by local and regional decision-making. In this situation, the state recognizes that there is a critical state interest in reducing congestion but that the most effective way to address congestion is through local and regional decision-making regarding the plans, project selection, and funding to address mobility. The new funding tools place a further level of authority in project selection at the local and regional level because none of the federal or state programmatic constraints are applicable to how receipts from CDA agreements are expended.

Under the current programming and funding structure the key question is: What is the most effective management control or role of the state? The state has a strong interest in ensuring congestion in metropolitan areas is addressed. This is where the economy is concentrated, this is where costs of congestion accrue, and much of Texas' interstate trade and commerce passes along corridors that travel through these areas. Therefore, there is a state interest in tracking whether projects are selected and prioritized that implement plans that provide the desired level of mobility in the areas. Further, there is a strong state interest in toll authorities developing projects that support regional MPO planning.

- **There are no mechanisms for systematically determining extent to which MPO plans and the funded UTP projects meet TxDOT strategic plan goals.**

The progress made against TxDOT strategic plan goals for mobility, air quality, and economic opportunity is largely determined by the planning and investment decisions made through the metropolitan planning and programming process. The UTP reflects the commitment of funds from traditional funding sources for 10-plus years. Projects in the UTP can be accelerated using new funding mechanisms and additional projects funded.

The new funding mechanisms can accelerate projects that are in the UTP and provide new revenues to address Strategic Plan goals. The success in meeting Strategic Plan goals this will depend on the robustness of MPO planning and the ability of those areas to develop and implement plans that provide the best solutions. This will be largely outside of the control of TxDOT.

B.1.3. Are projects of different modes integrated into the UTP?

Issue: Ideally, the allocation of funds to projects should be without regard to their mode. Road, rail, transit, marine and other projects should be compared and ranked based on the cost-effectiveness of their contributions toward the five Strategic Plan goals. Such neutrality with respect to mode requires planning and project identification to be based on outcomes, not on outputs or inputs; however, at the federal and state levels many traditional funding sources are mode specific, which places constraints on the programming process. It also requires the flexibility to apply funds between modes.

Risk: Mode-specific planning and programming will impede TxDOT's ability to meet Strategic Plan goals.

1. Answer

No, the UTP is essentially a highway program. The Statewide Mobility Program element of the UTP programs highway construction projects that address mobility. This is because TxDOT is constrained in its ability to use the State Highway Fund and Texas Mobility Fund bond proceeds for non-Highway modes. Two of the categories (5 and 7) allocate funds to major metropolitan areas where the MPO selects projects. Some of these funds are spent on transit and bicycle and pedestrian projects. Moving forward, TxDOT, MPOs, and RMAs do not have modal constraints affecting how revenue from toll funded projects and CDA concession agreements is used.

Federal law, subject to a number of provisions and restrictions, allows for flexible funding of public transit and other modes using National Highway System and Surface Transportation Program funds.

2. Analysis Strategy

The analysis steps are detailed as follows:

- Evaluated project eligibility requirements for UTP categories.
- Interviewed TxDOT managers in the central office and selected district and MPOs to obtain input regarding how other modes are addressed through the UTP.
- Analyzed the 2007 UTP by category to identify any multi-modal or potentially multi-modal projects.

3. Findings

- **The UTP is almost entirely focused on highways mainly due to the dedication of state highway funds to highway projects.**

Two of the categories (1, 6) are for preserving pavements and bridges. Three of the categories (2, 3, and 4) are for maintaining corridor mobility for rural, non-TMA urbanized areas and TMA urbanized areas. Project selection for the two urbanized area categories are made by the district offices with input from the MPOs. The types of projects selected are for increasing highway capacity. Transit projects maybe funded by only two of the remaining programs, air quality and metropolitan mobility. In both cases, projects are selected by the MPOs.

At this time, transit projects in metropolitan areas are basically outside the scope of the UTP. The only categories that could fund these projects are category 5 and 7 and these categories are set at the Federal level. MPOs are empowered to decide on the best use of these funds to meet the large backlog of mobility needs in their areas. Under the current structure, TxDOT's role is mainly concentrated on rural transit and transit for the elderly and handicapped.[44] There is a study underway on railroads but there are not any existing funding programs to undertake any improvements. Likewise ferries and waterways are small stand-alone programs. If TxDOT wants to have an impact on other modes of transportation, it will have to expand the structure of the UTP programming process.

In the future, toll projects may produce excess revenue that could be used to finance both highway and transit improvements. Such decisions will be the responsibility of the agencies that operate the tolled facility.

- **Multi-modalism is addressed in the 2007 UTP mainly through HOV/managed lanes.**

Analysis of all projects in the UTP finds most planned investment in metropolitan HOV/managed lanes and railroad grade separation. Analysis of the project description of all projects in the 2007 UTP found no examples of transit projects. Projects that support the development of multi-modal infrastructure include mainly HOV lane development, railroad grade separation improvements, and bicycle and pedestrian facilities. Exhibit III-4 provides a summary of the results from this review of UTP projects. Almost all the HOV/managed lane projects are part of proposed toll facilities.

[44] TxDOT's role in public transportation is addressed in the Consumer Services Performance Audit

Exhibit III-4: Multi-modalism in the 2007 UTP

Category 2 Mobility - Metropolitan Area Corridor Projects	**Category 3** Mobility - Urban Area Corridor Projects	**Category 4** Mobility - Statewide Connectivity Corridor Projects	**Category 10** Supplemental Transportation Projects Includes various dedicated programs	**Category 12** Strategic Priority
Dallas/Fort Worth has 6 major projects that include HOV lanes/managed lanes Houston has 3 HOV lane projects San Antonio has 3 projects that specify bicycle accommodation lanes	3 projects identified that address railroad grade separation 2 small projects that address bicycle and pedestrian improvements	2 projects identified that address railroad grade separation	This category has 40 projects that address: • Bicycle trails • Grade Separation • Pedestrian Facilities • HOV Lanes	A number of projects in this category address: • Railroad Grade Separation • HOV Lanes • Bicycle Lanes

Source: 2007 UTP Project Descriptions

- **Multi-modalism is addressed at the planning level, not through the UTP process.**

This performance audit did not evaluate the long-range planning process; the focus is on the source and use of funds in the programming process. Texas MPOs produce system level plans and TxDOT is an active participant in this process. TxDOT working with local units of government also develops corridor plans that implement and develop specific corridor-level approaches that are part of MPO plans. Highway projects that implement these plans are then programmed through the UTP. The accomplishment of TxDOT's Strategic Plan goals for mobility will be dependent on the effectiveness of this regional planning and the extent to which the plan is implemented which in turn will depend on the effective use of funds.

B.1.4. For each applicable UTP category, do TxDOT's programming and prioritization procedures align with the Strategic Plan for 2007–2011 goals and strategies?

Issue: for each UTP category, in which TxDOT is the lead agency, do the methods, procedures, and management controls used to select and prioritize projects allocate resources effectively? This involves evaluating the procedures that are used against industry practice. An audit issue is for each applicable UTP category, identifying whether TxDOT's districts follow their programming and prioritization procedures. This audit area involves conducting tests in a sample of districts to determine whether the projects are selected according to the policies and procedures.

Risk: The risk is that the procedures used for project selection and prioritization does not result in the most effective allocation of funds, or that the procedures are not followed.

1. Answer

UTP categories for which TxDOT is the lead agency follow clearly defined, transparent procedures that align project selection with Strategic Plan goals. These categories mainly address system preservation and safety goals.

Category 1 preservation funds are allocated to districts by a technically driven suballocation method. District engineers are held accountable for the outcome of their project selection – the measured condition of the pavements. Category 6 bridge projects are identified and prioritized using technical procedures that result in needs based project selection. Category 8, Safety, project selection follows technical selection and prioritization procedures. Category 4, Statewide Connectivity Corridors, is used to program projects outside urban areas to complete the Texas Trunk Highway System. For each category, TxDOT practices conform to industry standards.

While TxDOT as an agency retains visibility and accountability for mobility in the state, responsibility for mobility decisions, both project funding and prioritization has been shifted to metropolitan areas through the strategy of empowering local and regional leaders to solve local and regional transportation problems. Therefore, other UTP categories are addressed under Questions B.1.2 and B.1.4, which address MPO-led programming categories.

2. Analysis Strategy

The analysis strategy involved identifying the procedures used to prioritize and select projects in each category and then to determine how the procedures are in practice applied.

The analysis steps are detailed as follows:

- Conducted interviews with TxDOT technical specialists and managers responsible for each UTP category that TxDOT has the lead role in project selection to identify procedures used.
- Conducted interviews with a sample of TxDOT districts for each UTP category that they have a lead role and a participatory role in.
- Evaluated documented technical procedures and methods used in each applicable UTP category concentrating on those categories that accounted for the largest amount of TxDOT's program.
- Compared TxDOT procedures to best practice.

3. Findings

- **Category 1 Preservation project selection procedures align resource selection and project selection with TxDOT goals.**

Category 1 funds are allocated and project selected using measurable outcome-based goals that can be used to measure accomplishment of Strategic Plan goals. The Strategic Plan for 2005-2009 had a very clear and measurable goal of maintaining 90% of the roads and 80% of the bridges in good condition. Pavement conditions are monitored annually and pavement performance is reported by district. This information is used to both allocate funds to districts and to hold district engineers accountable for their use of Category 1 funds.

Preservation funds are suballocated to districts based on lane miles, traffic, traffic loads (ESALs), pavement distress and ride quality scores. The district engineers follow different practices for allocating resources in their districts. However they all work toward the same measurable goal.

- **Category 4 Statewide Connectivity Corridors is for a non-urbanized area is used to complete high priority elements of the Texas Trunk Highway System.**

Category 4, Statewide Connectivity Corridors is for non-urbanized areas. Most of the eligible projects are on the Texas Trunk Highway System. Earlier plans for that system were to link cities by a system of four-lane divided highways. Most of the system is complete. Unfinished gaps receive priority. The central office makes project selection decisions after consulting with their districts.

- **Category 6 Bridge project selection procedures provide a technical needs-driven process.**

Category 6 funding levels primarily reflect the Federal Bridge programs, but have included some flexible use of Surface Transportation Program funds. Although states also have some flexibility to shift bridge funds to other programs, TxDOT has used these funds solely for bridges. Projects are ranked on a technical basis and the bridges in worse condition receive top priority. The technical procedures used reflect industry standards and are broadly comparable to those used in other states.

- **Category 8 Safety projects are subject to a technical statewide ranking.**

Category 8 receives funds from four Federal safety programs and from Proposition 14 bond funds. Twenty percent of Proposition 14 funds were dedicated to safety projects on the state system. The safety category includes a number of subcategories that are used to program projects in specific federal safety-related funding categories. These include: Highway safety, railroad grade crossings, and Safe Routes to Schools. Highway safety projects are assigned a Safety Improvement Index score which considers accidents, costs, average daily traffic, maintenance costs and expected accident reductions. A minimum amount is guaranteed to the rail grade crossing program and each project is assigned a score that considers accidents, number of trains and average daily traffic.

Additional funds can be transferred into this program but not out of it. (There are a national inventory of grade crossings and a priority index). Safe Routes to Schools is a new program in this category.

- **Category 9 Transportation Enhancements is a federally funded program that has not been directly tied to TxDOT goals.**

Category 9 has accounted for just under 1.5% of the program allocation in 2007. There are no management controls in place to align Transportation Enhancement project selection with TxDOT goals. Decision making has been devolved to local entities to select eligible projects that best address their goals.

Category 9 is funded by federal Surface Transportation Program funds suballocated by federal law to transportation enhancements. TxDOT has administered this program as a bottom-up, decentralized process through which local governments nominate eligible projects. Eligibility is defined using federal criteria regarding what is an eligible use of enhancement funds. In some cases, they may be prioritized by MPOs. The districts screen the proposals for eligibility and then forward them to Austin. A special committee of stakeholders makes the final selection. Texas has decided not to use any of its Federal obligation authority for this program during the current year by foregoing this authority to accommodate federal recessions.

- **Category 11 District Discretionary and Category 12 Strategic Priority (Commission Discretionary), are used at District and Commission member discretion to meet TxDOT goals.**

Category 11 funds are allocated to districts for discretionary purposes. There is no requirement or management control that ensures District Engineers use these funds for projects that align with TxDOT Strategic Plan goals. Similarly, Category 12 funds includes projects selected by the Texas Transportation Commission similarly there is no control aligning the use of these funds.

B.1.5. For the MPO–led UTP categories, are there policies, procedures, and management controls that ensure that funds are used most effectively to meet plan goals?

Issue: For each UTP category where MPOs are the lead agency, this issue area involves identifying the methods, procedures, and management controls used in the TxDOT districts to select and prioritize projects. The issue is whether these result in the selection and prioritization of projects that implement plans most effectively.

Risk: Project selection and prioritization is not guided by outcome-based criteria such as cost effectiveness in meeting Strategic Plan goals.

1. Answer

The goals for MPO-led categories are established at the regional level. Each MPO produces a long range plan for meeting their region's transportation goals. The performance of the region's transportation system will depend on the level of investment planned and the effectiveness with which investments are made.

Two of the twelve program categories allocate their funds directly to metropolitan areas in accordance with federal aid program requirements. Category 7 funds are allocated by federal statute to TMAs on a population basis. Category 5 funds are allocated, by population, to air quality non-attainment areas. The purpose of each of these programs and the methods for allocating the funds are basically determined by Federal legislation. Projects are selected by the MPOs using criteria that reflect the goals of their transportation plans. Although there are some differences between the metropolitan and state goals, they share many of the same goals. Different MPOs use different procedures for prioritizing projects.

MPOs now have the lead responsibility for selecting mobility projects in their areas. To date there have been a limited number of projects new to the UTP through these new responsibilities, and accordingly, mechanisms for programming have not been developed. There is management control at the planning level because all selected projects must be in the long range plan. Provided projects are selected that implement the plan as opposed to the plan being amended to include the project this control will be effective in aligning project selection with MPO plan goals.

2. Analysis Strategy

The analysis steps are detailed as follows:

- Conducted interviews with a sample of TxDOT districts and MPOs regarding the procedures that they use for each UTP category that they have a lead and participatory role in.
- Conducted interviews with selected transit agencies and other authorities regarding their perspective on project selection.
- Evaluated documented technical procedures and methods used in each applicable UTP category.
- Compared procedures against industry standards.

3. Findings

The state and metropolitan plans share many of the same goals such as improving mobility, preserving the system, reducing accidents and improving air quality. However, the larger metropolitan areas are much more involved in addressing these goals through a multi-modal approach and relying on other strategies such as land use and demand management.

The strategic goal for mobility is for Texas cities to have less congestion than comparable cities in other states. Achieving this goal will be the responsibility of each metropolitan area. Several of the larger metropolitan areas have adopted the strategy of creating some form of toll authority and using this mechanism to finance their mobility needs. However, this strategy may not work as well in smaller metropolitan areas. In Tyler, tolls are only likely to provide a small part of the funds needed for their highest priority project. In Amarillo, they are not likely to use this strategy at this time.

Closely related to mobility is the goal of improving clean air. The method for monitoring this measure is reducing the ECI index, which is the same index used to measure mobility. Financing roads by tolls should help improve air quality by both increasing road capacity and reducing demand. Whether this mechanism could be used to implement some of the other strategies that are often undertaken to improve air quality by shifting motorist to other modes, like transit or bicycle/pedestrian remains to be seen.

The goals of expanding economic opportunity and increasing the value of transportation assets are more difficult to evaluate. Expanding economic activity is measured by calculating time savings and thus it is closely related to the mobility goal. Increasing the value of transportation assets is measured by calculating how much revenue existing traffic would contribute to project cost. It is not at all clear how this would influence project selection criteria, nor the amount of funds programmed for different categories.

The other strategy of shifting Categories 2 and 3 project selection decisions down to the districts was supported by everyone we talked to. However, one of the MPOs reported that they understood the process for allocating Category 3 funds but they were not sure it was being followed. The central office thinks that some of this misunderstanding could be the result of districts trading funds because some areas may have insufficient funds to take on significant projects until they have accumulated several years of allocations. In Houston, the new process won't take full effect until the pipelines of projects selected under the previous method are completed.

Both Dallas-Fort Worth and Houston MPOs have developed project selection criteria for CMAQ and attributable STP funded projects. Both areas recognize that it is very difficult to adopt one method for ranking all projects, so they separate them by category of work and rank them within those categories. Some of the factors considered reflect metropolitan goals like land use, environment and quality of life.

- **Strengthened role of Strategic Plan positions TxDOT to provide top down direction with which the UTP can be aligned.**

Two of the twelve program categories allocate their funds directly to metropolitan areas. Category 7 funds are allocated by federal statute to TMAs on a population basis. Projects are selected by the MPO. In the Dallas-Fort Worth area, the MPO scores the projects based on five criteria: current and

future cost effectiveness, air quality/energy conservation, local cost participation, and intermodal/multi-modal/social mobility. In Houston, the MPO first sorts projects into the following categories: operations and maintenance, rehabilitation and preservation, roadway expansion, transit, and TSM/TDM. Each category is scored differently; half the score is based on benefit cost analysis and the other half is based on points awarded for how well the project meets a variety of planning factors.

- **Few new projects have entered the UTP under the new project selection responsibilities; therefore, new procedures are not yet in place for Categories 2 and 3 at the MPO level.**

Category 2 and 3 funds, Metropolitan Area Corridor Projects and Urban Area Corridor projects respectively, accounted for some $891.6 million (18.6%) and $95.4 million (1.9%) of the program allocation in 2007. Metropolitan areas include MPOs with over 200,000 population and urban areas the 17 MPOs with less than 200,000 population. TxDOT through the districts' role with Category 2 and 3 projects still retains a key role in project selection and prioritization using traditional funds.

Category 2 and 3 funds are sub-allocated to the districts based on a formula that considers population, lane miles, VMT, percent of population who are low income, and accidents. Houston reported that there is still a backlog of projects in Category 2 that were selected prior to the changes and therefore new procedures for selection have not been established. TxDOT's Dallas district reported a similar situation.

- **Category 3 funding priorities are established through the regional planning process.**

Approximately 10% of the corridor mobility funds are allocated to Category 3 and divided between 17 MPOs. In the case of the two MPOs sampled, Amarillo does not use a formal project selection process. They do, however, produce a long-range financially constrained transportation plan that is required to include projects funded through this category. Tyler has committed all of its Category 3 funds for the foreseeable future to its highest priority, Loop 49.

- **Category 5 Congestion Mitigation and Air Quality Improvement are prioritized by MPOs following procedures that they establish.**

TxDOT has set a statewide goal of improving air quality. Category 5 is a federal funding program that targets air quality improvement in federally designated non-attainment areas. Category 5 funds are allocated by population to air quality non-attainment areas. Under the current UTP selection procedures, MPOs establish their own procedures for evaluating and selecting projects. These differ between MPOs and hence the effectiveness with which these funds are applied to meeting state goals will vary depending on how each MPO administers the program. For example, in Houston, projects are separated into four categories: roadway improvement, traffic operations, bicycle/pedestrian, and transit. The scores combine benefit costs (50%) and the scores for several other planning

factors, which are different for each category. In Dallas-Fort Worth, projects must first demonstrate a reduction in emissions and then they are scored on five criteria: cost effectiveness, air quality/energy conservation, local cost participation, intermodal/multi-modal/social mobility, and congestion management.

- **Category 7, Federal Surface Transportation Program funds allocated by Federal law to TMAs, are selected in each applicable MPO through locally defined processes.**

Category 7 funds are allocated by federal statute to MPOs with over 200,000 in population and accounted for some $203 million (1.4%) of the program allocation in 2007. Projects are selected by the MPO. In the Dallas-Fort Worth area, the MPO scores the projects based on five criteria: current and future cost effectiveness, air quality/energy conservation, local cost participation, and intermodal/multi-modal/social mobility. In Houston, the MPO first sorts projects into the following categories: operations and maintenance, rehabilitation and preservation, roadway expansion, transit, and TSM/TDM. Each category is scored differently. Half the score is based on benefit cost analysis and the other half is based on points awarded for how well the project meets a variety of planning factors.

C. Recommendations

B.1.1 Report the level of transportation system performance against TxDOT Strategic Plan Goals bought by the UTP.

The intent of this recommendation is for TxDOT, in cooperation with the MPOs, to establish at the transportation system level a report that communicates to policy-makers, stakeholders, and Texans in general the level of transportation system performance forecast under an implemented UTP. This framework would enable a policy-level assessment of the impact of different finance decisions. It will also position TxDOT to follow best practices for public sector management – namely, the clear communication of the anticipated outcomes from governmental expenditures and policy. For metropolitan mobility, UTP implementation is just one element of the accomplishment of mobility goals and does not include the role of transit, demand management, or other multi-modal solutions.

B.1.2 Require MPOs to report the level of performance against TxDOT strategic plan goals anticipated from the implementation of their long-range transportation plans.

Texas' new programming and funding authorities empower local and regional agencies to address transportation system needs. In this way, Texas' strategy for addressing metropolitan mobility goals is through regional decision making. Under this model, TxDOT becomes the implementer and not the planner of the highway elements of the transportation system. The intent of this recommendation is to provide a forward forecast to the state of the expected outcome from local and regional decision-making, similar to the current 2007 report prepared for the Dallas-

Fort Worth Metropolitan Area by NCTCOG.[45] This is so the state can exercise its interest because ultimately the State of Texas is accountable for the efficiency and effectiveness of the governance and funding process through which transportation is addressed.

B.1.3 Account for total project cost in the allocation of programming targets between UTP categories.

Currently the "plan it" budget is established by taking funds off the top before allocating to programming categories. This effectively results in the understatement of allocations to mobility projects because they incur the largest right of way and engineering costs whereas pavement preservation projects usually require for little engineering and environmental costs and no right of way. This recommendation can be implemented at the program level by developing a method for estimating the percentage of "plan it" costs applicable to each category. Although not addressed in this audit, implementation of this recommendation will further enable TxDOT to follow best project delivery management practices regarding scope and budget management across the project lifecycle.

B.1.4 Strengthen the link between the Strategic Plan goals, system planning analysis and programming by:

- **Refining strategic plan goals and stating them as measurable objectives subject to performance measurement.**
- **Using assessment of system level performance to evaluate the anticipated level of performance from UTP and resource allocation against TxDOT strategic plan goals.**
- **Implementing the planned project performance indicators to guide evaluation and prioritization of projects for programming in Categories TxDOT is directly responsible for.**

The purpose of this recommendation is to build on the accountability mechanisms and business planning that TxDOT has put in place. The intent is to strengthen the link between the agency's strategic objectives, specified in the Strategic Plan; TxDOT's transportation system planning; and resource allocation through the programming and project prioritization process. The recommendations address the fact that the UTP procedures predate the Strategic Plan goals and that the Strategic Plan goals have changed. The recommendation does not intend to be prescriptive regarding policy goals but points out some management issues that the recommendations can help address. These include:

- The goal of improving air quality is very narrowly focused on improving traffic flow on highway projects. Also, since air quality is only a problem in selected areas, calculating this measure for all projects may not be necessary. There are other strategies such as modal shifts, demand management, improved land use and

[45] Transportation 2007 State Of The Region. www.nctcog.org/trans/outreach/stateofregion/07.pdf

transportation coordination and vehicle inspection programs that could also improve air quality that are not likely to be evaluated. This goal's focus could be expanded to include non-highway strategies.

- The Strategic Plan goal that originally guided Category 1, Preventive Maintenance and Rehabilitation, resource allocation and performance management is no longer in place.
- The goals of expanding economic opportunity and increasing the value of transportation assets are more difficult to evaluate. Expanding economic activity is measured by calculating time savings and thus it is closely related to the mobility goal. Increasing the value of transportation assets is measured by calculating how much revenue existing traffic would contribute to project cost. It is not at all clear how this would influence project selection criteria or the amount of funds programmed for different categories.
- Category 4 (non-urbanized corridor mobility) is mainly focused on completing the Texas Trunk Highway System. As this system is completed, further work will be needed to define what this program will focus on in the future. The development of the project indices can help evaluate prioritization.
- Project performance indices that are under development will be useful in making project selection decisions but they are not useful in evaluating system performance and making program allocations. They are not currently used for selecting projects and will be most useful for a subset of UTP categories. Given Texas' policy framework they should be developed for use in those UTP categories that TxDOT is directly responsible for. For example, in Category 2, MPO planning and analysis will identify project priorities. (Recommendation B.1.2 above provides a mechanism for tracking the performance of these efforts against the State's policy interests).

IV. Audit Area B.2: Use of Debt and Project Funding

■

TxDOT has made a rapid transition from a pay-as-you-go program to one in which debt finance plays an important role in project timing and funding. The focus of this audit area is to evaluate TxDOT's criteria for the use of debt, the capacity for debt finance, and the financial efficiency and effectiveness with which debt is used. Issuing bonds against highway revenues does not increase the revenues available for transportation projects. It is a cash flow tool that enables projects to be accelerated. Projects funded through debt incur the additional costs of interest. This audit question evaluates whether there are management controls and business-driven procedures in place to ensure that the financial benefits from TxDOT's use of debt offset the cost of borrowing.

A. Audit Area Objectives and Questions

1. Audit Area Objectives

The objectives for this audit area are to:

- Investigate whether TxDOT applies sound business driven criteria for the use of debt.
- Evaluate the decision-making process regarding debt financing for projects.

2. Audit Questions

The following questions are evaluated:

- **B.2** Does TxDOT apply sound business driven criteria to the use of debt?
  - **B.2.1** Does TxDOT benefit financially from the use of debt?
  - **B.2.2** Are effective policies and procedures in place regarding the use of debt?
  - **B.2.3** Are project-specific decisions on debt finance integrated into the program?
  - **B.2.4** Can TxDOT cover the contingencies of: no federal obligation authority being available to reimburse state funds spent on advance construction projects; or insufficient State Highway Fund dollars being available to meet tapered state match requirements?

B. Background

In the past five years, TxDOT has been granted two means to issue debt outside the confines of toll revenues: the Texas Mobility Fund and Proposition 14.

1. Texas Mobility Fund

The Texas Mobility Fund was formed in 2001[46] as a revolving fund and authorized to issue debt to accelerate mobility projects throughout the state. Proceeds of debt issues may be used to fund the construction, reconstruction, acquisition and expansion of state highways, including costs of any necessary design and costs of acquisition of right-of-way. Debt proceeds may also be used to provide state participation in publicly owned toll roads and other public transportation projects. Revenues to service the Texas Mobility Bonds issued to capitalize the Texas Mobility Fund are dedicated from transportation-related fines and penalties that were, before their dedication, paid into the general revenues of the State of Texas.[47]

2. Proposition 14

The Texas Legislature authorized[48] and the people of Texas ratified Proposition 14 in 2003, up to $3 billion in bonds secured by the revenues of the State Highway Fund. All of the proceeds of these bond issues must be expended on transportation-related projects and $600 million, which currently represents about twenty percent of the currently authorized proceeds, are to be spent on safety projects. No more than $1 billion can be issued in any one year.

The amounts authorized and the amounts issued under each of these measures are described in Section II, Audit Area A: Analysis of Fiscal Capacity.

Question B.2. Does TxDOT apply sound criteria to the use of debt?

Issue: TxDOT has made a rapid transition from a pay-as-you-go program to one in which debt finance plays an important role in project timing and funding. Projects funded through debt incur the additional costs of interest. This audit question evaluates whether there are management controls and business-driven procedures in place to ensure that the financial benefits from TxDOT's use of debt offset the cost of borrowing. Debt financing of highway programs and projects increases their cost by the amount of interest paid, which can be a substantial increase: An interest rate of 5% paid over 20 years to finance a project will increase that project's cost by about sixty percent.

Risk: The risk is that debt is applied to projects for which these additional costs of debt financing exceed the benefits of debt financing.

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[46] Authorized by voter approval of Proposition 15 and enacted by the 77th Legislature it is defined in Article III, Section 49-k of the Texas Constitution.
[47] 78th Legislature, 2003.
[48] House Bill 3588, Section 222.003.

1. Answer

Yes, about 40% of the debt issued at the state level yields financial returns that exceed the cost of the debt. Also, Proposition 14 debt is used to advance mobility and safety projects which align with strategic plan goals.

In a large and complex highway program, such as the Texas program, the judicious application of debt financing brings advantages in two situations:

- When debt-financed projects yield sufficient financial benefits, in the forms of toll revenues or reduced life cycle management (system maintenance and preservation) costs.
- When debt-financed projects are aligned with strategic priorities and yield outstanding economic or social benefits.

Debt financing can be beneficial in a third situation: when the price of money over a period of time, i.e., the interest rate, is known to be less than the rate of inflation in construction costs. It is rare, however, for a department of transportation to know with certainty what the rate of inflation in construction costs will be over a future period of time; without that certain knowledge, a department that borrows funds to avoid a forecasted increase in construction costs is, in effect, borrowing funds to finance a speculative position in future prices of concrete, steel, asphalt and labor.[49]

At least $3.5 billion of the highway-related, state-level[50] debt in Texas is backed by toll revenues. Bonds backed by toll revenue meet the test of sufficient financial benefits by definition: the bond indentures require the state to earn toll revenues sufficient to cover of the project's ongoing costs, include debt service and retirement, plus a margin that usually varies between ten percent and thirty percent.

At least $1.6 billion of highway-related, state-level debt is not secured by toll revenues but by State Highway Fund revenues. This debt was issued to accelerate mobility projects in the TxDOT highway program and does not meet the test of sufficient financial benefits, in that 1) the accelerated projects do not earn toll revenues and 2) there is no assurance that the accelerated projects materially decreased the life cycle management costs of existing highways. However, this debt meets the test of being aligned with at least one of goals in TxDOT's strategic plan: decreasing congestion.

[49] Comparing the cost of funds with the cost of construction more generally, the net cost of funds in a project can be considered to be the interest rate less the expected rate of inflation in construction costs.

[50] The term "state-level debt" includes all debt that is issued by the State of Texas, any of its agencies or any of its political sub-divisions. Since the North Texas Tollway Authority and regional mobility authorities are political sub-divisions of the state, the Federal Highway Authority classifies their debt as state-level debt. In contrast, the Harris County Toll Road Authority is an agency of Harris County, so the FHWA classifies its debt as local-level debt. We use the FHWA classifications of debt throughout this report so that we can draw upon FHWA data for inter-state comparisons.

2. Analysis Strategy

The analysis steps are detailed as follows:

- Compiled best practice guidelines on the appropriate and inappropriate uses of debt from leading national sources.
- Assessed TxDOT's current guidelines for incurring debt on specific projects by comparing them to those best practices.

3. Findings

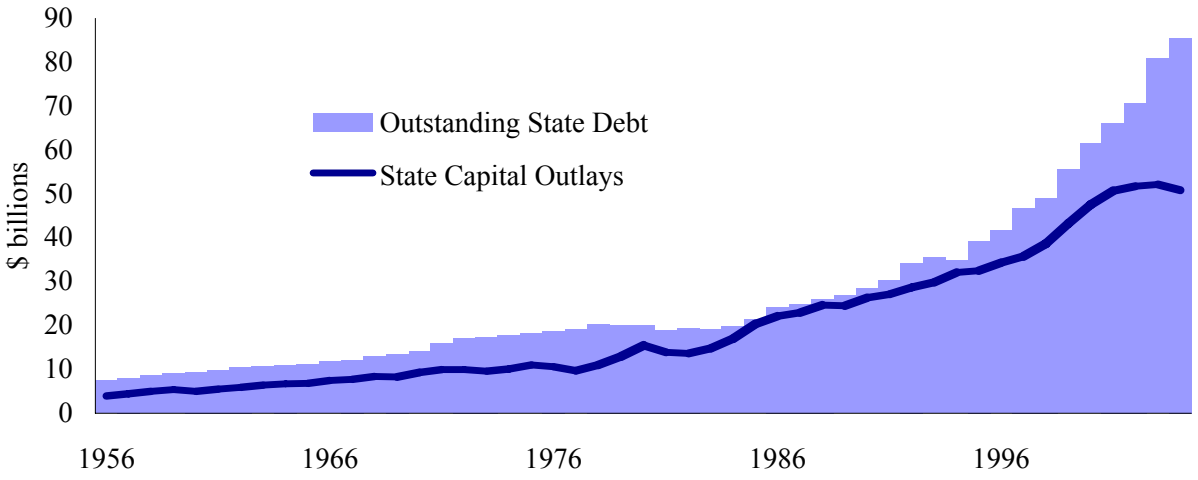
- **TxDOT had largely a pay-as-you-go highway program until about 2005.**

There are different ways in which the benefits, costs and risks from the use of debt interplay in a state's highway program and from one highway project to another. This has resulted in a variety of debt instruments that are currently available to state governments. Not surprisingly, there is a corresponding variety among states in how those instruments are applied.

Over the past five decades, the 50 states in the union have steadily increased their annual outlay of state funds on highway capital from about $4 billion in 1956 to about $50 billion in 2001. Outstanding state obligations for highway-related debt also increased steadily and, since the mid-1950s, have slightly but consistently exceeded a level equal to about 1 year's worth of capital outlays. This seemingly steady relationship between the level of borrowing and the level of capital expenditure throughout the United States is illustrated in Exhibit IV-1 on the following page.[51]

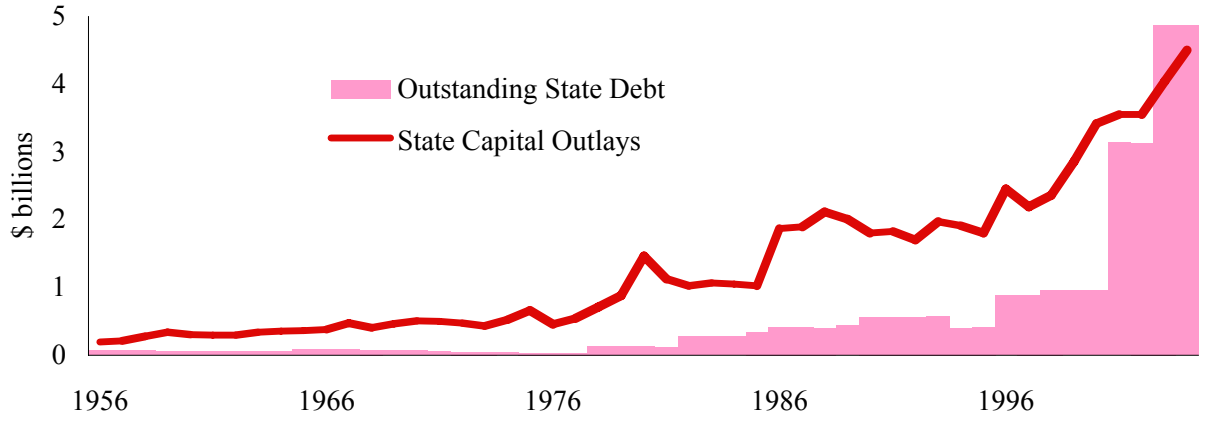
[51] FHWA financial statistics, as follows
Outstanding state highway bonds, 1956 to 1995: http://www.fhwa.dot.gov/ohim/summary95/sb202e.xlw.
State highway bonds, change in indebtedness, 1996 to 2005: Table SB-2, Highway Statistics
State government capital outlays, 1956 to 1995: http://www.fhwa.dot.gov/ohim/summary95/sf202c.xlw.
State government capital outlays, 1996 to 2005: Table SF-12, Highway Statistics

Exhibit IV-1: All States: Highway-Related Annual Outlays and Outstanding Debt



While state capital outlays on highways in Texas have reflected the American experience as a whole, the history of debt financing of highways in Texas is very different, as is illustrated in Exhibit IV-2 below.

Exhibit IV-2: Texas: Highway-Related Annual Outlays and Outstanding Debt[52]



TxDOT's capital outlays have followed the pattern of steady increase that is seen across all 50 states as a whole and they have grown from about $200 million in 1956 to about $5.7 billion in 2005. The pattern of outstanding state highway debt is, however, very different than the aggregate American experience: State debt was, generally, used only to finance state toll roads.

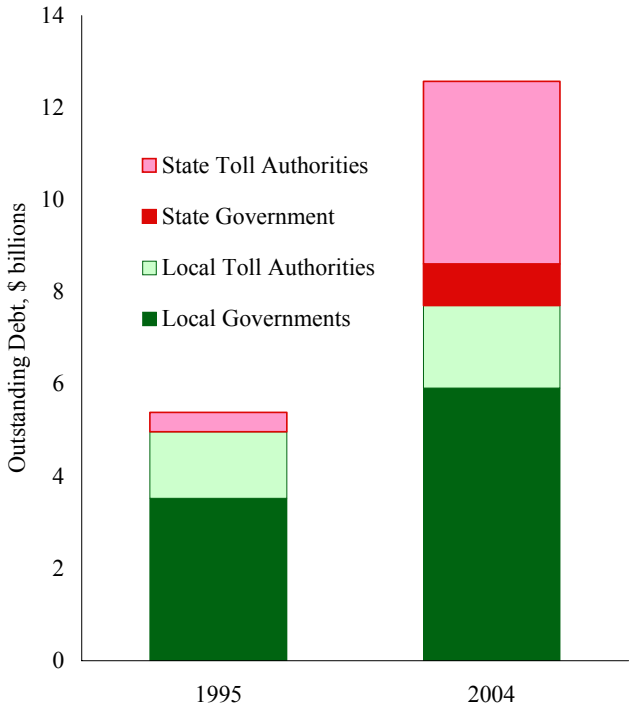
[52] "Outstanding State Debt" is state-level debt as defined by the FHWA and, therefore, includes outstanding debt of the North Texas Tollway Authority and its predecessor, the Texas Turnpike Authority. Their toll roads in the Dallas Fort-Worth area accounts for growth in outstanding debt through the 1980s and 1990s.

Only since 2005, when TxDOT began its use of the Texas Mobility Fund, has highway-related, state-level debt in Texas approached the national average.

- **Most highway-related debt in Texas is and will continue to be tied to local revenues and toll revenues.**

While the Texas state government has made little use of highway-related debt until recently, local governments have used municipal bonds for decades: Some backed by the toll revenues collected on county toll roads and bridges; some backed by general obligations of counties and municipalities. Almost all of the highway-related debt in Texas was local government debt up to 1995, as is illustrated in Exhibit IV-3 below.

Exhibit IV-3: Composition of Highway-Related Debt in Texas, 1995 and 2004[53]



As of 2006, highway-related, state-level debt still represented less than $^1/_2$ of the outstanding highway-related debt in the state, comprised of:

- About $3.5 billion in toll revenue-backed debt, of which $2.1 billion was issued for the Central Texas Turnpike System and the balance by the North Texas Tollway Authority.

[53] "State Toll Authorities" in 1995 included the Texas Turnpike Authority as it then existed, i.e. as the operator of the Dallas North Tollway and the Mountain Creek Lake Bridge.

- About $1.8 billion in debt, of which about $1.6 billion were Proposition 14 issues secured by State Highway Fund revenues and about $200 million were loans issued by the state infrastructure bank.

- **TxDOT is trying to benefit from the lower cost of capital that CDAs can usually deliver.**

When private sector investors can capture depreciation tax credits and earn returns on investment on periods of 35 to 50 years, they are able offer a lower cost of capital for the construction of toll roads. These lower costs are estimated and explained in IV-5 under question B.2.3 below. TxDOT has well-developed programs to procure CDAs in these situations.

- **If no equity is invested in toll roads developed by RMAs the costs of those roads and the costs of RMA-initiated CDAs will be significantly higher than for TxDOT or other entities.**

RMAs have limited start up capital or equity and, like state or other regional toll authorities with limited equity, may pay about 50 basis points more on bonds they issue to fund toll roads, relative to the interest rates available to the state. Those higher debt issuance costs will also be reflected in the public sector comparators that RMAs will use to evaluate CDAs. Private sector proponents will be well aware of the higher bond costs faced by RMAs and, knowing they face a lesser degree of competition from the public sector comparator, will be able to retain more earnings for themselves.

B.2.1. Does TxDOT benefit financially from the use of debt?

Issue: From a financial perspective, debt should be used only to finance a project when its benefits will exceed the cost of a loan.

Risk: If projects that do not have a positive financial return are funded, then TxDOT will incur additional costs.

1. Answer

Yes, almost 40% of state-level highway-related debt, about $3.5 billion, is toll revenue debt. By definition, toll revenue debt delivers financial benefits that exceed the cost of that debt.

2. Analysis Strategy

The analysis steps are detailed as follows:

- Established a set of best practice financial and economic criteria for using debt to fund transportation projects.
- Estimated the cost of debt and compared it to the direct financial benefits that can offset those costs.

3. Findings

- **Debt financing highway projects can significantly increase their cost.**

The interest paid on the funds borrowed is a real and additional cost to the highway projects that are financed with debt; highway revenues that are used to pay interest represent a lost opportunity to fund additional projects. Exhibit IV-4 shows the debt service costs paid on a debt of $1 at a rate of 5%, compounded annually, over varying terms.[54]

Exhibit IV-4: Illustration of Costs of Debt

Term, in years	*Principal*	*Simple Interest*	*Interest Compounded Annually*
1	$1	$0.05	$0.05
5	$1	$0.25	$0.28
10	$1	$0.50	$0.63
20	$1	$1.00	$1.65
30	$1	$1.50	$3.21

These cost increases are shown in nominal dollars and, as payments of interest, they contain an inflation component and a risk component that sum to the cost of money.

Also, borrowing entails risks: Dedicating future revenues to current highway projects can reduce a state's flexibility to respond to future needs, and adverse economic events can erode a state's ability to repay.

- **Hard financial benefits, in the forms of increased revenues or decreased road preservation expenditures, can offset the added cost of debt financing.**

From TxDOT's perspective, only two benefits qualify as direct financial benefits:

  – The project will return revenues, such as toll revenues, either from itself or from other parts of the highway system; or

  – The project will reduce TxDOT's current expenditures on highway preservation and maintenance.

When the sum of these two benefits exceeds the additional cost of debt, there are sufficient financial benefits to justify debt-financing of a project. This is the test of financial sufficiency for debt financing.

[54] Financial Compound Interest and Annuity Tables, 5th Edition, 1978.

- **Interest rates and construction costs**

Debt financing can be beneficial in a third situation: when the price of money over a period of time, i.e., the interest rate, is known to be less than inflation in construction costs. In that situation, the total cost of a project can be decreased by incurring the interest costs necessary to accelerate construction of the project. It is rare, however, for a department of transportation to know with certainty what the rate of inflation in construction costs will be over a future period of time. Without that certain knowledge, a department that borrows funds to avoid a forecasted increase in construction costs is in effect borrowing funds to finance a speculative position in future prices of concrete, steel, asphalt and labor.

Complicating the comparison is that interest rates have two components: the expectation of inflation, which is included in the time value of money, and the risk premium, which is not. These differences, and the resulting differences between real and nominal interest rates are important here, in the comparison of the cost of borrowing versus expected inflation and, more generally, in TxDOT's forecasts of revenues and needs.

Lenders suffer a monetary loss from decreased purchasing power when prices rise and require compensation for expected price inflation. The nominal discount rate $\mathbf{i_n}$ can be decomposed into the real rate of interest $\mathbf{i_r}$ and the rate of inflation $\mathbf{i_i}$. The correct expression is:

$$\mathbf{i_n} = \mathbf{i_r}(1 + \mathbf{i_i})$$

Although it is most often approximated, and reasonably so when interest rates are less than about 15%, as:

$$\mathbf{i_n} = \mathbf{i_r} + \mathbf{i_i}$$ [55]

It is the nominal rate, $\mathbf{i_n}$, that should be used in the valuation of financial assets, including capital project investments and public sector comparator.

Inflation is a measure of price increases over time. Different prices rise at different rates and any estimate of $\mathbf{i_i}$ must be specific as to the prices included in it. The inflation rates most widely calculated are: the Consumer Price Index (CPI) that measures price increases of a "basket of goods", weighted to approximate the spending patterns of a median household[56];and the Gross Domestic Product (GDP) deflator that makes an implied measurement of the change in all prices in a national economy over time. All other things being equal, the CPI for a given period is expected to be slightly higher than the corresponding GDP deflator; the CPI is made up of prices at the consumer end of the economy, where the effects of percentage markups on prices are more pronounced.

[55] The first expression is an approximation since prices are expected to increase by (1+ $\mathbf{i_i}$) annually, in a compounding series.
[56] Statistics Canada (1996)

The following estimates of inflation provide some guidance about the appropriate value of $\mathbf{i_i}$, which we infer to fall in the neighborhood of 3%:

- The CPI in the U.S., averaged between 1926 to 2006, is 3.9%.[57]
- The GDP deflator in the U.S., averaged between 1947 and 2005, is 3.8%.[58]
- Since 1991, the Federal Reserve Bank of Philadelphia has conducted a quarterly survey of over 50 economic forecasters in the United States. From the late 1990s to the most recent survey, their median forecast of U.S. CPI has held steady at 2.5%.[59]
- Global Insight's October 2003 forecast of the long-term rate of inflation, to the year 2020 and beyond, was 3.2%.[60]

Against a 5% interest rate of which nominally at least 3% represents the time value of money and at most 2% represents a risk premium, is balanced the recent increases in construction pricing of almost 20% per year on projects. Our extensive analyses of construction costs in other states indicate that these increases are part of a more enduring trend that since 2001, construction costs have increased by about 85%.

With historical inflation reflected in the cost of money at around 3% per year, and construction costs rising at almost 20% per year, the cost savings of borrowing would clearly outweigh the risk premium in the interest rate of about 2% per year, but for one complicating factor: the future costs of construction are not known. Borrowing funds to accelerate construction and avoid its future prices is, in effect, borrowing to finance a hedge position. Using current rates, the argument for a hedge is:

- Long term history suggests that construction costs should increase at about 3% per year, with inflation; but
- Construction costs increase by considerably more; so
- TxDOT would "cut its losses" by accepting a certain cost increase of 5% per year.

While that forecast seems reasonable in the context of recent history, recent history is usually shaped by geopolitical events that are not very predictable from their recent past into the future: Wars end, oil prices fall, and economies have soft or hard landings.

[57] lbbotson Associates Inc. (2007)
[58] U.S. Bureau of Economic Analysis. http://www.bea.gov/bea/dn/home/gdp.htm
[59] Stark, T. (2004)
[60] Global Insight (2003)

- **Economic and social benefits are soft benefits from a financial perspective.**

By easing cash flow limitations on capital formation, debt financing also allows the construction of projects to be advanced or accelerated so that other social and economic benefits can be more quickly realized.

The most effective use of debt to yield these economic and social benefits is to ensure projects financed are aligned with the goals of the agencies incurring the debt. In the case of TxDOT-issued debt, the test of alignment would be that a project that is debt-financed makes an outstanding contribution to at least one of TxDOT's five strategic plan goals. Assessing and measuring the alignment of projects with TxDOT's strategic goals is discussed in Section III, Audit Area B.1 Programming and Project Selection.

B.2.2. Are effective policies and procedures in place regarding the use of debt?

Issue: The discipline of revenue dedication ensures that this financial principle is applied to debt-financed toll projects. However, there are no such built-in mechanisms to ensure the adequacy of benefits in projects that are financed by general obligation debt or revenue-backed debt. Only careful management scrutiny ensures that the added benefits of accelerating a project with debt financing are greater than the added cost of interest.

Risk: The risk is that debt is applied to projects that yield insufficient benefits to offset those additional costs.

1. Answer

The Texas Mobility Fund has a strategic plan in place that directs its funds toward projects with sufficient financial benefits.

Most general obligation debt has been issued to increase the letting caps on TxDOT's construction program. This policy has the effect of advancing projects in each metropolitan area's mobility plans. The extent to which the additional costs incurred are outweighed by the economic benefits from improved mobility is dependent on the effectiveness of the planning and project prioritization process.

2. Analysis Strategy

The analysis steps are detailed as follows:

- Established a set of best practice financial and economic criteria for using debt to fund transportation projects.

- Evaluated TxDOT practice against the best practice criteria.

3. Findings

The enabling legislation[61] for the Texas Mobility Fund placed restrictions on its use to raise and disburse funds from debt. The Fund:

- "… shall be administered by the commission as a revolving fund to provide a method of financing the construction, reconstruction, acquisition, and expansion of state highways, including costs of any necessary design and costs of acquisition of rights-of-way, as determined by the commission in accordance with standards and procedures established by law…."

- "… may also be used to provide participation by the state in the payment of a portion of the costs of constructing and providing publicly owned toll roads and other public transportation projects in accordance with the procedures, standards, and limitations established by law…."

- "…may issue and sell obligations of the state and enter into related credit agreements that are payable from and secured by a pledge of and a lien on all or part of the money on deposit in the fund in an aggregate principal amount that can be repaid when due from money on deposit in the fund, as that aggregate amount is projected by the comptroller in accordance with procedures established by law."

Good discipline around the use of debt is implicit in this law; the fund must live within its means, both in terms of its cash balance and in terms of its pledging of revenues for credit. TxDOT drafted a strategic plan for the Fund in 2004 that conforms to the enabling legislation and also goes beyond it in spelling out priorities for expenditures from the Fund.

The Strategic Plan spelled out principles for the allocation of funds to projects. These principles, listed below, are sound both in terms of the alignment of projects to TxDOT mobility goal to obtain maximum financial benefit from borrowing:

"Guiding Principles:"

- "A multi-modal approach including highways, rail, public transportation and other transportation modes is needed to effectively address transportation needs statewide."
- "Regional transportation decisions should be made at the local level."
- "Where feasible, every effort will be made to leverage the fund with toll projects."
- "Toll roads are the fastest way to accelerate needed projects and stretch limited transportation funds."

[61] Article III, Section 49-k of the Texas Constitution, enacted with voter approval of Proposition 15 in 2001.

- "Acceleration of previously requested, locally supported projects as identified in the Statewide Mobility Program is preferred."
- "Success should be measured by how quickly and efficiently a project reduces congestion."

The implementation portion of the strategic plan provided further guidance with respect to the use of debt:

"…bond proceeds shall be used to leverage other revenue sources in an attempt to accelerate mobility projects identified in the metropolitan areas' mobility plans… Mobility projects are those that measurably reduce congestion such as new roadway capacity or public transportation projects. Metropolitan areas have the opportunity to utilize the bond proceeds for use on tolled/leveraged mobility projects… It is the intent of the commission to encourage metropolitan areas to develop tolled/leveraged mobility projects as they allow the use of the bond proceeds to maximize the effectiveness of limited transportation dollars. Maximizing the bond proceeds of the fund through tolled/leveraged mobility projects is in the best interest of the State."

B.2.3. Are project-specific decisions on debt finance integrated into the program?

Issue: From a financial perspective, debt should be used only to finance a project when its benefits will exceed the cost of a loan.

Risk: If projects that do not have a positive financial return are funded, then TxDOT will incur additional costs.

1. Answer

Yes, TxDOT examines debt financing options for all projects that are identified as toll-viable.

2. Analysis Strategy

The analysis steps are detailed as follows:

- Evaluated current procedures for selecting capital sources that will provide cash for the project, chosen from among public equity (pay-as-you-go from revenues), private equity, revenue-backed bonds, or general obligation bonds.

3. Findings

- **TxDOT and the metropolitan planning organizations in the eight Transportation Management Areas have done a thorough job identifying possible toll projects.**

To meet their ongoing obligations to produce long-range metropolitan mobility plans, the MPOs maintain network models with which they can predict for any specific corridor: The volume of traffic through the corridor; the points of access to, and egress from, the corridor and the time saved by travelers using the corridor relative to their best alternate route. These are the three key pieces of information that TxDOT requires to make a preliminary evaluation of toll feasibility.

TxDOT district staff is integrated into the MPOs' planning process. Also, they use guidelines and procedures for conducting a preliminary evaluation of toll feasibility that were developed by the Texas Turnpike Authority (TTA) Division of TxDOT.[62]

TxDOT district staff provide their preliminary toll feasibility evaluations both to the MPOs and to the TTA Division. As a result, each MPO is able to define toll feasible projects as part of their metropolitan mobility plans, with a preliminary estimate of toll equity that, in turn, is included in the UTP. The TTA maintains a record of all toll-feasible projects in the state.

The empirical result of this process is that over 500 toll-viable alternatives to upgrade or construct new highways in over 150 highway corridors throughout Texas have passed through preliminary evaluation.

- **The combination of private equity and Private Activity Bonds available through a CDA is an alternative to, and less expensive than, the combination of public toll equity and state/municipal bonds.**

Two financings of a hypothetical $500 million toll highway project are outlined in Exhibit IV-5 below.

  - In the public option, the project is financed 80% with municipal bonds of 20 years' duration and 20% toll equity from the Texas Mobility Fund.
  - In the private option, the project is financed 80% with private activity bonds of 20 years' duration and 20% with private equity.

[62] TxDOT. Toll Feasibility and Planning Progress, Preliminary Feasibility Tool, Version 2.0

Exhibit IV-5: Illustration of Capital Cost Savings through use of Private Capital in CDAs

Assumptions	*Public Option*	*Private Option*
% of Project Financed with Bonds	80%	80%
Bond Interest Rate	5%	5%
Discount Rate	4%	
Revenue Growth Rate	3%	
Required Pre-tax Return on Equity	5%	12%
Corporate Tax Rate	n/a	35%
Depreciation	n/a	50 years, straight line

We assume that the toll equity provided by the state must earn a return of 5%, equal to a nominal interest rate on a state-issued bond.

The private equity financing can earn a 9% post-tax rate of return on equity for the first 20 years, as the $250 million private activity bond is retired, and achieve a cost of capital over that 20 year period that is equal to the cost of capital in the public option, In addition, the net revenues after tax available in the private option in years 21 through 50, after the bond is retired, have a present value of about $75 million, almost 15% of the project value. These are available to share with public sector through CDA payments and reduce the effective net cost of the project.

The comparison of these financial structures can be simplified with the intuitive question of who "wins" and who "loses" in the private option, relative to the public option.

- If the private sector is able to "win," by earning a profit, servicing its bonds and still having money left over to share with TxDOT; then
- Someone else must be "losing," or giving something up.

In this instance, the U.S. federal government is the "loser," by allowing the private sector firm to issue private activity bonds, it allows the private sector company to claim depreciation tax credits from the CDA against the corporate income tax that it owes from profits earned on other operations. In this example, the federal government is giving the CDA partner tax credits that have a present value of over $40 million. The concept is the same as the treatment of residential mortgages: the interest payments on the face value mortgage are higher than other forms of debt, but the mortgage payments are tax-deductible. Again, the federal government "loses" the tax revenue and the effective cost of the debt to the homeowner is lowered.

- **RMAs' lack of equity makes their debt more expensive.**

With no equity to invest in toll viable projects, RMAs are likely to pay a premium interest rate on the municipal toll revenue backed bonds they must issue to finance them.

The nominal discount rate $\mathbf{i_n}$ is also the sum of a risk-free interest rate $\mathbf{i_v}$ used to discount for the time value of money, which is sometimes referred to as the pure discount, and a premium rate $\mathbf{i_p}$ that reflects the risk premium associated with the project:

$$\mathbf{i_n = i_v + i_p}$$

The pure discount rate $\mathbf{i_v}$ should be, for very short investment periods, about equal to the expected rate of inflation $\mathbf{i_i}$. However, the duration of the investment, i.e., how long the investor's capital is tied up in the project, and the transaction costs of the investment will cause $\mathbf{i_v}$ to be slightly higher than $\mathbf{i_i}$. This is evident in the most commonly accepted practical measure of $\mathbf{i_v}$: The return on short-term U.S. Treasury bills, which are considered to be a virtually risk-free investment. Over the period of 1926 to 2003, the median return on U.S. Treasury bills was 3.8% while the median CPI over the same period was 3.1%.[63] As the duration of an investment increases to cover a project life of several years, so does the amount by which the pure discount rate $\mathbf{i_v}$ exceeds the expected rate of inflation $\mathbf{i_i}$. Over the period of 1926 to 2003, the median return on long-term U.S. bonds was 5.8%, about 2% higher than concurrent rates for U.S. Treasury bills."[64] Not all of the 2% difference between historical long-term and historical short-term U.S. government borrowing rates can be attributed to the higher time value of money for long-term investments: The long-term bonds carry more risk, even through the borrower is the U.S. government in both cases.

The risk premium $\mathbf{i_p}$ reflects the credit risk of the specific project or the entity that an investor takes on in the project. The assessment of the risks that investors face in placing their capital into a particular project or into the hands of a particular corporation or government is a complex procedure that is subject to considerable discretion and judgment. There are many expert individuals and firms whose sole business is to assess risks on behalf of investors. Some of the well-known firms, such as Moody's, Fitch, and Standard and Poors assign uniform ratings to their risk assessments. These ratings are widely used indicators of risk. Investors price the risks according to these ratings by demanding higher risk premium $\mathbf{i_p}$ for investments into projects or bond issues with lower ratings.

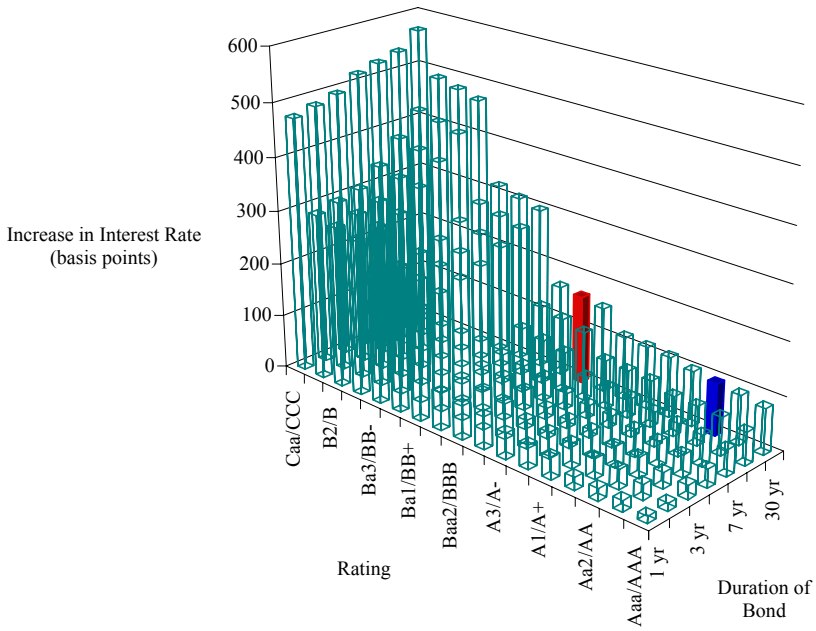
As an example, the risk premium for long-term corporate lending with Moody's BAA rating over the period 1986 to 2004 has averaged about 2% higher than comparable lending with Moody's AAA rating.[65] A risk premium of about 2% over long borrowing periods is a reasonable assumption.

The experience of the new tollways in the Austin area illustrates that the premium paid by RMAs on bonds issued for their toll projects will be more due to the high proportion of debt required for the project. Whereas the general

[63] Ibbotson Associates Inc. (2004)
[64] Ibbotson Associates Inc. (2004)
[65] U.S. Treasury Department. http://econstats.com/r/r_aa3.htm

obligation debt of the state is rated AA[66] (shown in blue), the bond issues to fund the Central Texas Turnpike System were rated BBB$^+$ (shown in red), a premium of about 50 basis points due to lack of equity invested in the project. The bond issues of the Central Texas RMA to fund their SH183A toll road were rated BBB$^-$, only about 10 basis points higher than the BBB$^+$ rating assigned to the TTA bonds.

Exhibit IV-6 Bond Rate Spreads, May 2007



Section VIII Audit Area D.2 further addresses the question of lowering the costs of financial securities offered by RMAs.

B.2.4. Can TxDOT cover the contingencies of: no federal obligation authority being available to reimburse state funds spent on advance construction projects; or insufficient State Highway Fund dollars being available to meet tapered state match requirements?

Issue and Background: The Federal Government, through the Federal Highway Administration (FHWA) in the U.S. Department of Transportation, makes about $30 billion available each year to share in the costs of eligible and approved highway projects that are undertaken by state departments of transportation across the country.[67] These funds, which amount to over $^1/_3$ of capital expenditures on highways in the

[66] We use for this comparison the credit rating assigned to general obligation debt of the State of Texas. Texas Bond Review Board: *State of Texas Capital Expenditure Plan For Fiscal Years 2008-2009*. September 2006.

[67] Federal Highway Administration. Highway Statistics, 2005: Table FE-10

United States by all levels of government,[68] are raised from a federal excise tax of: 18.4 ¢/gal on gasoline and gasohol in highway use; and 24.4 ¢/gal on diesel in highway use; and various rates on the sale of tires, trucks and trailers.[69]

Two basic attributes of the federal-aid highway program must be understood by the reader to place the management of advance construction, partial conversion of advance construction and tapered match into their proper context:

The Federal Aid Highway Program is a Cost-Sharing Program

In almost all of the individual programs that make up the federal-aid program, each state is required to fund some proportion of those projects that are eligible for federal-aid. Generally, the participating state is required to contribute 10% or 20% of the project's cost, although that proportion can be as high as 50% in some individual programs. The contribution that a state must make towards the funding of the federal-aid-eligible project is called the non-federal match requirement.

The Federal-Aid Highway Program is a Reimbursement Program

The state must first spend its own funds on a specific federal-aid project then invoice the FHWA for the portion of those expenditures that can be funded by federal-aid. The complex reimbursement process requires states to advance sufficient cash to fund the full cost of a federal-aid-eligible project payment until the FHWA reimburses the federal portion.[70]

These and other restrictions create significant challenges for the state officials who are responsible for highway programming as they work to ensure that all the federal funds to which a state is entitled are used ("Never send a dollar back to Washington" is the catch phrase of highway programmers) and to fund the state match for federal-aid-eligible projects. To provide some flexibility to the states in the management of these complex processes, and to allow the states some opportunity to accelerate projects, the U.S. Congress has authorized several special means to commit federal funds to federal-aid-eligible projects, including:

- *Advance Construction*, a cash flow management tool which allows a state to request and receive approval to construct federal-aid projects even if the state does not currently have sufficient federal-aid obligation authority or apportionment to cover the federal share of the project cost. This technique allows a state to advertise, let and begin construction on a project using non-federal funds, while preserving eligibility for the use of federal funds. Advance Construction projects can be "converted" to federal-aid at any time sufficient federal-aid apportionment and obligation authority are available.

[68] Federal Highway Administration. Highway Statistics, 2004: Table HF-2
[69] Federal Highway Administration. Highway Statistics, 2005: Table FE-10
[70] The exception to this general rule is the pre-issuance funding technique of the *Cash Management Improvement Act* of 1990 and the *Cash Management Improvement Act* Amendments of 1992 (31 U.S.C. 6501 and 31 U.S.C. 6503) ("the CMIA"). When a state has signed an agreement under the CMIA with the U.S. Department of the Treasury, it may receive federal funds in advance of the reimbursement of those funds being cleared by the FHWA.

- *Partial conversion of advance construction,* is a relatively new form of advance construction that enables states to convert an advance construction project to a regular federal-aid project, as needed, to meet cash flow needs. This tool is especially useful in cases where a project's cost is very large and the duration of construction extends over several years. Converting this type of project in its entirety would greatly impact a state's obligation authority in a given year, thereby resulting in possible delays in the letting of other federal-aid projects.
- *Tapered match,* in which the requirement for the state to match federal funds is applied to the project as a whole, rather than on every individual payment of federal funds, allowing states to "back-end load" the payment of the required state-match funds into the payments that occur towards the end of construction.[71]

Risks: State funds are at risk if federal-aid funds are not closely managed through the cost-sharing and reimbursement processes: If federal-aid funds are over-committed then more state funds are required to complete a particular project; if federal-aid funds are under-committed then the uncommitted funds may lapse and the opportunity to spend them will be lost. The probabilities associated with these risks are low, however: The commitment of state and federal funds appears to be well-managed by TxDOT.

There is a small and specific risk associated with advance construction and partial conversion. When a state uses advance construction, it is in effect loaning state funds to the federal government. The risk is that the federal government will not honor the obligation and reimburse in future years the amounts advanced by the state. There are two circumstances in which the federal government may not honor the obligation: 1) if the U.S. Congress rescinds the apportionments against which the state has advanced construction; or 2) if Congress rescinds obligation authority.

When the state uses tapered match, it is accelerating the receipt of funds from the FHWA in the early years of the construction of a project and foregoing them in the final years of construction. If the state makes an error in programming and over-commits state funds in those later years, other projects may have to be deferred so that the state can marshal a sufficient amount of state funds to be obligated against the relatively large match requirement. The risk of over-programming state funds is no different for tapered match projects than for any other projects in the Unified Transportation Program (UTP).

1. Answer

Rescissions represent a significant risk to the highway program as a whole, as it is one of the means by which the United States Congress can reduce the funds that it makes available for federal-aid highway programs. The $1.357 billion that Congress has rescinded, and is expected to rescind, over the five-year life of SAFETEA-LU is consistent with the $7 billion in federal aid funding reductions over the 2005-2030 period that is predicted by the forecast in Section A.1.3.

[71] FHWA Guidance on Section 308 of the NHS Act, Advanced Construction of Federal-aid Projects, May 5, 1996.

The principal risk of these rescissions is to the programming of all federal-aid projects. The UTP is programmed on the assumption that all apportionments will, eventually, be available.[72] The state is not given total flexibility as to which programs can be reduced to meet the rescission requirements; generally, the rescissions must be applied to the core mobility programs in the UTP. As the apportionments available to those programs in SAFETEA-LU total to about $11.2 billion, rescissions of $1.4 billion represent a 12.5% reduction of those programs.

Of the means by which Congress can reduce federal-aid funding, rescissions are particularly disruptive to highway program as they are relatively unpredictable and not limited by pre-defined rules as to how and when they can be applied.

As long as the United State Congress continue to rescind apportionments and not obligation authority, the rescissions have no effect on the cash flows of the State Highway Fund. TxDOT's outlays and re-imbursements on obligated federal-aid projects are not affected. Since TxDOT's ability to convert any federal aid project, including an advance construction project or a tapered match project, is limited by their obligation level, only a rescission of obligation authority would create a financial risk for TxDOT or impact TxDOT's obligation plan.

TxDOT's practice is to make all projects over $1 million eligible for advance construction and all projects under $1 million eligible for tapered match. In this way, TxDOT is positioned to be reimbursed immediately when federal obligation authority is available for the prior expenditure of state funds. The recent March 19, 2007 rescission of apportionments and an anticipated further rescission have neither placed a financial risk on TxDOT nor will it impact the delivery of the UTP because they have not reduced TxDOT's obligation limitation which is less than the state's apportionments. In the case of federal transportation funding, surface transportation is usually funded at a level below the apportionment established in the federal surface transportation act.

TxDOT staff with federal funds management responsibilities appear to be fully knowledgeable of how they employ these techniques. Any risks that TxDOT faces through its use of these techniques is therefore no different to the risk that TxDOT faces regarding the overall level of federal funds available to deliver the UTP and hence the timing of the delivery of projects in the UTP. If the level of federal funds available to be obligated is less than the assumptions that established the UTP budget then the dollar volume of projects let in a particular year will decrease.

2. Analysis Strategy

The focus of the analysis is on three specific financing practices that are available to finance federal-aid highway projects: advanced construction, partial conversion of advanced construction and tapered match. Under advanced construction, a state can construct a project with its own funds and then get reimbursed at a later time

[72] As described by senior staff in the Transportation Planning & Programming Division.

when federal funds are available. To do so, the state enters into an agreement with the FHWA. Once FHWA has determined that the project is eligible for federal aid and the state agrees to abide by all federal requirements, the state can proceed with construction using its own funds and can convert the project to federal-aid at a later date.

The risks associated with advance construction and tapered match were evaluated as credit risks, that is, risks that are managed within TxDOT's capacities to borrow and lend highway program dollars.

The analysis steps are detailed as follows:

- Identified TxDOT's current and recent historical use of advance construction and tapered match.
- Assessed the impact, in terms of possible reductions in federal reimbursements of advance construction, of current and expected notices issued by the FHWA to rescind apportionments and obligation limitations up to 2009 under SAFETEA-LU.
- Identified other sources of funds that could be called upon to fund the contingent liabilities of the reduced federal reimbursements estimated above.

3. Findings

- **Rescissions are expected to remove over $1.3 billion of Texas apportionments within the term of SAFETEA-LU.**

A rescission is an act of the United States Congress that reduces the amount of federal funds provided by a prior appropriation or authorization act: in the case federal-aid highway programs between 2005 and 2009, SAFETEA-LU. Rescissions claw back funds from federal discretionary programs, including the federal-aid highway program, for two reasons: to fund a new or emergency program without increasing the federal deficit or to compensate for revenue shortfalls.

Over the federal fiscal years 2006 and 2007, four rescissions have removed about $8.2 billion of apportionments from SAFETEA-LU nationwide. All of these rescissions were applied across the all states in proportion to their funding in core programs, including the equity bonus. Texas' share of the rescissions to date ranges from 7.9% to 8.3% of the national totals and totals to $667 million.

Another $8.5 billion rescission is programmed into SAFETEA-LU to occur in 2009. If that rescission is applied in the same manner across all states, then Texas' share of it would be $680 million.

Exhibit IV-7: Actual and Expected Rescissions during SAFETEA-LU, 2005-2009

Enabling Legislation	*$ millions*	*Fiscal Year*
TTHUD[73]	159	2006
Defense[74]	91	2006
ESAA[75]	56	2006
Continuing Resolution[76]	289	2007
Supplemental Appropriation[77]	72	2007
Sub-Total to Date	667	
Programmed in SAFETEA-LU[78]	680	2009
Total	1,357	

The revenue forecast presented in Section A.1.3 predicts that federal-aid outlays in Texas will be reduced by about $7 billion in the 25 years from 2005 to 2030. This reduction can be estimated a second way: if Texas' share of the rescissions during the 2005–2009 period is over $1.3 billion; and if reductions to apportionments carry on over the subsequent 20 years from 2010 to 2030 at the same rate; then the reductions over the 2005–2030 period would be about $6.5 billion. These two different approaches to forecasting the reduction in federal outlays lead to a similar result: the rescissions expected over the duration of SAFETEA-LU are consistent with the long-term forecast of federal funds as a revenue source for TxDOT presented in Section A.1.3.

- **There are two types of rescission: 1) rescissions of apportionments; and 2) rescissions of obligation authority. To date, only apportionments have been rescinded.**

After the Federal Highway Trust Fund was created, the federal highway program was not subject to the annual appropriations to which most other federal programs were subjected. Once authorizing legislation for the federal-aid highway program is passed into law, apportionments are established for period of the legislation; normally, six years.

[73] *Transportation, Treasury, HUD Appropriations Act.* $1,999,999,000 to accommodate for lower-than-forecast revenues.

[74] *Defense Appropriation Act*. $1,143,000,000 to accommodate higher-than-expected expenditures.

[75] Emergency Supplemental Appropriations Act. $702,362,500 to accommodate higher-than-expected expenditures.

[76] *Continuing Appropriations Resolution*. $3,471,582,000 for an omnibus appropriations bill.

[77] *U.S. Troop Readiness, Veterans' Care, Katrina Recovery, and Iraq Accountability Appropriations Act*. $871,022,000. HR 2206, a supplemental appropriations bill.

[78] SAFETEA-LU, Section 10212 specifies a rescission of $8,543,000,000 in unobligated apportionments on Sept. 30, 2009. This amount will be distributed among the states based on their aggregate 2004-2009 apportionments. This date coincides with the expiration of SAFETEA-LU, so how it will be handled is not known at this time.

Each year during the federal budget appropriation process, Congress imposes a ceiling, called the obligation limitation. The obligation limitation dictates how much of the apportioned funds can be obligated in any given year. Most but not all the time, the obligation ceiling in a given year is less that the amount apportioned in that year. The difference, the unobligated amount of the apportionment does not lapse at the end of the fiscal year but is carried over to the next fiscal year. If the obligation limit in a subsequent year is ever higher than the amount apportioned for that year, a state could begin to draw down on its credit balance of carried over apportionments from prior years.

There are several means by which the U.S. Congress can prevent apportionments, from a current year or carried over from prior years, from ever being obligated by the states: the three-year rule of the Byrd Amendment, the *Revenue Aligned Budget Authority Act*[79] (RABA) and rescissions. All of these means are disruptive since all of them reverse the federal government's promises of funding, i.e. apportionments, upon which TxDOT has based the programming of the Unified Transportation Program. Rescissions are not only disruptive but particularly unpredictable: The RABA and the Byrd Amendment are limited to revenue shortfalls and respond to those shortfalls by pre-defined rules; rescissions can be brought forward in any amount and at any time to deal with spending priorities as well as revenue variances. Congress may rescind funds from selected programs or it may exempt selected programs.

The United States Congress may rescind the obligation authority granted in any one year, as well as or instead of rescinding apportionments over the life of an authorizing act. Rescissions of obligation authority are extremely disruptive to a state's highway program since they retract fund that have already been committed and, in many cases, already spent, leaving the state to meet its commitments with state funds. To protect existing commitments, and to allow federal agencies and states some flexibility in how to meet the requirements, Congress has targets its rescissions to date at unobligated funds: retracting apportionments but not obligation limitations. The implications of rescissions, outlined below, assume that Congress continues to rescind only apportionments.

- **The rescissions of apportionments expected during SAFETEA-LU will reduce federal funds available for programming in core mobility programs by as much at least 12.5%.**

Compared to the $16.5 billion of apportionments available to Texas in SAFETEA-LU, outlined in the exhibit below, expected rescissions of about $1.3 billion initially appear to be a reduction of about 8.5% in the federal funds available for programming over the 2005–2009 period. This would significantly understate the impact, however, since the rescissions may only be applied to certain programs, e.g. Interstate Maintenance, National Highway System, Bridge, Surface Transportation Program, Congestion Mitigation and Air Quality Improvement. TxDOT estimates that the SAFETEA-LU

[79] The firewall amount for highways is related to the projected receipts to the Highway Account of the Highway Trust Fund (HTF). Those projections will, likely, differ from actual receipts so the firewall amount in the next year must be adjusted as new receipt projections are made and actual receipts for earlier years are known.

apportionments available to core mobility programs such as these total to about $11.2 billion,[80] from which $1.3 billion of rescissions is a reduction of about 12.5%. The state may not reduce apportionments to some other programs, such as Planning and Research, Safety and earmarked "demonstration" projects.

Reductions in apportionments to the core mobility programs reduce the federal funds that TxDOT has based the UTP's financial constraint on. The Transportation Planning & Programming Division of TxDOT programs projects on the assumption that all apportionments of federal aid are, eventually, allowed for obligation, i.e. the obligation ceilings will, over many years, equal apportionments. That is generally not the case, as Exhibit IV-8 following illustrates the difference between Texas' apportionment and obligation limitation.

Exhibit IV-8 Texas SAFETEA-LU Apportionment, Original Obligation Authority, and Total Obligation Authority, FY 2004 to 2007

Fiscal Year	*Apportionment*	*Original Obligation Authority*	*Final Obligation Authority*[81]	*Difference between Apportionment and Final Obligation Authority*		
		$ millions		*% of apportionment*	*$ millions, annual*	*$ millions, cumulative*
2004	2,744	1,963	2,321	85%	423	423
2005	2,728	2,196	2,590	95%	138	561
2006	2,611	1,926	2,401	92%	210	771
2007	2,746	2,393	2,718	99%	28	799
2008	2,841					
2009	2,867					
	16,537					

Source: TxDOT Letting Management, Design Division

Since the usual practice of the United States Congress is to set obligation levels less than apportionments, states have accumulated large carry over balances. Entering fiscal year 2007, Texas had about $2 billion in carried over apportionments, from SAFETEA-LU and from prior authorizing acts. Over the ten-year period of a UTP, there is a high probability that some of the apportionments will be carried over to subsequent years or rescinded entirely. To that extent, the UTP is over-programmed when it is programmed on the basis of apportionments.

[80] Ramirez, Tonia. N. The Unreliability of Federal Funding. Government and Business Enterprises Division, Texas Department of Transportation, May 2006.

[81] Original obligation authority plus additional authority, equity bonus and discretionary projects.

The revenue forecast presented in Section A.1.3 predicts outlays, i.e. the amounts that are obligated and paid, not the amounts apportioned, in Texas from 2005 to 2030.

- **Rescissions of apportionments have no impacts on obligations or cash flow.**

Rescissions of apportionments will not affect cash flows in the State Highway Fund in the near term. FHWA will still reimburse all advances of state funds on federal aid projects up to the obligation limitation, including conversions and partial conversions of advance construction projects: cash outflows will still be the amount of state funds, both reimbursable and state match, spent on federal aid projects; and cash inflows will still be reimbursements allowed within the obligation limitations.

- **Since Advanced Construction and Tapered Match are cash flow tools, rescissions in apportionments do not affect the projects to which they are applied differently than any other federal-aid project.**

The recent federal rescissions of apportioned funds will have no financial impact on TxDOT's ability to be reimbursed for advance construct projects because it only impacts apportionments not obligations.

If there were a rescission of obligation authority, it would have significant and negative impacts on cash flows in the State Highway Fund and the programming of projects in the UTP. All projects that are converted to federal funds using advance construction are initially financed through state highway revenue or the proceeds from two bond issues: the Texas Mobility Fund bond issue and the proposition 14 bond issue. If a subsequent rescission of obligation authority made TxDOT unable to convert the advanced state funds into federal funds then those state funds would be trapped in those projects. The trapped state funds would not be available for either state match requirements on other federal projects or projects that are paid for with only state funds.

- **The failure of the federal government to complete federal appropriations on time has increased the use of advance construction.**

The option of using advance construction has been available for many years. Traditionally, it was used on a selective basis to prevent disruptions to the state's highway construction program. For example, a state may have exhausted its annual federal-aid obligations before the fiscal year has ended. Rather than wait until the next fiscal year to begin a project, a state might start the project using its own funds and convert them to federal-aid funds in the following year when they receive a new annual appropriation of funds. Sometimes a state may not have exhausted its annual federal-aid obligations but may have used up all of the funds for a specific federal-aid

program. In that case, they might also want to begin the project using their own funds and convert it the following year.[82]

In recent years, the federal government failed to complete all of the appropriation acts on time. To keep the program functioning, Congress provided continuing resolutions that financed the programs on a month-to-month basis until the appropriation act passed. As a result, the full fiscal year's obligation authority was not available until later in the year. For FY 2007, the full amount of obligations was not available until March 2007. In this environment, broadening the use of advance construction provides a mechanism to advance projects and prevent disruption to program delivery.

Most federal-aid projects require a state or local match. Normally, as a project advances the state pays the contractor with state funds and then submits a voucher to FHWA. FHWA then reimburses the state for the federal share of the project, usually 80% of the cost. Under tapered match, a state may get reimbursed 100% of the cost in the earlier stages of the project but that share would decrease at later stages. For the entire project, the federal share remains the same, but a state can get back the federal share earlier. A state may not use both advance construction and tapered match on the same project.

- **TxDOT has used advance construction to enable what is in effect a one-time acceleration of $1.5 billion in construction work.**

In 2002, TxDOT decided to accelerate the construction program and began to apply either advance construction or tapered match to most projects. If the cost of the project was less than $1 million it would become a candidate for tapered match. If the cost exceeded $1 million, it became a candidate for advanced construction.

Texas' goal was to have Federal reimbursements equal or exceed their annual obligation limitations over the long run of authorizing legislation.[83] In effect, TxDOT used these tools to reduce the time lag between obligating a project and getting reimbursed. This is a good business decision because it puts capital to work on Texas roadways and prevents the time lag between obligation and reimbursement. That time lag can be considerable, especially for large expensive projects.

In no case can a state convert more advance construction projects than the amount of its obligation limitation. So, by aggressively using these techniques, TxDOT was able to accelerate their construction program by as much as $1.5 billion. However, this could only happen once. If TxDOT decided to stop or dramatically reduce the use of these techniques, there would be a one time reduction in the construction program by a corresponding amount.

[82] While the conversion and partial conversion of advance construction is regulated within a federal fiscal year, the administrative process occurs monthly: projects are converted or partially converted as the obligation amounts are set for each month.

[83] The state's tactic to accomplish this anticipates some slippage in contract lettings and, within a single year, aims to have Federal reimbursements slightly exceed that year's obligation limitation.

- **TxDOT makes most projects eligible for either advance construction or tapered match but does not expect to convert all projects; for obligation management purposes TxDOT wants the flexibility to decide in the future which projects will be converted.**

While TxDOT bears little financial risk from the use of advance construction, it is also important to note that there is little risk to project delivery for projects on the letting schedule or with awarded construction contracts. (Audit Area C.2: Cash Management provides an assessment). TxDOT managers are aware that they cannot expect to convert all projects identified for advance construction without exceeding their obligation limitation. They do not intend to convert all such projects, but they do want to have the flexibility to decide which projects will be converted to federal funds.

C. Recommendations

B.2.1 Use general obligation debt capacity as source of equity for toll projects.

General obligation debt capacity could be used to capitalize a TxDOT entity that would make equity investments in the toll-viable projects for which the state, regional and local toll authorities issue municipal bonds. An equity investment by such a state entity would yield several benefits:

- It would reduce the cost of the toll revenue-backed debt that is issued by the state, regional or local toll authority, as described in this section of the report.
- The lower apparent cost of that debt would, in turn sharpen competition on the procurements of CDAs by reducing the cost of the public sector comparator, as described in Section V Audit Area B.3 of this report.
- Provide the means, through the payment of dividends, for the distribution of surplus revenues from a toll project, as described in Section V Audit Area B.3 of this report.

Proposition 14 debt is not well-suited to such a use: While it is secured by the revenues of the State Highway Fund, the proceeds of these bonds must be deposited into Fund 6,[84] from which expenditures to form a transportation investment entity do not appear to be permitted.[85] The Texas Mobility Fund could make an equity investment in an RMA's toll project[86] but would be limited by its remaining authority to issue debt, currently about $2 billion. With these limitations on its existing authorities to issue debt, TxDOT would benefit from authority to issue more debt, such as general obligation bonds, that allowed an equity investment in regional or local toll projects as a state highway improvement project.

[84] Fund 006, Account 014: This fund collects Proposition 14 bond proceeds, after which they are transferred to Fund 006, Account 006 to "reimburse project expenditures."

[85] Fund 006, Account 006: is restricted to expenditures for "building, maintaining and policing state highways."

[86] Fund 365 (Texas Mobility Fund) expenditures allow "state participation in the payment of a portion of the costs of constructing and providing publicly owned toll roads and other transportation projects." This fund would also allow for the receipt of dividends from such an investment through "money received from a regional mobility authority that determines it has surplus revenue from turnpike projects and chooses to send the excess to the fund."

A second-best alternative is to use un-issued debt to provide loan guarantees that backstop RMA-issued municipal bonds.

Either of these alternatives will require an increase in TxDOT's monitoring and oversight of those projects in which it participates financially.

B.2.2 Develop a project and program-level test of financial benefits to apply to projects that are funded with Proposition 14 debt or general obligation debt.

Before funding a project with any debt other than debt that is secured by toll revenues earned by that project, TxDOT should assess the benefits that the project is expected to deliver in three categories:

1. Reductions in lifecycle management costs of the subject road or the system of surrounding roads that can be attributed directly to the acceleration of the project. Such reductions would be improvements in the value of the relevant assets, which is one of TxDOT's strategic goals.
2. The improvements on the subject road or the system of surrounding roads result in measured outcomes that are aligned with TxDOT's four other strategic goals of safety, mobility, air quality, and economic opportunity and are outlined in Section III Audit Area B.1 of this report. TxDOT should direct its debt-financing toward those projects that either show in themselves outstanding contributions towards TxDOT's strategic goals or, through their very large size, would otherwise divert an inordinate amount of cash resources from other projects that would deliver improvements in those measured outcomes.
3. Avoidance of known increases in project costs, such that the added cost of interest over the term of the debt is less than known increases in construction costs that would be incurred if the project is not accelerated.[87] TxDOT should take care in how it judges the extent to which future construction costs are not known but are forecasted or expected; borrowing to accelerate a project ahead of expected price increases is a speculative hedge on the future values of construction commodities. TxDOT should manage such speculations, if it makes them, with appropriate controls on risk.

[87] Inflation would only be known in advance with certainty in contracts that contained pre-programmed and fixed adjustments for expected inflation in construction costs. Such provisions are very rare in highway construction contracts.

V. Audit Area B.3: Application of Revenues

■

TxDOT and RMAs must choose the appropriate sources of revenue to apply to a project—tolls, pass through finance, local participation, and/or state highway funds—then choose whether or not to execute all or parts of the project under a CDA.

A. Audit Area Objectives and Questions

1. Audit Area Objectives

The objectives for this audit area are to:

- Investigate whether TxDOT applies sound business-driven criteria related to the TxDOT's strategic goals, in the selection of funding sources for projects.
- Evaluate the decision-making process through which the choices of project finance methods are made.

2. Audit Questions

The following questions are evaluated:

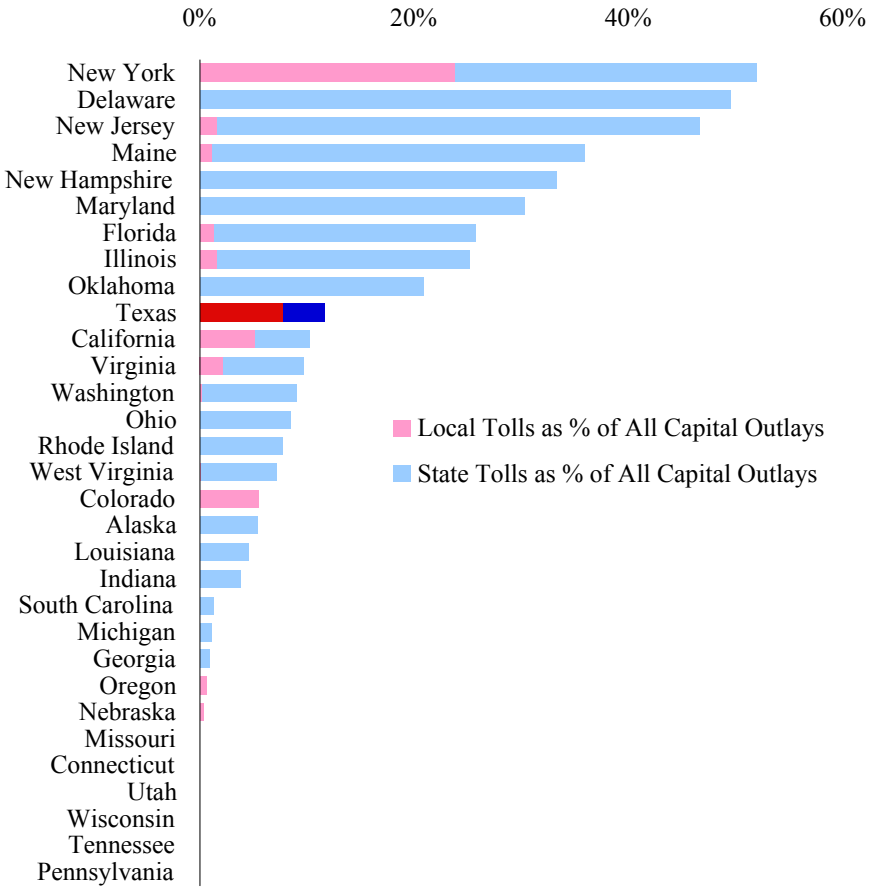
- **B.3. Are revenues properly derived from, and applied to, projects?**
  - **B.3.1:** Which decision-making procedure for CDAs is used to determine the preferred delivery method: Concession or another type of public private partnership?
  - **B.3.2:** Are toll projects with prospective net revenues properly allocated between private concessionaires and public toll authorities?
  - **B.3.3:** Are there controls or procedures governing the selection and prioritization of projects funded through pass through finance or user-pay tolls?
  - **B.3.4:** Are state, regional and local toll authorities charging optimal tolls?

B. Background

Texas has long-established toll roads and bridges at the local level. The most recently opened toll roads in Texas, Loop 49 south of Tyler and the Central Texas Turnpike in Austin, follow a long history of toll facilities in Texas. The Texas Turnpike Authority opened the Dallas-Fort Worth Turnpike (now part of Interstate 30) in 1957. The first of the current nine city and county toll bridges that span the Rio Grande was opened in 1962. The Harris County Toll Road Authority opened the first of its facilities, the Hardy Toll Road, in 1984.

Today, 29 other states have at least one toll road, bridge or ferry service operated by either a state or local government toll authority. The intensity of tolling varies significantly among those 30 states; a rough indicator of a state's tolling intensity is the ratio of the toll revenues collected by all state and local authorities, divided by the size of its annual state highway program. Using this rough indicator, Texas ranks 10th in the nation, as illustrated in V-1 below.

Exhibit V-1: Toll Revenue Intensity in U.S. States, 2004[88]



Toll authorities that are owned by municipal or county governments operate in 17 of those 30 states. Generally, local toll authority operations are small relative to their state counterparts, but Texas is a clear exception. The local toll authorities in Texas are second only to New York's Triborough Bridge and Tunnel Authority in the absolute value of the toll revenues that they collect. Local toll authorities in Texas lead the rest of the nation in collecting the highest proportion of all of the tolls collected in their states, perhaps due to the large geographical size of the state. This proportion will change over the next decade because toll roads through the regional mobility authorities will be reported in the Federal Highway Administration data as state toll roads.

[88] Federal Highway Administration. Highway Statistics, 2005; Section IV: Finance

Question B.3. Are revenues properly derived from, and applied to, projects?

Issue: The principal issue is whether there are methods and procedures that integrate or coordinate programmatic considerations on project finance with individual project proposals. Also, TxDOT pursues toll projects where toll revenue bonds were not issued. Tolls are still one source of revenue in addition to any other funding sources TxDOT has available, including state or federal motor fuels taxes, other bond programs, or any other source. Texas' finance plan to address mobility is dependent on toll pricing that produces revenue to develop the system.

Risk: If TxDOT or an RMA sets tolls at sub-optimal levels or chooses incorrect projects for CDAs, then some opportunity to earn net revenues that could serve as equity in other projects will be lost. Those revenues are needed to fund projects in the statewide mobility plan; if they are not available, the strategy for addressing mobility is weakened.

1. Answer

Toll facilities in Texas are generally under-priced. Success for local toll authorities and RMAs is currently defined as charging the lowest tolls that will pay for their long-run life-cycle costs as opposed to generating the revenue required to meet the mobility goals specified in the Texas metropolitan mobility plan. To an RMA, those costs to minimize are the costs of toll projects within their regions. To a local toll authority, those costs are the costs of toll projects within their designated systems. In either case, those authorities charge tolls that are lower than values of time suggest that their users would be willing to pay.

Where surplus revenues are generated from one project, there is no certainty that they will be optimally applied to subsequent projects. Without central direction from TxDOT on this issue, local authorities are negotiating their own arrangements for distributing surplus revenues.

2. Analysis Strategy

The analysis steps are detailed as follows:

- Compiled best practice guidelines on the appropriate selection of revenues from leading national sources.
- Assessed Texas legislative code and TxDOT's guidelines for incurring debt and choosing revenue sources and delivery methods for specific projects by comparing them to best practices.
- Reviewed current procedures and evaluated them against best practices and also against TxDOT and Texas' policy and business objectives: Generating revenue to address mobility system-wide; to leverage local

participation in funding; and attracting more capital in the Texas state highway system.

- Conducted interviews with TxDOT managers, program managers, and business partners to obtain perspectives on current practices.

3. Findings

- **Local toll authorities, transit authorities and TxDOT have differing mandates, missions, governance, and funding arrangements resulting in uncertainty about the level and disposition of net revenues.**

Different mandates, missions, governance, and funding arrangements among local toll authorities, transit authorities and TxDOT lead to uncertainty about the amounts and the dispositions of net revenues earned by CDAs and toll roads. That uncertainty leads to difficulties in toll road participation.

The different agencies have different business objectives: TxDOT's are to use the revenue earned with new funding tools, in coordination with the metropolitan planning organizations as part of a programmatic strategy, to address regional mobility. Local toll authorities' are to allow their customers to retain the benefits of toll facilities, subject to covering the costs of their systems.

The current alignment of local toll authorities, RMAs, transit authorities and TxDOT under the new funding tools results in the following two areas of uncertainty:

– *Contributions to and the distribution of net revenues from public toll roads or CDAs.*

Without clear guidance as to how they should contribute to toll projects, and the status of their share of the net revenues earned by those projects, the participating agencies sort out those questions as best they can through project-level negotiations and through local political direction. These processes leave surface transportation agencies that have not been financial contributors to the toll project - transit agencies, for example - at a disadvantage. Also, the state has no assurances that the subsequent projects that are funded with capitalized surplus revenues deliver benefits that are aligned with the state's five strategic goals for surface transportation.

– *The participation of local toll authorities in the procurement process for CDAs within their jurisdictions.*

The Texas Transportation Code does not explicitly address the prospect of a local toll authority wishing to participate as a proponent in the procurement process for a CDA. Before the procurement of a CDA begins, an internal evaluation has already established that such an agreement is superior to a bond-financed public toll road; nonetheless, it is still possible that a local toll authority may wish to participate in the procurement process.

- **Local toll authorities and RMAs face incentives to minimize their tolls and keep what investment equity they earn within their own toll systems.**

The corporate structure and governance of the local and regional toll authorities follow the desire of local elected officials to keep tolls low, subject to raising sufficient revenues to sustain their local toll systems. The Texas Legislature has acknowledged these local interests in the past, with the succession of the Texas Turnpike Authority by the North Texas Tollway Authority, and acknowledges them at present with the direction to RMAs to consider reducing tolls as an option for disposing of surplus revenues. Empirical evidence illustrates that, as local toll authorities charge enough to cover their system costs, their customers could pay tolls as much as 50% higher.

- **The local toll authorities' strategy of minimizing tolls and retaining earnings within their systems runs counter to TxDOT's statewide funding strategy of generating surplus revenue and capitalizing that revenue for the funding of other projects within a region.**

The lack of significant net revenues available from toll roads in metropolitan areas undermines TxDOT's funding strategy as is outlined in the discussion of Audit Area A in this report. Also, as long as transportation authorities in Texas try to eliminate urban congestion by expanding highway capacity, funds will be inadequate even within the urban areas: drivers' willingness to pay tolls never significantly rises and a price-to-cover-costs policy never lets prices rise enough to capture that willingness to pay. The result within a region is that revenues from traditional and new sources are not enough to meet surface transportation needs in that region.

From a funding perspective, the solution is demand management, in the forms of:

- *Congestion pricing*, the more time that a traveler can save versus their next-best alternative route, the more they would pay; and
- *Peak period pricing*, with a sufficient difference between peak and off-peak fares that some travelers switch from peak to off-peak periods.

In either form, demand management is based on the time saved on some surface transportation facilities in a region creating an increase in travelers' willingness to pay, tolling to extract that willingness to pay, and using the surplus revenues to fund other surface transportation facilities in the region.

B.3.1. Which decision-making procedure for CDAs is used to determine the preferred delivery method: Concession versus another type of public private partnership?

Issue: TxDOT's finance strategy to date is to pursue concessions as the preferred form of public-private partnership. In this way, TxDOT accesses additional capital that can be used to fund other projects in their entirety or bridge the gap between tolls and revenue required to fund a project. There is almost no experience with highway concessions in the United States.

Risk: While TxDOT is putting controls in place, from an audit perspective, the lack of experience with concessions raises issues regarding the institutional, policy, or other risks to funding Texas transportation through concessions.

1. Answer

The CDAs enabled in the new funding tools permit several forms of procurement that differ from the traditional form of design-bid-build. These alternative forms include design-build and design-build-operate forms of procurement, which have been applied with beneficial effects elsewhere in the United States, in Canada and in Europe. The Texas Transportation Code limits the application of these alternative forms to a small minority of the highway projects in the state's Transportation Improvement Program. TxDOT and the RMAs would likely find savings in the application of CDAs to highway projects on which no tolls are anticipated.

2. Analysis Strategy

The analysis steps are detailed as follows:

- Compared the enabling legislation in Texas to established forms of public-private partnerships in other jurisdictions.
- Compared TxDOT's procedures for the initial evaluation of CDAs with best practices established in other jurisdictions.

3. Findings

- **Current legislation allows TxDOT to undertake public-private partnerships only on highway facilities that meet one of five specific conditions.**

Texas has been a leader in the United States in the implementation of alternative design and delivery schemes, including design-build procurement. School districts have been allowed since 1995 to use design-build procurement,[89] municipalities

[89] Senate Bill 1, Texas Legislature, 74th Session, 1995. Now Texas Education Code, Chapter 44.B.

since 1997[90] and the Houston Port Authority since 2001.[91] None of these powers were extended to linear infrastructure, such as roads and highways, until the passage of House Bill 3588 in 2003. Today, the public-private partnership provisions of House Bill 3588 are among the broadest in the United States.[92]

Texas law[93] allows for a comprehensive development agreement to take several forms, which would include design-build and design-build-operate procurements, however only allows CDAs on certain highways, for example:

"(1) toll project;

(2) facility or a combination of facilities on the Trans-Texas Corridor;

(3) state highway improvement project that includes both tolled and nontolled lanes and may include nontolled appurtenant facilities;

(4) state highway improvement project in which the private entity has an interest in the project; or

(5) state highway improvement project financed wholly or partly with the proceeds of private activity bonds, as defined by Section 141(a), Internal Revenue Code of 1986."

In other words, alternative procurements such as design-build or design-build-operate cannot be applied to highway projects that are funded solely from the State Highway Fund, which funds the vast majority of highway projects in the UTP.

- **Other jurisdictions have realized savings and other benefits by using CDAs to build and operate highway facilities on which no tolls are collected.**

Departments of transportation in 32 states other than Texas[94] have completed about 140 design-build projects with a total value of about $5.5 billion since 1990, when the Federal Highway Administration established Special Experimental Project Number 14 (SEP-14) to encourage and assess the use of design-build procurements. The managers of these projects were surveyed in 2005; they reported, on average, that design-build had reduced the duration of the projects by about 14% and the cost of the projects by about 3% relative to their baseline estimates for conventional design-bid-build delivery.[95]

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[90] Senate Bill 510, Texas Legislature, 77th Session, 2001.

[91] Senate Bill 95, Texas Legislature, 77th Session, 2001.

[92] Fried, D.M. *Private Involvement in US Roads*. Project Finance International, Issue 297, September 2004.

[93] The relevant sections of House Bill 3588 appear in Chapter 223, Bids and Contracts for Highway Projects, Texas Transportation Code.

[94] TxDOT has one design-build project under SEP-14: part of the Central Texas Turnpike.

[95] Federal Highway Administration. Design-Build Effectiveness Study. January 2006.

A few design-build-finance-operate agreements have been concluded in the United States for transit projects. Such agreements are widely used for highways in the United Kingdom and in Canada. Three examples of comprehensive development agreements concluded within the past two years in Canada and currently under construction are:

- *Kicking Horse Canyon*. The project added lanes and bridge replacement along 15 miles of Highway 1 through the Rocky Mountains (A design-build-finance-operate contract.) The agreement's benefits relative to the public sector comparator are: A reduction in life cycle costs from about $130 million to about $115 million, and a reduction in project delivery time from 6 years to 4 years.
- *Sea-to-Sky Highway*. Re-alignment and added lanes along 60 miles of Highway 99 through mountainous terrain north of Vancouver, British Columbia, the project was procured under a design-build-finance-operate approach. The Province of British Columbia announced a fixed budget equivalent to about $550 million and invited private sector proponents to compete on scope. Relative to the public sector comparator, the winning proposal increased passing lanes by about 30% and median barriers by about 75%.
- *Okanagan Lake Bridge*. In the interior of British Columbia, this replacement bridge will cost about $150 million over the 30-year design-build-finance-operate contract, compared to about $175 million estimated in the public sector comparator.

U.S. firms are participating in two of the three different consortia that are executing these projects.[96]

B.3.2. Are toll projects with prospective net revenues properly allocated between private concessionaires and public toll authorities?

Issue: Private sector concessionaires share in a desire to fill their investment portfolios with toll projects that are secure. Each of them will wish to secure the projects with the highest prospects for user fee revenue and each of them will wish those projects with lower prospects upon the other.

Risk: Too many viable toll projects being given to local and regional toll authorities may result in the loss of potential system-wide net revenues to TxDOT. Too many viable toll projects being given to private concessionaires may result in local toll authorities having too few projects that provide them with secure sources of funds for expansion.

[96] Kicking Horse Canyon includes Parsons and Flatiron Construction; Sea-to-Sky includes Hatch Mott MacDonald and Peter Kiewit Sons.

1. Answer

Yes, TxDOT does a good job of assessing what routes are toll-viable, of assessing where private sector participation in toll roads is appropriate and of procuring that private participation. TxDOT follows best practices on the technical evaluation of the preferred methods of financing and delivering a toll road, and, in some areas, is leading in the development of best practices.

There is uncertainty as to whether, or how, an established local toll authority can participate in the process for procuring a CDA in its locality. The current funding tools make it difficult for a transit authority to participate in a new toll road, whether it is delivered by a local toll authority or by a CDA.

With no clear mechanism to divide toll revenues from a new toll road, the agencies that contribute assets towards that road are left to negotiate the values of their contributions.

2. Analysis Strategy

The analysis steps are detailed as follows:

- Interviews with senior staff in local agencies and TxDOT to identify issues.
- Analysis and review of negotiated funding arrangements for specific projects: e.g., SH 121 Denton County and I-10 Katy Freeway.
- Hypothetical analysis of a local toll authority participating in TxDOT's CDA procurement process.
- Reviewed best practices for the production of investment-grade traffic and revenue studies.

3. Findings

- **There is uncertainty as to whether, or how, an established local toll authority can participate in the process for procuring a CDA in its locality.**

There is some confusion and uncertainty around the roles that should be played by local toll authorities where they are already established in the metroplex area and in Harris County. The role that these authorities should play in the evaluation and eventual implementation of a prospective CDA is unclear and, as a result, they have been decided largely by local political direction. The differing political environments in the metroplex and in Harris County have led to different decisions:

- Local elected officials in the Dallas Fort Worth area have encouraged CDAs, while directing the North Texas Tollway Authority to compete for those opportunities.[97]
- Harris County, after an extensive study,[98] concluded that there was little or no advantage to CDAs or any other delivery mechanism for toll roads other than the Harris County Toll Road Authority.

- **The funding tools make it difficult for a transit authority to participate in a new toll road, whether it is delivered by a local toll authority or a CDA.**

With no clear mechanism to divide toll revenues from a new toll road, the agencies that contribute assets toward that road are left to negotiate the values of their contributions. For example, the participating municipality may purchase and contribute the required right of way and TxDOT may agree to fund all or part of the required interchanges, with each of those agencies claiming the value of their contributions as representing their toll equity. For projects that are less toll viable, where tolls are expected to cover a smaller portion of the toll road's costs, those contributions may be larger; for projects that are more toll viable, they may be smaller. For projects where toll revenues are expected to exceed total project costs, those contributions may be negative i.e., the municipality may demand enhancements that exceed the value of the right of way, and TxDOT may expect the toll road to include not only the interchanges but the approaches to them.

While they may be awkward and unclear, such three-way negotiations around the value of contributions to a toll road among municipalities, toll authorities and TxDOT appear to work reasonably well. They work less well when a fourth party is added to the negotiations: the local or regional transit authority.

At the planning level, the integration of transit facilities into toll-viable roadways appears to work: toll authorities and TxDOT, as members of the metropolitan planning organizations that produce metropolitan mobility plans, recognize and support the inclusion of transit capacity, where it is warranted, into toll-viable corridors. When it comes to the funding and design of such projects, however, transit's participation is more problematic. Transit funding arrangements are not compatible with negotiating contributions to a toll road in return for receiving some access to it. Again, with no clear policy direction on the integration of transit into toll roads from the state, local officials have attempted to engineer their own solutions and, again, the differing political environments have led to different results:

[97] From the NTTA 2006-2011 Strategic Plan: " our focus will be to…. Be the provider of choice for financing, developing and operating toll facilities within our jurisdiction [and] Build strategic partnerships that expand our capacity to deliver services and solutions to customers within and outside our jurisdiction"

[98] First Southwest Company. Harris County Toll Road Authority: Analysis of Financial Alternatives. June, 2006. The report concludes that: "… these alternatives [CDAs] would produce an uncertain amount of additional present value benefit, if any, to the value that the county and HCTRA could receive … in the county owned and operated track."

- In the metroplex area, the North Texas Council of Governments has brokered an agreement on the distribution of surplus revenues among the counties and is now persuading those counties to direct some of those funds towards transit initiatives.

- In Harris County, HCTRA has allowed the Metropolitan Transit Authority a preferred toll for access to the High Occupancy Toll (HOT) Lanes that it is building into the Katy Freeway and other facilities, while the City of Dallas continues to extract street improvement payments from the transit authority.

- **Traffic and revenue (T&R) studies that are conducted in support of bond issues for toll roads are conservative.**

Forecasting travel demand and traffic on highways is a sophisticated science and one that has evolved significantly over the past three decades. Different traffic forecasting models are designed to serve different purposes; among them are the traffic and revenue studies whose purpose is to forecast toll revenues in support of bond issues.

T & R studies are well known to be quite different from other demand and traffic forecast models.[99] They rely heavily on surveys of consumers' stated preferences, rather than the preferences that they reveal through their actions; they are limited to a few peak hours in a day, whereas most traffic models predict monthly or annual traffic; and, because they are used in bond financing where the risks are asymmetric,[100] they tend to attract very conservative assumptions.

Recognizing that T&R studies are inherently conservative, best practices in forecasting traffic and revenues in Europe call for three forecasts for every viable tollway:

- A government forecast based on long-range plans and policies and therefore usually optimistic.

- A proponent's forecast with gravity modeling or some other method that differs from the T&R study method.

- An auditor's or lender's forecast which uses T&R study methods and is usually pessimistic/conservative.

[99] Kriger, D. *Traffic and Revenue Forecasting for Roads and Highways: Concerns, Methods and a Checklist for Practitioners.* Expert Forum on Road Pricing and Travel Demand Modeling. Proceedings, November 2005.

[100] An asymmetric risk is one in which one outcome has more consequence than the other. In this instance, a bond-holder faces no consequence if a T&R study underestimates revenues but grave consequences if a T&R study overestimates revenues. Bondholders, facing less risk from a more pessimistic forecast, will prefer a pessimistic forecast.

There are several studies of how newly opened toll facilities perform relative to the T&R studies that underlay the financing of them. A recent and relevant study undertaken by the investment community[101] found that, in general:

- T&R studies of new tollways in congested urban and suburban environments tended to under-estimate revenues by as much as 70%.
- T&R studies of new tollways in rural, outlying or inter-city environments tended to over-estimate revenues by as much as 50%.

The recent experience of the Central Texas RMA supports this general conclusion. The Central Texas RMA reports that traffic on the recently opened SH 183A segment of the new tollways in the Austin area is about double what the investment-grade T&R studies predicted for those facilities, before and after the Central Texas RMA began to collect tolls on the facility.

- **Conservative traffic & revenue studies bias the CDA evaluation and procurement process toward CDAs.**

To the extent that the proponents' forecasts of traffic and revenues exceed the T&R study due to their methodological differences, the benefits in the public sector comparator will be under-estimated relative to the proponents' proposals. This places local elected officials in an unattractive position: The financial and political capital they must commit a toll road is the same but the benefits of the toll road are predicted to be less.

- **TxDOT has good procedures for evaluating the financial viability of prospective toll roads.**

To properly evaluate the viability of a toll road, two estimates are required: First, an estimate of what traffic and toll revenues can be expected over the toll project's life; second, an estimate of what the maximum value of bonds against which those expected revenues can be pledged.

In the first step, the estimation of future traffic and revenues on a tollway, TxDOT is viewed as a leader in the United States.[102] TxDOT has adopted best practices, and is working to improve the frontier of best practices, in each of the three critical steps of traffic and revenue forecasting: [1] estimating the value of time, other travel costs and the willingness to pay of existing travelers; [2] estimating the time savings and the increase in overall peak flow capacity allowed by the toll road; and [3] estimating the total number of trips from diverted and generated traffic.

[101] Muller, R. and Buono, K. *Start-up Toll Roads: Separating Winners from Losers*. Municipal Credit Monitor, J.P. Morgan Securities Inc., May 2002.

[102] Volpe National Transportation Systems Center. Expert Forum on Road Pricing and Travel Demand Modeling. Proceedings, November 2005.

The Texas Turnpike Authority Division has issued best practice guidelines[103] and uses them in the traffic and revenue studies that it commissions. The division has devised a four-level evaluation process, in which a toll viable project must meet tests of viability at one level before it is subjected to more sophisticated and expensive scrutiny at the next level: A preliminary review within TxDOT with a toll feasibility analysis tool, followed by three stages of traffic and revenue studies that are undertaken by outside consultants.

- **TxDOT's procedures for evaluating whether a toll road is best delivered through a CDA or an issue of municipal bonds by a local toll authority follow best practices.**

Best practices for the evaluation of CDAs, including design-build and design-build-operate delivery mechanisms, involve the use of a public sector comparator and a risk matrix as follows:

- *Public sector comparator*. This is an estimate of the costs and benefits of the state's next-best alternative to a CDA that is continuously updated throughout the evaluation process. This estimate includes both direct and indirect costs over the life cycle of the project and should be normalized to account for cycles and random variations. The costed items should reconcile with the items defined in the risk matrix. Inflation and the risk-adjusted discount rate should not be combined.[104]
- *Project risks are analyzed in a risk matrix*. The allocation of project risks to the private sector or remaining with the public sector are clearly identified. The probability of each risk is defined in Monte Carlo simulations involving a wide range of project participants and experts. The costs of each risk in both of the public sector and the private sector are estimated.[105]

TxDOT uses both public sector comparators and risk matrices in appropriate manners.

[103] Texas Turnpike Authority. Guidelines for Conducting TTA Traffic and Revenue Studies, Technical Memorandum 2005-2. November 2005.

[104] See for example: Industry Canada (Government of Canada, Department of Industry). The Public Sector Comparator: A Canadian Best Practices Guide. May 2003. State of Victoria, Department of Treasury and Finance. Public Sector Comparator Technical Note, 2001.

[105] British Columbia Ministry of Transportation. Project Report: Achieving Value for Money, Sea-to-Sky Highway Improvement Project. December 2005.

- **TxDOT's procedures for evaluating proposals from private sector proponents of CDAs and negotiating with those proponents follow best practices.**

Best practices for the procurement of CDAs share the following general features:[106]

- *Public Awareness*. Public understanding support is mustered for a CDA by means other than the procurement process itself.
- *Fairness for Private Sector Proponents*. All proponents have ample opportunity to understand the project; each proponent has clear access to the same information and the commercial information provided by each proponent is kept confidential.
- *Clear Understanding of Roles*. The public sector agency with responsibility to administer the procurement and negotiation process is clearly separated from other agencies with an interest in the outcome of the procurement process.
- *Consistency and Constancy*. The rules of the procurement process for each project remain unchanged from beginning to end; the rules for successive projects remain reasonably consistent with those of prior projects.
- *Public Sector Comparator*. The state maintains a hypothetical public sector comparator and makes the general conditions and assumptions of that comparator known to the proponents.
- *Independent Oversight*. Independent peer reviews are conducted throughout the process to attest to the administering agency's adherence to the rules of the procurement process and to the fair treatment of each proponent.

TxDOT's procurement process generally follows these best practices.

B.3.3. Are there controls or procedures governing the selection and prioritization of projects funded through pass through finance or user-pay tolls?

Issue: Each toll project must earn sufficient revenue to: [1] pay construction, maintenance, and operations costs; [2] service the debt raised to finance the project; [3] provide an adequate pre-tax return to the equity raised to finance the project; and [4] with what toll revenues remain, provide a dividend back to TxDOT that can be expended on other projects.

Risk: There is a risk that tolls will not be optimized and that net revenues from toll projects will be diminished or lost.

[106] The Canadian Council for Public-Private Partnerships. Responsible PPP Procurement for British Columbia. April 2005.

1. Answer

Yes, to the extent that new toll roads and pass through finance roads require participation funding from local, state and federal funds and they do not usurp other spending priorities in the UTP.

With all expected toll revenues pledged to repay bonds, TxDOT cannot expect to earn any return on the toll equity it provides to complete the funding required for a partially toll-viable project. With no expected return on equity, TxDOT would not draw upon either the Texas Mobility Fund or the state infrastructure bank for the needed toll equity. The only sufficient source of funds remaining is the State Highway Fund: the state tax revenues and federal aid apportionments that are programmed in both the Unified Transportation Plan (UTP) and in the Transportation Improvement Program. Toll equity must, therefore, be sourced from one of the 12 available UTP categories and must comply with programming rules for those categories. To date TxDOT has used Category 12, Commission Discretionary, to fund pass through finance agreements.

2. Analysis Strategy

The analysis steps are detailed as follows:

- Interviews with senior staff in local agencies and TxDOT to identify issues.
- Review of existing pass through finance agreements.
- Comparison of pass through finance agreements with shadow toll agreements in other jurisdictions.
- Reviewed best practices for the production of investment-grade traffic and revenue studies.

3. Findings

- **Most toll viable projects depend on state and federal program dollars to fund part of their cost or the cost of connecting interchanges.**

As of the end of 2006, TxDOT district offices have identified over 50 toll-viable projects around the state, the construction costs of which are estimated to exceed a total of $22 billion. Using preliminary traffic and revenue studies, TxDOT estimates that the toll revenues available from these projects would total to $13 billion. The difference, about $9 billion, would be required as an investment of toll equity to complete those projects.

- **Conservative traffic and revenue forecasts undermine public support for toll roads.**

To the extent that preliminary traffic and revenue studies underestimate the traffic and toll revenues from a prospective toll road, those studies understate the benefits of that toll road relative to its costs. Where public support for toll roads is tentative or indifferent, under-stated benefits can result in an otherwise viable project being deferred or cancelled.

- **TxDOT has well-defined business rules for the selection and negotiation of pass through finance.**

Some 28 applications for pass through finance projects have been made; there are 9 executed agreements in place and a further 12 are under negotiation. Audit Question D.1.4: "What are TxDOT's accountabilities with respect to pass through finance with counties and municipalities?" provides additional background and findings on pass through finance agreements.

B.3.4. Are regional and local toll authorities charging optimal tolls?

Issue: To a large extent, local and regional toll authorities operate independently of TxDOT. Under their separate enabling legislation they are accountable to their local constituents and have no responsibility to raise revenues that fund the state transportation system as a whole.

Risk: The management incentive on local and regional toll authorities is to minimize prices; i.e., to keep tolls as low as possible while funding the toll system. Such minimal tolls are likely lower than the prices that either return a dividend to the state for the use of the state highway upon which the toll facility is built; or manage traffic demand to optimal levels. With no clear agreement on the objectives of pricing policy between local toll authorities and the state, potential revenues might have been lost.

1. Answer

State toll authorities, local toll authorities and regional mobility authorities tend to set their tolls to recover the cost of building tollways within their own systems. If their tolls were based on the value of the time savings that they provide to their customers, they would be about 50% higher.

Local toll authorities and RMAs in particular face political incentives to make their tolls as low as possible, covering the full life-cycle costs of their system. Both the Harris County Toll Road Authority and the North Texas Tollway Authority follow this practice in order to satisfy the public interest in maintaining and sustaining their regional toll system and delivering the benefits of that system back to local residents in the form of inexpensive tolls. Recent traffic and revenue studies, prepared for TxDOT in support of new toll projects, suggest that those residents place a value on the time savings that they enjoy on those toll systems that is about 50% higher than the tolls that they pay.

The Texas Transportation Code encourages RMAs to follow the same, cost-based and price minimizing policies as the established local toll authorities:

"Each year, if an authority [i.e., a regional mobility authority] determines that it has surplus revenue from transportation projects, it shall reduce tolls, spend the surplus revenue on other transportation projects in the counties of the authority … or deposit the surplus revenue to the credit of the Texas Mobility Fund."[107]

2. Analysis Strategy

The analysis steps are detailed as follows:

- Policy documents of the North Texas Tollway Authority and the Harris County Toll Road Authority were reviewed to find statements of toll policy.
- The length and toll on segments of existing toll roads were measured to determine the equivalent tolls per mile.
- Value of time estimates were obtained from investment grade traffic and revenue studies recently completed in north Texas.
- The values of time were converted into equivalent tolls per mile on those same segments of existing toll roads.

3. Findings

- **The corporate structures of the North Texas Tollway Authority and the Harris County Toll Road Authority do not facilitate the payment of dividends that could fund transportation initiatives outside of their systems.**

The Harris County Toll Road Authority is a division of Harris County and draws its tolling authority from that county's Commissioners' Court. The enterprise fund that is the accounting entity of Harris County Toll Road Authority is fully integrated into the financial statements of the county.

While the North Texas Tollway Authority is a political subdivision of the state, its principal purposes is to serve the residents of the four counties that make up the metroplex area.[108] Six of the seven board members are appointed by those counties; the seventh is appointed by the governor. The *Regional Tollway Authority Act*[109] contains several provisions that limit the abilities of the North Texas Tollway Authority to use net income from one toll facility to fund other transportation projects.

[107] Texas Transportation Code, Sec. 370.174.

[108] The NTTA is "empowered by the *Regional Tollway Authority Act* to construct, maintain, repair, and operate turnpike projects at such locations within Collin, Dallas, Denton, and Tarrant Counties, as may be determined by the Authority." NTTA Annual Report, 31 December 2006.

[109] Texas Transportation Code, Sec. 366.

- **The fare policies of the established local toll authorities are to minimize tolls subject to sustaining and expanding their own systems.**

While Harris County has made no formal statement of tolling policy, Harris County Toll Road Authority staff advise that the county's policy is to restrict the use of any net income from Harris County Toll Road Authority operations to funding transportation facilities within Harris County. Under the county's general direction, Harris County Toll Road Authority is using its net income to offset its toll revenue bonds and, where feasible, accelerate their retirement. Given that the tax revenues of the county backed the early issues of bonds by Harris County Toll Road Authority, their retirement will increase the county's borrowing capacity to fund other, non-transportation assets.

The North Texas Tollway Authority has generated drafts of proposed formal tolling policies.[110] These draft policies are driven by the need to meet increasing costs: the increasing unit costs of labor and materials, and projected increases in capacity required to maintain and improve the regional mobility of traffic. The policies acknowledge a current uniform toll rate of about 10¢ per mile as sufficient to meet the bond indenture covenants to cover debt service coverage as well as operating and maintenance costs.

These policies allow both the Harris County Toll Road Authority and the North Texas Tollway Authority to cross-subsidize toll projects within their systems.

- **Empirical evidence shows that local toll authorities charge less than their users are willing to pay.**

To illustrate the extent to which cost-based tolls in Texas may be less than the tolls that Texas motorists may be willing to pay, we compared some of the toll rates currently charged by the North Texas Tollway Authority to the value of time estimates contained in the traffic and revenue study prepared for the SH-161 (Dallas County) toll road project.

Value of time is defined as how much a traveler would be willing to pay to reduce the length of their trip. The value of time estimate used in this comparison is about $10 per hour, i.e. a commuting driver in the Dallas area would be willing to pay about $10 to shorten their driving time by one hour each way. At about $10 per hour or about 16¢ per minute, the estimates for SH-161 (Dallas County) toll road project were the most conservative/lowest values of all the traffic and revenue studies undertaken by Wilbur Smith & Associates for TxDOT in the metroplex area.[111] Assuming an average commuting speed of 60 miles per hour, a value of time of 16¢ per minute translates to willingness to pay a toll equivalent of about 16¢ per mile.

[110] North Texas Tollway Authority. The North Texas Tollway Authority's Evolving Tolling Philosophy: Briefing for the Trinity River Committee, City of Dallas. March 2006.
[111] Courtesy of Wilbur Smith & Associates, August 2006.

TxDOT Dallas district staff estimate that, in peak periods, a vehicle driving the entire length of the Dallas North Tollway and a vehicle driving the full length of the President George Bush Turnpike will each enjoy a reduction in travel time of about 30 minutes, relative to their non-tolled alternatives in the Dallas area.[112.]

A willingness to pay about 16¢ per mile is compared with the prevailing tolls on the Dallas North Tollway and the President George Bush Turnpike in Exhibit V-2 on the following page.

Exhibit V-2: Comparison of Tolls and Willingness to Pay

President George Bush Turnpike

			Willingness to Pay for 30 min savings	
	Toll Paid	*Toll per Mile*	*Off Peak*	*Peak*
with Tag	$ 3.30	$ 0.11	$ 4.74	$ 5.31
without Tag	$ 4.15	$ 0.14		

Dallas North Tollway

			Willingness to Pay for 30 min savings	
	Toll Paid	*Toll per Mile*	*Off Peak*	*Peak*
with Tag	$ 2.10	$ 0.10	$ 4.74	$ 5.31
without Tag	$ 2.65	$ 0.12		

C. Recommendations

B.3.1 TxDOT should establish a funding plan at the program level for each of the eight Transportation Management Areas in the state in consultation with the local and regional agencies that plan, fund and deliver the highway and transit systems in that area.

Such a financial plan would direct the contribution of each agency's assets and revenues towards the funding of the projects identified in the metropolitan mobility plan as needed to address mobility, safety and air quality goals. This plan should be comprised of two parts:

- Years 1 through 10 should be planned at the project level, with the first 6 years reconciled to the state and federal Transportation Improvement Plans.
- Years 11 through 20 should be planned at the program and UTP category level.

This plan should differentiate between baseline projections of current revenues and "reasonably expected revenues" as they are defined for FHWA planning purposes. The plan should also include estimate project specific toll revenues, toll equity as projects require it and the distribution of expected surplus revenues to other transportation projects or programs.

[112] Brian Barth, Director Transportation Planning and Development, Dallas District.

B.3.2 TxDOT should use equity investment in toll projects to earn what House Bill 3588 defines as "surplus revenue to the credit of the Texas Mobility Fund."

"Each year, if an authority [i.e. a regional mobility authority] determines that it has surplus revenue from transportation projects, it shall reduce tolls, spend the surplus revenue on other transportation projects in the counties of the authority in accordance with Subsection (b), or deposit the surplus revenue to the credit of the Texas Mobility Fund."[113]

The confusion around the distribution of surplus revenues and a universally accepted definition of what constitutes surplus revenues would be cleared up if TxDOT were to make equity investments in local toll projects as requested or required by the local toll authorities. TxDOT would then participate as an equity investor in the setting of tolls. Surplus revenues would then be the dividends paid on the equity investment. These dividends would then be invested in other transportation projects within the region, as defined in the Texas Transportation Code and in what distribution arrangements the participating counties have agreed upon. The source of equity of such investments by TxDOT would be the general obligation debt referred to in the recommendations in Audit Area B.2 of this report.

Such a provision is unlikely to see much use. Local toll authorities minimize prices and counties will likely be reluctant to give up their control of the consumer surplus. CDAs are more effective for extracting net revenues and TxDOT is more likely to pursue them in the metroplex area. In Harris County, where there is little support for CDAs and the local toll road authority has ample funds, TxDOT is unlikely to be invited to become an equity investor in any project.

B.3.3 TxDOT should make equity available as a last resort to fund the inclusion of transit facilities in toll-viable rights of way.

When:

- Transit facilities have been included in a metropolitan mobility plan for a toll viable right-of-way, with the agreement of all of the members of the metropolitan planning organization;
- The transit authorities are unable to agree upon the specifics of those transit facilities or how they should be funded; and
- The transit authority has no other means by which to provide funding to the toll authority for the inclusion of their transit facilities, then

TxDOT should make a loan, sourced either from the Texas Mobility Fund or from a capacity to issue general obligation debt, to the transit authority to fund the inclusion of the transit facilities. In this event, TxDOT would have the option to either:

[113] Texas Transportation Code, Sec. 370.174.

- Require the loan to be repaid on commercial terms, thus making the transit authority an equity investor in the toll project and entitled to participate in the setting of toll rates; or
- Not require the loan to be repaid, take for itself the position of an equity investor in the project and be entitled to participate in the setting of toll rates.

B.3.4 In all procurements of CDAs for toll roads in the counties in which the NTTA or the HCTRA operate, those toll authorities should be offered the opportunity to be a public sector comparator at risk.

The local toll authority plays the role of the public sector comparator in the procurement of a comprehensive development agreement; however, if called upon to undertake the project, the local toll authority must complete the project at the cost indicated in their estimate with no recourse to additional toll equity. In effect, the public sector comparator is not required to meet the submission requirements of the procurement process but is required to meet the principal obligations of a competitor if called upon to undertake the project. Fair competition is maintained by not allowing the public sector comparator to pass on project risks to their taxpayers through increased access to toll equity.

VI. Audit Area C.1: Management Capacity-Organizational Development for New Finance Tools

■

This audit area addresses TxDOT's management and organizational capacity for planning, building, and maintaining transportation assets using TxDOT's new transportation finance tools and project delivery methods. This applies not only to bond issues and CDAs, but increasingly to the federal funding environment. TxDOT is adding a new deal-driven line of business that has markedly different management and administrative requirements than in the prior formula-driven environment. Federal innovative financing tools and the increase in discretionary projects both result in more deal-driven approaches. This is resulting in new roles for TxDOT in project finance and delivery. TxDOT's new roles require new management capacity, organizational competencies, and tools. This audit area evaluates the organizational requirements and change management required for these new roles.

Governmental organizations are constrained in their ability to make timely organizational and human resource management changes. Compared to private enterprises, changes to hiring practices, job descriptions, compensation, labor classifications, career development paths, and other aspects of human resource management take considerable time and often require legislative or oversight agency approval. These constraints apply to TxDOT's ability to recruit, retain, and develop the types of agency knowledge, skills, and abilities that will be required to negotiate, oversee, and manage its new roles in project financing and delivery.

A. Audit Area Objectives and Questions

1. Audit Area Objectives

The objectives for this audit area are to:

- Identify the organizational and management requirements for TxDOT's new transportation funding approach.
- Define staffing requirements for CDAs and bond issues.
- Define staffing requirements for cash and debt management.
- Specify knowledge, skills, and abilities required by district personnel to address debt finance and CDAs in project planning.

2. Audit Questions

The following questions are evaluated:

- **Question C.1:** Are TxDOT's organizational development and human resource planning aligned with the competencies and staffing required in the new "deal-driven" environment?
  - **Question C.1.1:** What are TxDOT's organizational development and management requirements of districts to perform new roles?
  - **Question C.1.2:** Will TxDOT have enough personnel with the right skills and competencies?
  - **Question C.1.3:** Do TxDOT's classification and compensation structures align with new organizational requirements?
  - **Question C.1.4:** Will TxDOT's recruiting and career development procedures and plans meet the agency's future requirements?

B. Background

1. Organizational Development and Human Resources Planning

The Texas Turnpike Authority (TTA) Division is a TxDOT Headquarters functional group that supports the development and operation of a toll-road system as part of the State's highway infrastructure. The TxDOT Finance Division provides financial analysis support through its responsibilities regarding use of debt finance techniques. The TTA supports TxDOT's role in the development and negotiation of Comprehensive Development Agreements (CDA) and assists TxDOT districts in their partnering with local RMAs and other entities to plan, design, and construct toll roadways.

The functional roles of the TTA, the Finance Division and districts in the development of CDAs, toll projects, and supporting RMAs are emerging. As would be expected, those districts in the largest metropolitan areas are likely to have organizational functions to support TxDOT's role in CDAs and RMAs.

TxDOT's organizational development to support the new agency role in CDAs is constrained by an overall cap in full-time equivalent positions under which TxDOT operates. The new functions and competencies are staffed by the reallocation of positions and staff from other functions.

TTA, the Finance Division, and TxDOT districts work with the Human Resources Division to ensure the appropriate knowledge, skills, and abilities are available. TxDOT's changing management and staffing needs are reflected through the Workforce Plan, the activities of the Standing Committee on Training, and the State's Classification Plan, which are described below.

Workforce Plan

The current TxDOT Workforce Plan[114] addresses the period from 2007 to 2011, in order to provide the department with insight regarding the necessary skills, abilities, and competencies to manage the State's transportation infrastructure. The 2007-2011 Workforce Plan considers TxDOT's current workforce skills level and assesses the competencies that will be needed to fulfill the department's future responsibilities as the owner of the State transportation infrastructure. The Workforce Plan also promotes a progressive succession system to train and advance talented staff. The insight offered by the Workforce Plan supports the efforts of the Standing Committee on Training.

Standing Committee on Training

The TxDOT Standing Committee on Training accepts requests for training and performs an annual survey of training needs that considers core curriculum and assesses whether new training courses are needed. As presently used, both the requests and the survey identify gaps in training. Typically, TxDOT divisions request training through the Committee, which reviews and approves appropriate requests. The Committee recognizes that the current process is reactive, as their present role is to address training request from their customers rather than to anticipate training needs to address the Workforce Plan. Consequently, the Committee is considering changes to the training request process to include a more proactive consideration of "drivers" for TxDOT's training needs, particularly in relation to the department's use of alternative project delivery processes.

The Standing Committee on Training addresses critical areas for technical training. The Committee has historically responded to TxDOT divisions that request specific training or to documented trends that support training needs. However, the Workforce Plan for 2007–2011 indicates that TxDOT "should consider adopting a uniform and well communicated plan for the development, tracking, delivery and evaluation of all department training delivered or attended." To this end the Standing Committee on Training is working on the development of a strategic plan.

State's Classification Plan

The General Appropriations Act includes the State’s Classification Plan, which identifies the positions and salaries of the State’s regular, full-time classified employees. Consequently, legislative action is necessary to change the State's Classification Plan of which TxDOT is a subset. As of September 2006, the Plan addressed the salaries of 142,521 classified employees, including 14,744 TxDOT positions – 10.3 percent of the State's classified employees.

[114] Texas Department of Transportation, Human Resources Division, August 2006, Workforce Plan: 2007-2011, 14 pages.

The State Auditor's Office (SAO) is charged with maintaining the State's Classification Plan and keeping it current. During the off-year of each biennium, the SAO solicits all State agencies for classification changes for the biennial Appropriations Bill. The SAO conducts market analyses for benchmark positions and reports its recommendations regarding operation and improvement of the Plan to the Governor and the Legislative Budget Board. In September 2006, SAO issued Report 07-702 for the current biennium, which benchmarked 254 positions and made recommendations for:

- Salary group assignments (these are salary adjustments).
- New position classifications.
- Changes to position classification titles.
- Removal of position classifications from the Plan.

These recommendations affected 10,428 employees statewide at a minimum estimated cost of $9.42 million to all state agencies, including a $2.3 million cost to TxDOT. Although TxDOT has only about 10 percent of the State's employees, it is responsible for over 24 percent of the additional costs to the State Classification Plan. This is indicative of the higher than average salary levels that are needed to recruit, hire, and retain technical and specialized staff at TxDOT. Further, as TxDOT's work load grows to manage toll road project analysis and procurement, support RMAs, and participate in CDA procurement the department will be forced to request further significant and more costly changes to the State Classification Plan in order to fulfill its responsibilities as the owner of the State's highway infrastructure.

Legislative Budget

Through the budget approval process, the legislature determines TxDOT's allocation of full-time employees and budget. Unlike private enterprise, TxDOT has limited flexibility to grow its payroll expenses as its volume of business and other costs of business have grown. For example, the state classification system has relatively competitive salary ranges for many disciplines, but, TxDOT faces two constraints on its ability to use the ranges:

- TxDOT does not have the authority to increase overall operating payroll expenditures, and may only able to fund increased by transferring budget funds from non-labor operating budgets.
- Under the classification system, TxDOT must first address internal equity among positions.

Question C.1. Is TxDOT's organizational development and human resource planning aligned with the competencies and staffing required in the new deal-driven environment?

Issue: TxDOT's current recruiting, labor classifications, and career progression paths do not appear to align with the requirements for its new roles in project finance and delivery. There does not appear to be a change management plan for establishing the organizational and institutional capacity for administering TxDOT's new roles and responsibilities.

Risk: The principal risks are that TxDOT will have limited management and organizational capacity to support its new roles in deal making for financing and delivering projects. TxDOT is not able to recruit, retain, and develop personnel with the required professional disciplines and competencies.

1. Answer

No, although TxDOT management is developing centers of competence in the district offices and at headquarters to support toll feasibility analysis, CDA procurement, use of debt finance, and expanded toll operations. To date TxDOT's organizational development to meet the need for new competencies has been pragmatic and ad hoc. However, as the volume of CDAs and toll projects grow, the current approach is not scalable, as more staff at higher pay levels will be required. The department's recruiting procedures, labor classifications, and career progression paths need to be aligned with requirements for the new organizational roles and responsibilities.

TxDOT's Workforce Plan for 2007–2011 provides a clear analysis of TxDOT's current agency-wide risks with respect to recruiting, retaining, and career pathing for the agency in general. These risks are especially acute for developing the personnel that will support the growth of deal-driven toll-financed project delivery. The Workforce Plan presents a profile of skills and capabilities that are needed to proactively meet TxDOT's current and future talent supply. However, the plan falls short in specifying the implementing actions that TxDOT will take to address these risks in general. In this audit area we identify specific actions with respect to the new financial tools, but they are equally applicable to TxDOT's requirements for project delivery through CDAs.

2. Analysis Strategy

The analysis steps are detailed as follows:

- Conducted interviews with headquarters personnel to identify the organizational and management requirements for TxDOT's new transportation funding approach.

- Conducted interviews with district managers and leaders to identify how they are developing their organizations to meet the new labor force needs.
- Reviewed TxDOT workforce planning and training needs assessment.
- Reviewed general financial position titles to assess whether increasing needs for CDAs has resulted in a corresponding increase in qualified financial personnel.

3. Findings

- **TxDOT's ability to develop the organizational capacity to support its new deal making responsibilities is constrained by the overall human resource management risks the agency faces.**

This performance audit does not consider all areas of TxDOT organizational development and work force planning, but focuses on the organizational development, staffing, and new competencies required for CDA planning, negotiation, financing, and development. However, the overall human resource management challenges confronting TxDOT present significant risk in TxDOT's ability to develop organizational capacity for the new financial tools.

The Workforce Plan identifies two demographic trends affecting TxDOT: The retirement of aging Baby Boomers and the smaller cohort of younger, skilled professionals to replace them. These trends are very similar to the pronounced and well-documented national risks to the transportation sector due to a shortage of qualified labor and the competition between government and the private sector for this labor.[115] At the same time, in the economy as a whole, the growth in demand for professional and technical occupations such as engineers, architects, and environmental scientists is growing at a faster pace and exceeds the supply of new graduates. TxDOT is competing for a labor force that is in high demand from other governmental agencies and the private sector.

- **The scale of TxDOT's succession planning needs presents a large risk; the Workforce Plan (2007–2011) indicates that 28 percent of TxDOT employees are eligible for retirement by FY 2011.**

The succession risks confronting TxDOT will disproportionately impact the new competencies because it is the more experienced personnel that have staffed the toll analysis and been involved in the CDA process to date.

A legislated cap on the number of TxDOT's full-time employees limits the agency's ability and capacity to address the growing demands for transportation infrastructure development. Districts are constrained in the ability to reallocate or add new positions to provide a career path and structure for work involved to meet mobility goals using the new financial tools.

[115] See for example the following national studies: National Cooperative Highway Research Program, Analysis and Benchmarking of Recruitment and Hiring Practices of State Departments of Transportation; November 29, 2006. Transportation Research Board, The Workforce Challenge: Recruiting, Training, and Retaining Qualified Workers for Transportation and Transit Agencies, Special Report 275; 2003.

- **Intense competition for graduate engineers, especially those with financial and project management training, and other entry level professionals.**

TxDOT faces intense competition agency-wide to recruit entry level engineers and related professions. This constraint will also apply to recruiting the disciplines required to support its new responsibilities.

  – *Difficulty in retaining employees will likely be pronounced for the new competencies.*

  The Workforce Plan shows that the average TxDOT retiree in FY2005 was 56.7 years old and had 23.1 years of service time with the department. This is a young retiring population that should be encouraged to remain with TxDOT to limit the loss of institutional knowledge and technical and managerial expertise, particularly in light of the fact that 53 percent of TxDOT employees have 10 years or less experience with the department.

  The new financial mechanisms require new competencies that are presently acquired primarily through on-the-job experience gained by current employees, who are usually engineering managers and design engineers assigned to CDA negotiation and financing. The Workforce Plan (2007–2011) recognizes that the department must develop and promote in-house talent for the agency to be successful. Existing staff have a steep learning curve to acquire the necessary skills for CDA negotiation and debt financing. Many of the individuals with CDA experience are near retirement and succession planning must be developed. Replacing the retiring CDA staff will be no easier than replacing TxDOT's other retiring expertise, including managerial, engineering, and technical staff.

  In any organization, the goal is to retain and advance the top performers and lose the poorest performers. This way the average level of performance is raised. Without career pathing tools and the ability to compensate competitively, TxDOT's top performers will leave. The risk is more acute for those who develop the newly required competencies. They are the most marketable and will be in high demand as CDA procurement increases.

- **TxDOT work load requiring the new competencies will grow.**

Analysis conducted in Audit Area A indicates that over the next 20 years up to one third of mobility expenditures could be financed through toll revenues. Other analysis finds that, of the current 100 projects under toll feasibility analysis, between 10 and 25 percent could become CDAs. This is indicative of the increased work load and level of staffing required with competencies in these areas.

The legislated cap on full-time employees and labor expenditures constrains TxDOT's ability to add staff to establish the right mix of workforce skills, competencies and experiences that are critical for TxDOT to meet its responsibilities as the owner of the State's highway infrastructure.

There are position and level equity issues across the districts. For example, if there are specialized positions that have developed within a position classification, this affects equity in the districts and career positions. An assistant district engineer in one district may be responsible for CDAs and, therefore, has a higher degree of responsibility than others at the same level in other districts, yet TxDOT is reluctant to adjust their relative compensation levels because of other equity issues that would then emerge among the department's engineers.

C.1.1. What are TxDOT's organizational development and management requirements of districts to perform new roles?

Issue: TxDOT Headquarters and districts are taking on new roles in planning, project finance, and development. These involve different knowledge, skills, and abilities than in the past. The issue is whether there is change management work underway to identify and plan for these needs. There are likely economies and efficiencies to be yielded by providing central support to those districts with the most active involvement in the new financing mechanisms to address these issues.

Risk: If the right people with the right skills are absent, TxDOT will incur financial risks in the use of the new financial mechanisms and CDA procurement and will be impaired in its ability to provide support to RMAs.

1. Answer

TxDOT requires a systematic proactive organizational development plan that addresses recruiting, retention, career pathing and development of the work force competencies required by TxDOT's districts to successfully apply the new finance tools.

As the scale of activity involving the new finance tools increases, TxDOT needs a scalable sustainable approach to staffing and developing the required competencies. The organizational requirements for staffing differ between districts with large urban centers that will have the largest volume of CDA activity and other districts that are addressing toll feasibility and the application of the new finance mechanisms but will not have the same scale of activity. The successful application of new finance tools will increase the work load in TxDOT's largest districts significantly, without additional positions. Districts will be constrained in their ability to provide staff support to district leaders to address the financial management and related procurement work.

TxDOT's approach to training is reactive. The Standing Committee on Training is trying to move from a review and approval role to a more strategic consideration of the business drivers for new training. Audit analysis finds there is a need for training of TxDOT district personnel specific to their functional roles in toll project evaluation, CDA procurement, and roles and responsibilities with respect to RMAs.

2. Analysis Strategy

The analysis steps are detailed as follows:

- Conducted interviews with headquarters personnel to assess organizational and management requirements for the districts new roles with CDA negotiation, financing, and development.
- Conducted interviews with district managers and leaders to identify how they are developing their organizations to address their new roles.
- Reviewed TxDOT workforce planning procedures.
- Evaluated district organizational response to new work requirements in a sample of TxDOT districts.

3. Findings

- **TxDOT districts are developing centers of competence to support their roles in toll project evaluation, CDA evaluation and procurement, and the application of new financial tools.**

In general, the district offices are using existing staff to fill gaps in education and expertise for CDAs and tolling operations. TxDOT district management is developing centers of competencies to support toll feasibility analysis, CDA evaluation, procurement, and working with RMAs and other entities. This is being accomplished gradually by establishing new functional roles within each district office. In almost all cases, senior staff is being reassigned to these activities and there is a shortage of management resources to backfill their former responsibilities. Similarly, districts are preparing to exercise their responsibilities as the owner under CDA project delivery. The organizational response of the districts to the work required for their participation in the new deal-driven financing structure has been pragmatic and is covering the current work load. However, as the volume of work increases and the use of new finance tools becomes the principal means for addressing mobility needs, the larger districts will need to recruit and develop career paths for staff with the financial analysis and related competencies to support this role. TxDOT's traditional recruiting practices, career progression, and classifications provide barriers to addressing these competencies because they were designed to support the engineering requirements of an agency primarily involved in pay-as-you-go design-bid-build projects.

The large districts, such as Austin, Dallas, Fort Worth, and Houston, have greater levels of CDA project delivery and require a certain level of specialized skill sets, such as financial negotiations. The following illustrates the district-level organizational response:

Fort Worth

In the Fort Worth district, the deputy district engineer reports directly to the district engineer regarding all CDA program matters. All other senior

staff within the district office are kept informed of CDA activities. In an attempt to fill the education and experience gap, the deputy district engineer works closely with the Director of Transportation Planning and Development (TPD Director) on CDA activities and coordinating funding matters.

The District Advanced Transportation Planning Director generally works under the TPD Director, but reports directly to the deputy district engineer for all CDA activities. The Fort Worth district created a tolling office where three transportation engineers work under the supervision of the District Advanced Transportation Planning Director; further direction and oversight are provided by the deputy district and district engineers. Under this arrangement, the Fort Worth district believes it can work better as a team sharing experiences and with open lines of communication between these offices. These three transportation engineers are the only staff in the Fort Worth district who work exclusively on CDA programs.

Although the Fort Worth district believes this is a good foundation for the future, it is difficult to build a complete knowledge base for CDAs. The district continues to see the need for additional knowledgeable and experienced in-house staff. Also, the district will always require outside assistance in the technical, legal, and financial areas of the program.

Houston District

The Houston district has established a team that works on CDA evaluation, toll operations, procurement, and the various processes within those funding mechanisms. This group consists of 4 to 5 engineering staff who work specifically on these mechanisms. Houston district management plan to continue using engineering staff for this work, but will focus employee recruitment towards skills in design, programming, and program management.

The Houston district illustrates the situation at the district level where engineering staff are currently filling the gaps where staff would be specifically educated and trained for work in CDA evaluation, toll operations, procurement, and funding mechanisms. In the future, the Houston district plans to continue using engineering staff for CDA work, but plans to focus employee recruitment towards skills in design, programming, finance, and program management.

San Antonio District

The San Antonio district has a mobility section of about 12 people, managed by the deputy district engineer, that addresses CDA evaluation, tolling operations, and pass-through financing. The deputy district engineer has two staff members working on CDA-related activities. One of these staff works on bus rapid transit coordination and how it interfaces

with managed toll lanes, as well as implementing other modes of moving people. The other staff member works on pass-through financing. The Director of Transportation Planning and Development supports all developmental planning, including CDAs.

In general, staff receive minimal training on CDA activities and learns on the job. For example, TTA provided the San Antonio district with training on feasibility studies, particularly getting a basic picture of what they will be dealing with. This provided enough knowledge and understanding for in-house staff to perform conceptual-level work. The TTA developed screening tools and trained the district staff to use these tools to run screening analyses and determine the feasibility of proposed roads. After the conceptual feasibility is determined, the district hands off the project to the TTA and the Finance Division for a detailed financial analysis. The Finance Division provides technical staff for all remaining work that is needed to produce a project that is acceptable for financing through the bond market.

Most of the San Antonio district staff members are engineers with the standard level of knowledge and expertise of TxDOT engineers. Once these projects reach an investment-grade level, in-house staff does not have the skills needed to complete the project. Consultants specialized in the appropriate technical skills may be required to support the district.

- **The division of functional roles between the TTA and the districts is well defined; however, districts with less experience and staff resources will continue to require broader support and capacity building from the TTA.**

The division of roles between the TTA and the districts determines what work needs to be done where. Under the current division, CDA procurement and negotiation–including financial and legal aspects–are performed through the TTA with district participation. Therefore, the competencies to lead these activities reside within the TTA and the Finance Division. The districts are involved in exercising TxDOT's responsibilities as the owner during delivery and regarding maintenance and operations. (This audit does not address these responsibilities). However, with this division of responsibilities, district leadership is involved in toll feasibility analysis through the planning process and in working with other entities to put together prospective deals to finance improvements. The TTA has provided support and guidance regarding the methods, procedures, and considerations in developing toll-financed projects.

The districts sit at the table with MPOs, RMAs, and tollway authorities to develop deals and finance strategies. This requires competencies that are very different than those employed under the prior approach to project development. The TTA has provided support and capacity building assistance to those districts which are now involved in these activities. This organizational requirement will continue and is needed for those districts that will only have a limited number of toll feasible projects in the near term. For example, the Pharr district relies on the TTA to provide advice concerning CDA issues; however, this district believes that it will be some time before CDA/RMA project development occurs.

Other than the largest districts, those TxDOT districts that collaborate with RMAs and work with local jurisdictions on pass through finance agreements will continue to look to the TTA and Finance divisions for financial, toll feasibility, procurement, and legal expertise.

C.1.2. Will TxDOT have enough personnel with the right skills and competencies?

Issue: This audit question involves identifying the knowledge, skills, and abilities that TxDOT will require in the future. Among the considerations will be to determine the level of staffing and the professional disciplines likely required. TxDOT addresses much of its current needs through procuring professional services. This will continue, but, TxDOT will require staff to manage and perform responsibilities that are best provided by TxDOT.

Risk: Staffing constraints could result in a decision-making bottleneck, increasing the time taken for review and approval. Similarly, it could increase risk in TxDOT's ability to provide management and oversight. In both cases, there is a financial risk.

1. Answer

At present, TxDOT has the right skills and competencies to support the current work load. This work load will increase by 2025, when about a third of all mobility project expenditures will be financed through new funding mechanisms (see Section II). By intent, TxDOT staffing to date has been lean; the TTA, the Finance Division, and districts have covered the current workload. However, workload is growing and TxDOT will need the budget authority to compensate positions at the right level and increase its workforce.

The nature of the work and the competencies required will be different from and at a level higher than traditional entry level or early career staffing. Competencies will include management, negotiation, procurement management, and finance, among others. Although not managing TxDOT employees, such personnel will be responsible for managing TxDOT consultants providing advisory services and representing TxDOT in the regional decision-making process.

As more projects move through the toll feasibility study process and the number of CDAs increase, within specific districts there is concern that TxDOT will not have enough existing personnel with the appropriate knowledge, skills, and abilities to support this new strategic direction. Further, once a CDA is negotiated and funded, a district has a 50-year commitment for management and oversight of the agreement with the concessionaire. This requires dedicated staffing that is not presently provided under the Workforce Plan or the State's Classification Plan. Similarly, the volume of work required by the TTA and finance divisions will increase. The TTA is responsible for the toll collections systems across the entire project lifecycle. While much of this work will likely be performed through professional services contracts, TxDOT retains responsibilities as the owner and requires enough staffing with the right competencies for effective management of professional services.

2. Analysis Strategy

The analysis steps are detailed as follows:

- Conducted interviews with headquarters personnel regarding skills, competencies, and training.
- Conducted interviews with district managers and leaders to identify how they are developing their organizations to meet the new labor force needs.
- Reviewed TxDOT workforce information.

3. Findings

- **TxDOT's overall Workforce Plan for 2007–2011 details the competencies TxDOT requires for future success; however, the plan does not specify implementing actions to develop the competencies.**

The Workforce Plan for 2007–2011 presents a profile of the skills and capabilities that are needed for TxDOT's current and future talent supply, including:

  - Management and leadership.
  - Marketing and negotiation.
  - Law.
  - Procurement.
  - Contract administration.
  - Public policy.
  - Finance and economics.

Although the Workforce Plan addresses agency-wide needs, the competencies highlighted are exactly those required to apply the new financing tools. Audit fact finding concludes that TxDOT has not reviewed and planned how to change recruiting, career paths, or classifications to undertake the organizational development necessary to develop these competencies. The Workforce Plan presents the average on board sum of full-time finance/accounting employees for the four fiscal years from 2002 to 2005, which were 279, 285, 272, and 270.3 employees, respectively. During a period when TxDOT has had an increased demand for finance/accounting staff for CDAs, the Workforce Plan documented a slight decrease in full-time financial/accounting positions.

- **A training plan is required to address the new competencies.**

TxDOT's training program tends to be reactive. The TTA has provided guidance and manuals to build district and agency capacity. However, district interviewees identify the need for TxDOT's training to address the new finance mechanisms and competencies. For example, training for district TPD Directors and especially their staff is needed to provide them understanding on toll finance and financial strategies. Other training needs include consistency and applicability of procedures across the districts, as well as to the RMAs and MPOs. Traditionally, engineers are responsible for project management and many TxDOT engineers have little or no training in financial models.

The Standing Committee on Training recognizes the need to become proactive in responding to business "drivers," such as the new skills and competencies required for CDAs. The TTA is developing manuals to provide consistency and support organizational development; however, interviewees responsible for training and human resource development were not aware of this initiative. These materials include: a CDA manual, RMA manual, and a soon-to-be developed introductory manual.

- **The TTA provides coaching and capacity building assistance to districts actively involved in CDAs.**

The TTA provides effective training on the financial and legal models used for CDAs. The training consists of weekly conference calls with the TTA Division staff, legal advisors, and other advisors. Each week, the Dallas project managers are briefed on projects and given advice. While there is no formal training involved, Dallas district project managers could, in turn, provide training to future staff as needed.

- **The TTA, Finance Division and district work load will increase sharply to administer new finance tools.**

Currently, there are no established work standards from which to forecast TxDOT's staffing requirements. Further, the staffing strategy is to use professional services contracts to supplement TxDOT staff. However, given the planned future role of CDAs, TxDOT will need to selectively add positions with the required financial management, procurement, and deal making competencies to address those responsibilities which can not and should not be contracted out. The TTA has only three employees dedicated to CDAs and will experience increases in workload in coming years.

Work load is driven more by the number of projects than their dollar value. Indicative of the labor requirements is the deal negotiation for SH 121, which required full-time involvement of two members of the headquarters debt management group; the group manager and a staff member both worked for about three and a half weeks on the deal.

C.1.3. Does TxDOT's classification and compensation structures align with new organizational requirements?

Issue: TxDOT's current classification system was developed to meet the needs of the organization prior to its new role in transportation funding and project development. The system does not appear to address the new areas of expertise and the level of experience and responsibilities required. For example, the structure does not accommodate the level of responsibility and experience required for a project manager responsible for overseeing development of a CDA-financed project from inception through CDA negotiation and administration. Similarly, there is new and expanded financial management expertise required.

Risk: There is little flexibility in governmental labor classifications in terms of job descriptions and compensation. Change, especially establishing new classifications and career progressions, can be a slow process. The risk to TxDOT is that limited management capacity can become a bottleneck and a shortage of required competencies can increase risk in management and oversight. Traditionally, government and state departments of transportation have lacked the management emphasis that private industry has placed on effective human resource management. TxDOT is a highly professionalized organization, which further increases the risks in this area.

1. Answer

TxDOT is working within the constraints of the classification system to meet its needs. However a longer term approach is needed because the position classification and compensation structures do not align with the new organizational requirements for alternative project delivery methods, particularly the financial management and deal negotiation required for CDAs. TxDOT is required to follow the classification and compensation structures that are established under the State's Classification Plan. TxDOT's biggest challenge in using existing salary ranges and classifications is that new hires tend to be brought in at the lower end of the salary range, to ensure equity and to comply with TxDOT budget limitations.

TxDOT has worked around the misalignment between currently needed positions for CDAs by creating internal business titles that are then linked to positions within the State's Classification Plan. These work-arounds are not a systematic means for TxDOT to move forward with staffing for new project delivery methods that will become a large part of the State's infrastructure development. TxDOT requires the latitude to develop one or more position classification families that specifically address the staffing needs for TTA, Finance Division, and district involvement in deal making using the new tools and the project procurement and financing analysis.

In addition, TxDOT is constrained in its ability to use existing classifications by equity and position-leveling considerations between CDA-related work and other positions in operations and maintenance in the districts. For example, if professional engineers move into CDA-related roles they may still be linked to an engineer classification, but district management has to address concerns over equity between the positions, which is a broader issue that extends to most management positions in TxDOT districts and between districts. In addition, new finance positions are likely needed in the State's Classification Plan as the present economics and accounting classifications apply to traditional State roles, not the financial negotiations for CDAs that involve investment banking competencies.

2. Analysis Strategy

The analysis steps are detailed as follows:

- Conducted interviews with headquarters personnel regarding skills, competencies, training, and position classification.
- Conducted interviews with district managers and leaders to identify how they are developing their organizations to meet the new labor force needs.
- Reviewed TxDOT workforce information.

3. Findings

- **The positions in the State's Classification Plan do not directly align to those required in the districts, the Finance Division or TTA to support TxDOT's role in transportation funding through CDAs**.

TxDOT management has worked around existing classifications to develop positions for staff working in the TTA. The TTA Division has a single use position for a "Comprehensive Development Agreement Coordinator." Opportunity exists to add an additional level to this title and to provide the use of the title in other areas of the state. This position does not require it to be a licensed engineer. Another title, "Transportation Engineer Supervisor," was recently updated to include duties for those that are serving as liaison to the Regional Mobility Authorities.

The Business Title Classification Committee in coordination with the Human Resources Division reviews and approves proposals for a new position/title and its skill/salary level. These new positions are matched as well as possible to the available positions listed in the State's Classification Plan. TxDOT divisions are not well served by the classifications because they are using the same family of classifications as used for district professional engineering career paths.

- **Current labor classifications are not well aligned with the new competencies and organizational development needs.**

TxDOT continues to work around the constraints presented by the existing classification system to define positions and hire staff in the TTA, the Finance Division, and the districts. As the number of employees involved in these activities increases, there is a need for a new classification family of positions involved in financial management and analysis. For such positions, the MPA, MBA, legal/JD, or CPA credentials may be more applicable to CDA financing and analysis.

In addition, there are issues with classifications involved in CDA evaluation, negotiation, project delivery management and operations and management. These overlap with project delivery these competencies are more akin to engineering project management; however, the current classification system does not address these functional responsibilities which involve management and responsibilities for large dollar volumes of work but not the management of personnel.

- **State mandated staff-to-management ratio of 11 to 1 is a significant barrier to establishing positions with the required responsibility and compensation levels.**

The legislature mandates a staff-to-management ratio of 11 to 1, to be met as an average across the department. To address the mandated ratio, classifications have been restricted at the lead worker and supervisor level. The ratio does not take into consideration individuals managing outsourced work. Also, this ratio does not account for the specialized training and knowledge in debt financing and negotiation that is needed to ensure that TxDOT receives the best possible terms in a CDA, or the high level of responsibility and authority required to negotiate the contract. There are similar issues for those positions that are involved in CDA project delivery and management.

These classification constraints limit TxDOT's salary potential for financial management competencies compared to private sector positions or other government agencies involved in toll projects. TxDOT compensation levels do not compare well for these functions to toll authorities, other units of government, and most likely compensation in the new RMAs.

Dye Management Group, Inc. contacted the Florida Turnpike Enterprise since its highway infrastructure is similar to that under TxDOT's TTA. The Florida Turnpike Enterprise has low staff turnover, which was attributed to the following:

  - The State of Florida's benefits package is attractive: Employees receive four and a half weeks of vacation upon hiring. The Florida Turnpike Enterprises's salary ranges are used statewide and were not viewed as being as significant in recruiting and retaining employees as the benefits.

- The work environment is motivational and encouraging. Lower-level staff participates in a program entitled "High Involvement, High Performance (HIHP)," which has a grassroots-level positive effect on staff.

- **Infrastructure Ontario, a mature organization with similar CDA-related functions as TxDOT, increased salary ranges by 20 percent and recruits engineers in MBA programs.**

Infrastructure Ontario's experience provides perspective on organizational development issues confronting TxDOT. Infrastructure Ontario is involved in the private sector financing of public project delivery comparable to TxDOT's role, especially the work of the TTA and the Finance Division. Although the governance is different, as Infrastructure Ontario is a quasi-governmental organization, there are some lessons learned applicable to TxDOT's situation:

- Infrastructure Ontario is independent of the provincial (state) government for job classification. Position descriptions are specific for clarity and are reassessed each time a position is advertised since positions and responsibilities evolve.
- The compensation package includes both a good benefits program typically associated with government employment (four weeks of vacation upon hire) and pay scales which were increased 20 percent to improve overall competitiveness with the private sector.
- There is a succession plan in place, since the organization accepts that staff will leave for other opportunities, particularly in the private sector.
- Human resources developed an internship program that seeks engineers in MBA programs who want to be project managers, rather than designers or construction managers. Two interns have participated and received training on capital markets and debt financing.

C.1.4. Will TxDOT's recruiting and career development procedures and plans meet the agency's future requirements?

Issue: TxDOT's recruiting needs today are different from those in the past. As an agency, TxDOT has the skills to recruit engineers, technicians, and other staff to perform its traditional functions. The issue is whether current recruiting procedures and plans will meet the future requirements of the organization.

Risk: Absent a change management plan for recruiting, TxDOT will not be positioned to hire staff with the required skills. To retain new employees and manage performance, TxDOT will need career development paths that align with the new types of work.

1. Answer

No, TxDOT's recruiting practices, career development, and retention tools are essentially the same as those used to support the traditional design-bid-build delivery model in a pay-as-you-go funding environment. For example, the internship program and entry-level recruiting is oriented to recruiting civil engineers with design and construction training. While these functions are needed, the recruiting and career development program has not broadened to include the required financial management, negotiation, project management and related competencies identified in the Workforce Plan. In both the districts and headquarters, TxDOT is using its traditional recruiting and career development functions to fill positions requiring the new competencies. There appear to be no change initiatives underway to change recruiting and career development practices and tools to meet the new requirements.

2. Analysis Strategy

The analysis steps are detailed as follows:

- Conducted interviews with headquarters personnel regarding internal and external recruiting, as well as career development.
- Conducted interviews with district managers and leaders to identify how they are developing their organizations to meet the new labor force needs.
- Reviewed TxDOT workforce information.

3. Findings

- **TxDOT's recruiting and career development practices have not changed to meet the new organizational development requirements.**

TxDOT has a well-established procedure for recruiting and career pathing engineering staff. This includes internships, summer work, graduate recruiting, and continuing education opportunities. These approaches need to be updated and applied to the other competencies required by TxDOT. TxDOT headquarters requires tools to recruit staff with the financial management and analysis skills, attorneys with applicable financial experience skills.

As discussed under the prior audit question, Infrastructure Ontario has used these techniques to hire engineers with MBAs and financial analysts with the appropriate skills. In the project delivery area, other state departments of transportation are adapting their recruiting to targeting competencies required for project management too, as opposed to focusing primarily on engineering.

- **Recruiting and retention will take place in a labor market that will be extremely competitive for some time.**

As with other DOTs across the country, TxDOT finds itself competing for employees in a competitive labor market for both traditional engineering design and construction and the new competencies. TxDOT is caught up in competition with other governmental entities and the private sector for staff, particularly as public-private partnerships are promoted and implemented. This creates a situation where the private sector, other units of government, and RMAs need the types of employees that TxDOT already has, which then makes it more difficult for the department to recruit and retain staff. Although State government has embraced the private sector's business approaches, as demonstrated by TxDOT's CDAs for public-private partnerships, the State has not concurrently updated its human resources programs to ensure that TxDOT remains competitive in its ability to recruit and retain professionals in a highly competitive market.

The following examples illustrate TxDOT's apparently weak position in the labor market for engineering positions. Similar recruiting challenges are evident for CDA management and professional staff positions that are even more highly compensated in the private sector:

- TxDOT offers a conditional grant program to attract engineering students by paying $3,000 per semester if the student will work for TxDOT after graduation. This program is now compromised, as demonstrated by the situation with one student who decided to repay the grant program over time in order to accept a higher-paying position. TxDOT offered an annual salary of approximately $42,000, while another employer trumped the salary with a $60,000 offer.
- TxDOT has lost other graduate engineers to the City of Austin, which has an entry-level salary of $50,000 and a private consulting firm has reportedly offered $80,000 per year.
- TxDOT's benefits package does not lure graduate engineers as they do not anticipate staying with any employer for the long-term.
- TxDOT is also competing with private sector firms that are hiring large numbers of engineers in Texas. For example, Fluor in Houston is reportedly currently seeking 1,000 engineers for employment.
- TxDOT has found it difficult to recruit private sector candidates with relevant investment banking experience because the State's Classification Plan offers salaries that are significantly less than the compensation offered outside of government.
- TxDOT has faced a similar challenge in hiring attorneys with applicable financial experience.

C. Recommendations

C.1.1 Implement an agency-wide organizational development plan to recruit, retain and develop the competencies TxDOT required to perform its new roles in transportation finance.

The intent of this recommendation is for TxDOT leadership to establish an agency-wide plan that addresses the issues identified in the Workforce Plan and this audit. TxDOT will need to develop staff internally for succession purposes (to manage transition when staff involved in the first wave of CDA projects leave the department) and to address the need for the new competencies and increased work load. External hiring will be constrained by the compensation issues that similarly impact engineer recruitment. There is a tight labor market and TxDOT is at a further disadvantage because the tools for recruiting, training, and retention are not in place.

The recommendation involves an action plan and active change management that results in:

- New classifications and/or competencies.
- Defined career paths.
- Internship and graduate recruiting programs that address the required disciplines.
- Classifications for specialized expertise that do not themselves have an 11-to-1 staffing ratio for management level compensation nor are included in calculating compliance with the 11-1 staffing ratio required as it is applied at the department level.
- Authority for TxDOT districts for a limited number of new positions and associated career paths.
- Developing career paths for new disciplines.

C.1.2 Establish a competency development and training program to meet the new organizational requirements.

The intent of this recommendation is to develop a proactive agency-wide approach to developing the competencies and providing training to build organizational capacity. The recommended approach is to identify the new competencies and knowledge required in existing positions and emerging TxDOT functions. For example, district Transportation Planning and Development Directors and their staff require understanding of the toll feasibility study process and the rudiments of debt finance. The recommendation would be implemented by mapping the competencies against the functions and developing and delivering the training accordingly.

C.1.3 Establish a special element in the Workforce Plan as a fully-developed strategic process to address recruiting, retention, succession, and work force planning.

As TxDOT transitions into more CDA procurement and use of different delivery project methods through the application of new finance mechanisms the management of recruiting, work force retention, and work force development must become a strategic executive priority within the agency. The existing Workforce Plan should be developed into an executive strategy document that provides a roadmap between TxDOT's project delivery business planning, staffing needs, and the development and implementation of human resources activities in support of successful recruiting, retention, and career development. In order for TxDOT to be successful and manage the risks it faces as the owner of the State's highway infrastructure, particularly in a highly competitive labor market, the management of recruiting, career path development, succession planning, and other activities identified in this report are elevated to a strategic priority. The Workforce Plan will provide a coordinated department-wide strategy to interface with and effect changes in the State's Classification Plan, which should include an assessment of needs for new position classifications associated with CDA negotiation, financing, development, and long-term management.

VII. Audit Area C.2: Cash Management

■

This audit area addresses TxDOT's management and organizational capacity for planning, building, and maintaining the transportation assets using TxDOT's new transportation finance tools and project delivery methods.

A. Audit Area Objectives and Questions

1. Audit Area Objectives

The objectives in this audit area are to:

- Identify requirements for integrating debt service planning into the cash management model and strengthening revenue and expenditure forecasting.
- Identify any necessary cash commitment controls, such as construction contract payment provisions and change order management, among others.
- Identify a simple and clear report for communicating cash flows.

2. Audit Questions

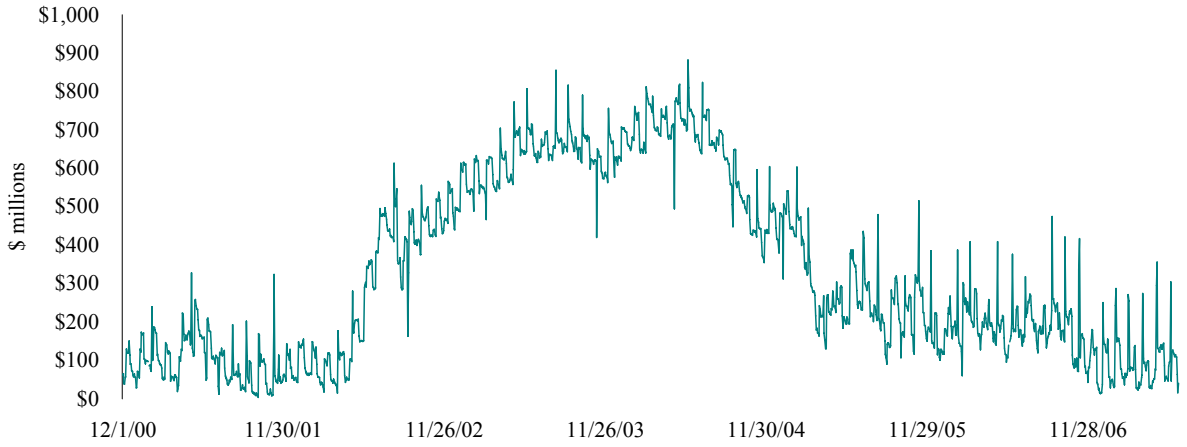
The following questions are evaluated:

- **C.2** Does TxDOT's cash management system need strengthening to address new revenue sources, project financing, and delivery methods?
  - **C.2.1** Does TxDOT have appropriate risk-based target cash balances?
  - **C.2.2** Is TxDOT able to manage to the target cash balances?

B. Background

Cash management balances in the State Highway Fund, shown in Exhibit VII-1, have changed over the past seven years as the availability of overdraft borrowing capacity to TxDOT has changed.

Exhibit VII-1: Closing Daily Cash Balances, State Highway Fund



Prior to 2002, TxDOT managed the fund toward very low cash balances, with no short-term borrowing capacity with which to draw upon in the event of an overdraft. It was a high-risk situation and recognized as such; in 2001, the State Comptroller recommended that TxDOT have access to an overdraft facility.[116] The fall of 2001 brought very low cash balances: TxDOT was forced to defer activities outside the core highway program and faced the probability of more drastic action, a request to general contractors to slow down work on construction contracts that had already been let.

TxDOT built up the fund's cash balances through late 2002 and 2003. In 2003, the Texas Legislature allowed TxDOT to issue short-term debt up to an amount equivalent to one month's revenue of the State Highway Fund, amended to two months' revenue in 2005. In February 2005, the Texas Transportation Commission authorized a commercial paper program, i.e., a short-term borrowing program to provide a backstop against cash overdrafts. With that short term borrowing capability in place, TxDOT has managed the fund's cash balances downward, now approaching the low levels that prevailed prior to 2002.

The commercial paper program required an amendment to the Texas Constitution. Without such an amendment,[117] TxDOT would have to borrow the cash management funds in the form of revenue anticipation notes. The issue of such notes by TxDOT is controlled through the requirement[118] that the Texas Transportation Commission, before exercising it, file a detailed cash forecast with the State's Cash Management Committee[119]and obtain its approval.

[116] Texas Comptroller of Public Accounts. Paving the Way: A Review of the Texas Department of Transportation. January 2001.
[117] House Bill 471 (2003)
[118] Texas Transportation Code. Section 201.962: Subchapter N.
[119] A committee comprised of the Governor, the Lieutenant-Governor, the Speaker of the House of Representatives and the [State] Comptroller. The principal function of this committee is to authorize the issuances of notes that are required to offset an expected cash shortfall in the operations of government. Texas Government Code, Section 404.122 to Section 404.125.

Question C.2. Does TxDOT's cash management system need strengthening to address new revenue sources, project financing, and delivery methods?

Issue: There have been large changes in revenue sources, project finance, and pattern of expenditures, all variables that are addressed by cash management. Internal audit reports have evaluated questions regarding the efficacy of TxDOT's cash management system to address the new funding environment.[120] Initial fact-finding indicates that TxDOT may remain exposed to some of the risks identified in the prior audits. This audit area will investigate the individual components of the cash management system.

Risk: Cash resources will not be put to their best use or, worse, TxDOT may exhaust its near-term credits and be forced to forestall payments to its vendors.

1. Answer

Generally, no: TxDOT's cash management capacity is sufficient for dealing the traditional cash flows through the State Highway Fund and should continue to be sufficient with the added complexities of new funding tools.

TxDOT has implemented a best-practice approach to cash management. The management controls, technical support, and accountability mechanisms are all in place to perform active cash management. TxDOT has expenditure forecasting and monitoring tools that provide monthly cash flow forecasts and daily cash management reports. Excepting revenue forecasts, which are discussed in Section A of this report, cash forecasting methods are robust, well designed, and have been implemented effectively. In addition, TxDOT has established a senior management team that uses this information to actively manage cash and make decisions regarding program acceleration or deceleration.

2. Analysis Strategy

The analysis steps are detailed as follows:

- Estimated the optimal value for the lowest daily cash balance and recommend risk-based targets for that balance.
- Compared TxDOT's cash forecasts and reports to established best practices, and recommend changes to those forecasts and reports.
- Ensured that the management authorities and controls that TxDOT's cash managers require to regulate cash flows towards target balances are in place.

[120] *TxDOT Internal Audit: Cash Forecasting (401-8),* completed in 2003.

3. Findings

- **TxDOT's cash management forecast models and reports are satisfactory.**

Effective cash management in a state department of transportation requires reliable forecasts of future cash balances and a well-founded understanding of how cash inflows and outflows can be controlled to steer future cash balances towards their targets. The system used by states typically involves revenue forecasting models, program delivery plans, and expenditure forecasting models. TxDOTs forecasting models and understandings are satisfactory, with the exception the longer term revenue forecasts that are discussed in Section A of this report.

- **TxDOT has good institutional arrangements in place to manage cash.**

Senior management is actively involved in the monthly review of forecasts and the consequent decisions that manage cash. TxDOT has correctly focused upon near-term construction contract lettings as the most effective tool to manage cash outflows and thus steer cash balances towards the targets. Decisions to alter the letting schedule for cash management purposes are effectively transmitted to the Construction Division and the district offices and acted upon.

- **TxDOT's current target range for cash balances is appropriate.**

The TxDOT Finance Division has set a current target range of $75 to $100 million, excluding state infrastructure bank balances.[121] This target range was determined intuitively and established informally, without any external oversight or requirement. A risk-based quantitative analysis confirms it as appropriate target range for TxDOT as an organization wishing to assume a low level of risk and with limited short-term borrowing capacity. There is no apparent need for the means by which TxDOT determines its target range to change.

- **TxDOT is able to manage balances close to or within the target range.**

Over the past year, TxDOT has maintained daily cash balances that, on average, close to the target range. TxDOT has borrowed through its commercial paper program to maintain this balance; had it not borrowed, the cash balances would have been negative on several days in the year.

[121] If those balances were included, the target range would be $275 million to $300 million.

C.2.1. Does TxDOT have appropriate risk-based target cash balances?

Issue: Year-end cash balances or cash balances at any point in time are a poor indicator of the cash that may be available for short-term use. The meaningful indicator is the extent to which, over a period of at least a month, the lowest daily balance exceeds a minimum safe balance. Near-term calls on that cash from payables and other balance sheet liabilities must be taken into account before cash on hand can be committed above and beyond existing obligations. Since near-term calls and receipts are uncertain, the target balance should be determined with an explicit recognition of the risks of an overdraft that exist at higher and lower cash balances.

Risk: Without knowing the risks that a certain cash balance entails, TxDOT management may be taking risks of overdrafts of which they are not aware.

1. Answer

Yes, a risk-based quantitative analysis indicates that the current and informal target range is appropriate. The current target range for the State Highway Fund, i.e. exclusive of the state infrastructure bank, is $75 million to $100 million. The risk analysis summarized below and appended to this report indicates this target range results in a low risk level, about 1 overdraft in every 1,000 months when the department has an overnight borrowing capability.

2. Analysis Strategy

The analysis steps are detailed as follows:

- Conducted statistical analyses of the daily and monthly cash inflows and outflows from the State Highway Fund to determine their variance, from day to day and from month to month, with and without effects of trends and other variables.
- Assessed these variances to estimate the risk of overdraft on any given day at different cash balances.

3. Findings

- **Cash balances not determined with a formal risk analysis but current balances are consistent with one.**

Best practice in cash management is an exercise in balancing risks and returns. Cash balances should be minimized, subject to an acceptable level of risk. A cash balance or cash on hand is, in business terms, a bad thing. Resources that could otherwise be put to work in the organization's business are tied up in cash balances. The goal of cash management is to minimize the amount of cash on hand without threatening the business. The risk to the business is a lack of liquidity: an inability to pay bills and meet other obligations. From this premise, TxDOT's cash management goal is to minimize the cash balances in the fund, but always be able to pay its bills.

In the absence of any risks to their ability to pay bills, the ideal cash balances in those funds would be zero. Risks can never be reduced to zero, however; they are always present in the form of uncertainty about future events. Given that risk can never be eliminated but must be managed on an ongoing basis, someone in the organization must decide what constitutes an acceptable level of risk. It is undoubtedly the toughest decision to be made around financial management and, since the implications of error can be drastic, good organizations treat this as a strategic decision to be made at the highest executive level.

The acceptable level of risk is a function of:

- The probability of an adverse event occurring.
- The consequences of an adverse event on the organization's core business.
- The ability of the organization to absorb or mitigate the consequences.

For a state department of transportation, the principal risk is significant overdraft on disbursements that the department cannot cover in time with short term borrowing, and must inform the general contractors working on construction projects that they will not be paid the progress payments that are due to them.

The statistical estimates that are appended to this report and are summarized in Exhibit VII-2 identify recommended minimum and average daily cash balances for different levels of risk and for different short-term borrowing abilities. These statistical analyses estimate the risk of overdraft given the revenue and expenditure flows faced by the State Highway Fund and balances that should be retained in the fund to offset that risk. The retained balance can be described in two ways:

- A minimum daily balance, which is held to safeguard against near-term uncertainties in the size and timing of revenue collections and payments; and
- An average daily balance, which is held to build liquidity through each month for the monthly payroll and contractor disbursements, as well as the uncertainties.

Exhibit VII-2: Estimates of Risk-Based Cash Balances

Borrowing Ability	Overnight Borrowing		No Short-Term Borrowing	
Effective Overdraft Risk	"1 in 100" months	"1 in 1000" months	"1 in 100" months	"1 in 1000" months
	$ millions			
Minimum Daily Balance	75	150	450	600
Average Daily Balance	250	400	900	1,100

The overdraft risk is calculated in terms of "1 in 100" events or "1 in 1000" events. The definition of an "event" depends on the situation. For example, the chances of a daily "1 in 100" balance being exceeded is, all other things being equal, once in 100 days. However, since the minimum daily balance is only achieved once in each month, the correct expectation of "1 in 100" for the minimum daily balance to be exceeded is once in 100 months. Similarly, the "1 in 1000" minimum daily balance would be expected to result in an overdraft, all other things being equal, once in 1000 months.

- **TxDOT's short term borrowing capacity is crucial to maintaining low balances.**

If the cash target was $100 million and TxDOT had no short-term borrowing capability, the associated risk level is equivalent to about 1 day in overdraft every 36 months. That is a high level of risk.

C.2.2. Is TxDOT able to manage to the target cash balances?

Issue: TxDOT management must be able to forecast cash inflows and outflows, and be able to manipulate major outflows – usually the contract letting list – such that cash balances are kept close to their targets. This requires sophisticated forecast modeling of revenues and let lists and contract payouts, and the management expertise to interpret and act upon those forecasts.

Risk: TxDOT will not be able to exercise sufficient influence over future cash flows to keep close to the target balances.

1. Answer

The best practices for cash management in state departments of transportation are based on two key tenets: (1) executive level direction and oversight; and (2) the use of effective financial tools and reporting procedures. In other words, the department should be strong in both its institutional arrangements and in its technical capabilities.

TxDOT's institutional capacities for cash management are strong: senior management plays a key and active role, they understand relationships between the decisions they make to modify the contract lettings and subsequent cash balances; those decisions are made clear to the Construction Division and the district offices; and those decisions are acted upon.

TxDOT's technical capacities in forecasting and reporting are also strong, although they would be improved by our recommendation in section A of this report with respect to revenue forecasting.

With these strengths, TxDOT is successfully managing the State Highway Fund cash balances to levels that are both appropriate and close to TxDOT's target balances.

2. Analysis Strategy

The analysis steps are detailed as follows:

- Precision of the cash models was tested with TxDOT historical data.
- The models' functional forms were compared with established best practices.
- Obtained input from process managers and participants regarding the procedures they use to manage cash flows toward the target cash balances.

3. Findings

- **TxDOT's forecasting models are sufficiently precise to properly support the decisions required to manage cash balances 12 months forward.**

States with active cash management have implemented a month-to-month "dynamic" cash forecasting and monitoring process. Dynamic cash-flow models update forecasts every month, or more frequently as new actual data is recorded. In this sense, the cash forecast then becomes a "rolling" forecast. This replaces annual budget or forecast expenditures with actuals throughout the fiscal year, providing monthly updated data for cash management.

Best practice involves cash management forecasting and monitoring capability that can account for the following components:

- Cash flow impacts of program delivery.
- Revenue forecasts and actual expenditures.
- Contractor payments.
- Project change orders.
- Accrued unbilled amounts on federally funded projects.

- Advanced construction decisions.
- Reimbursement schedules on federally funded projects.
- Contract maintenance and other non-construction contractor payment schedules.
- Debt service.
- Payments not directly related to project activities, for example payroll.

The most technically complex and elegant forecasting model is not necessarily the best one. There is a tradeoff between complexity and sophistication; complex models may detect and forecast more subtle changes in events, but require less attention from senior management and are less likely to be understood. An effective cash management forecasting can be found at different points along this tradeoff and, as a result, the level of complexity among the models used by state departments of transportation varies. TxDOT, for the large size of its programs, runs a relatively simple set of models.

The relative simplicity of TxDOT's cash forecasting models has been criticized in the past. In 2003, the State Auditor said:[122]

- "Changes are needed to improve the Department's forecasts of cash balances."
- "In 1993, the Department commissioned a study of its forecasts. The study recommended using multivariable forecasting models based on statistical methods, such as regression analysis. The study also included general principles for a good model. Although the study focused on forecasts of payments to contractors, the criteria established in the study also apply to the Department's forecast of lowest daily balances. However, the Department's current methodology does not incorporate the recommendations from the 1993 study."
- "The Department should consider replacing the current method of forecasting lowest daily balances with multivariable models based on statistical methods, such as regression analysis…[and] consider using more than one model on which to base forecasted lowest daily balances."

Our experience in building and operating cash management forecasting models suggests that two sets of overlapping models are required:

Month-to-month cash forecasting

Dynamic cash flow models update forecasts every month, or more frequently, as new actual data is recorded. In this sense, the Department's cash forecast then becomes a rolling forecast. This replaces annual budget or forecast expenditures with actual data throughout the fiscal year, providing monthly updated data from which to perform cash management.

[122] State Auditor's Office. An Audit Report on the Department of Transportation's Management of State Highway Fund 6. Report No. 03-021, March 2003.

Elements of best practice month-to-month forecasting models include:

- *Revenue forecast.* Two econometric approaches are used to forecast the components of revenue such as motor fuels tax, motor vehicle registration, and others: a *time series model*, which relies on historical trends, and a *structural model*, that relies on relationships between revenues and the socioeconomic variables that affect them. Time series models tend to out-perform structural models within a 12-month horizon, beyond which structural models are generally more effective. The two model types can be combined into a more sophisticated *transfer function* model. Reimbursement on federal-aid projects are modeled as lagged function of contractor payments. Forecasts should be monthly and, as part of a dynamic process updated as actual data is recorded.
- *Contractor payments forecast.* Contractor payments form the largest portion of cash payments throughout the fiscal year. Best-practice states, TxDOT included, have developed contractor "payout curves" by project type, size, and duration based on statistical analysis of historical data on construction projects.
- *Forecasts of other expenditures.* Other expenditures such as payroll and transfers out are normally budgeted by month and therefore fairly predictable. This is also true for contract maintenance and other non-TIP contractor costs, where the cash impacts are relatively predictable based on the contract work schedule.

Annual updates to programs and project delivery plans

Most state DOTs are performing annual updates to programs and project delivery plans part of their overall financial planning effort. Changes in project delivery plans for the TIP year are first determined. Programming then fits projects within the forecast funds available. The annual updates to programs and project delivery plans allow the DOTs to plan strategically and to anticipate cash demands and respond accordingly.

Our examination of TxDOT's cash forecasting models found that they vary from these best practices in only one respect: the longer-term revenue forecasts are not based on formal structural models. To that end, we have made a recommendation in Section A of this report with respect to revenue modeling.

- **TxDOT senior management team plays an active role in cash management.**

The best practice is to establish strategic objectives, performance targets, accountability mechanisms, and senior management teams responsible for cash management. Accomplishing these objectives is a task for the senior management team who are collectively accountable and responsible for their accomplishment. In states that are successful in accomplishing their cash management objectives,

cash is actively managed by a senior management team. Best practice involves senior management with responsibilities for the major factors that impact current and future cash positions.

Generally, senior management teams are involved in active cash management through frequent meetings. The team's role is to monitor and update the letting schedule and longer term delivery plans and actively bring together planning, project delivery, and finance to manage cash.

TxDOT has a senior management committee that meets at least once per month to provide oversight to project delivery decisions that will impact the department's cash position. Specifically, this committee oversees the production of forecasts and makes decisions on the letting rate caps, both of which are outlined above.

- **TxDOT exercises effective control over cash balances through its contract letting caps.**

With a target cash balance and a forecast of what cash balances are likely to be, TxDOT's cash managers need a control, a decision that, taken today, will increase or decrease cash balances by a predictable amount over a predictable period of time. Such a control is steering mechanism of cash management.

Best practices suggest that the most effective mechanism for steering cash balances in a state department of transportation is the letting of construction and rehabilitation contracts, for two reasons:

  - Payments to construction contractors are the largest of all TxDOT's expenditures, at the intersection of $2.8 billion of disbursements to "build it" activities and $4.4 billion of payments to contractor during the fiscal year ended on 31 August 2006, in which total disbursement from the State Highway Fund was about $8.5 billion.
  - The principal cash management risk faced by TxDOT is the lack of sufficient liquidity to pay bills as they are submitted by highway construction contractors.

Each month, TxDOT's senior management financial committee receives information on the value and scheduling of contracts to be let over the next 12 months, with more limited information on contracts to be let over the next 36 months. Using the construction payout model described above, the financial committee is able to predict the cash outflows that will result from letting these contracts, then alter the schedule of contract lets so as to achieve the payouts needed to steer the department's cash position towards the target cash balance.

The TxDOT Design Division translates the letting lists that are approved by the senior management financial committee into letting caps for each district office. The district engineers are informed of revisions to their letting caps, along with instructions about treatment of specific projects within those caps, and instructed to alter their letting rates accordingly. This mechanism has been proven effective in TxDOT at controlling contractor payouts and, as a result, cash balances.

- **Cash balances are currently at appropriate levels.**

The average daily cash balance over the last year has been about $130 million, including the proceeds of commercial paper borrowings made to ensure that cash balances do not fall below zero. This is an appropriate cash balance for TxDOT given analyses of risks outlined above. Exhibit VII-3 illustrates why this is an appropriate cash balance, given that TxDOT has the ability to borrow funds overnight for cash management purposes.

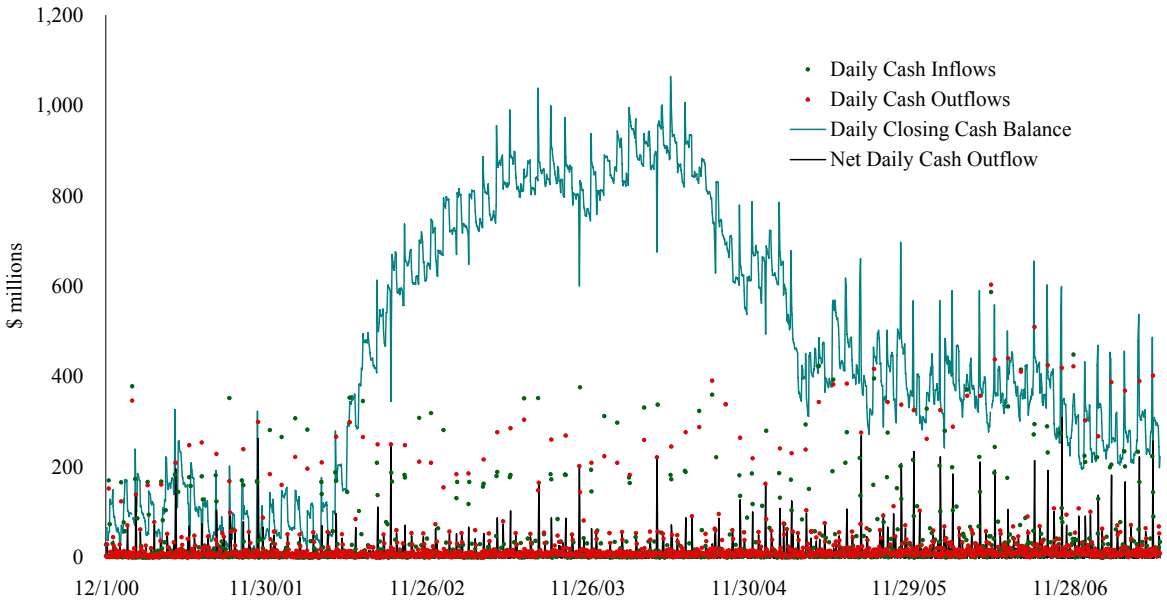


Exhibit VII-3: Daily Cash Flows and Cash Balances

In this exhibit:

- The blue line represents the closing cash balance of the State Highway Fund, each day.
- The red points represent cash outflows each day.
- The green points represent cash inflows each day.
- The black line represents the difference the net cash outflow each day. On days when cash inflows exceeded cash outflows, the value of this data series is 0.

The nature of the cash inflows and outflows through the 1623 operating days between December 1, 2000 and June 22, 2007 is a series of many relatively small flows, in the order of less than $50 million per day, punctuated with a few relatively large flows, in the order of $200 million to $400 million per day. This nature is shown in the exhibit above as many red and green data points clustered very close to the horizontal axis, with a small number of points above them. It is also shown in the histograms included in the target cash balance analysis above.

The relationship between the closing cash balances, shown by the blue line, and the net cash outflows, shown by the black line, indicates whether cash balances are too high or too low. The spikes in the black line represent days when there were large net flows into or out of the account. Cash balances should be sufficient to cover these net outflows. When cash balances are at appropriate levels, the blue line should be just above the level of the spikes in the black line.

In the 247 operating days since June 22, 2006, the average net flow has been about $16 million per day. However, these net outflows have exceeded $50 million on 20 days and have exceeded $150 million on 7 days. The lowest closing cash balance over the same period was about $13 million, including the balance of cash borrowings in the commercial paper program; and that minimum daily balance in 4 of the last 12 months was under $20 million. If TxDOT had been able to perfectly predict the variations in daily cash flows between June 2006 and June 2007, the average cash balance would have been increased by at least $75 million to minimize commercial paper borrowings. There is no scope for further reductions in cash balances to accelerate the construction of projects.

C. Recommendations

C.2.1. Consolidate forecasts before finance committee meetings.

Before TxDOT's senior management financing committee meets, several forecasts are prepared: the Transportation Planning & Programming division prepares a longer-term forecast of federal funds available and expenditures, the Design Division provides a letting forecast and the Finance Division provides a shorter-term cash forecast. About six months ago, the Government and Business Enterprise Division developed models that can forecast longer-term revenues but has not yet had the opportunity to test the models nor bring forward forecasts from these models for consideration by other TxDOT divisions.

At present, some integration of these forecasts takes place in advance of the meeting: the Finance Division's cash forecast is based upon the Design Division's letting forecast which, in turn, is based on the Transportation Planning & Programming Division's forecast of federal fund outlays. Other than that, the forecasts are not integrated by junior staff into a single package in advance of the meeting. As a result, the senior directors spend the initial part of each meeting comparing and contrasting separate forecasts.

The use of their very limited and valuable time might be slightly improved if the Finance Division's budget and financial planning staff were to integrate these forecasts, including the emergent forecasts from the Government and Business Enterprise Division, and distribute the integrated result in advance of the meetings.

VIII. Audit Area D: Controls, Accountability Mechanisms, and Oversight

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This audit area evaluates management controls, accountabilities, and oversight procedures for the new programmatic and project funding mechanisms. The audit addresses both TxDOT and Regional Mobility Authorities (RMAs). TxDOT's current tools and procedures were developed and refined to support traditional pay-as-you-go state motor fuel tax and federally funded projects. The current funding structure has changed dramatically and quickly. TxDOT management controls, policies, and procedures along with human resource management must now adapt and evolve to meet the needs of an organization in which mobility needs will be addressed through market-driven solutions. The audit investigates the applicability of existing procedures and tools, the risks that need to be addressed, and TxDOT's work in progress and plan to develop new procedures.

A. Audit Area Objectives and Questions

1. Audit Area Objectives

The objectives in this audit area are to:

- Assess the need for new controls and accountabilities.
- Identify areas of standardized policies, procedures, and business practices across TxDOT districts.
- Determine areas of risk regarding TxDOT roles.
- Mitigate the risk of duplication of competencies between TxDOT, RMAs, and MPOs.

2. Audit Questions

The following questions are evaluated:

- **Question D.1: Are controls, oversight mechanisms, and accountability mechanisms sufficient for new revenue sources, project financing, and delivery methods?**
  - **Question D.1.1:** Is TxDOT putting in place the tools for monitoring and mapping CDAs' revenue back to districts?
  - **Question D.1.2:** Does TxDOT require management controls and accountability mechanisms for funds provided or loaned to RMAs?

- **Question D.1.3:** Are management controls and procedures in place to ensure that decision-making regarding projects financed through CDAs, shadow tolls, or other RMA actions is integrated into TxDOT procedures for compliance with federal requirements?
- **Question D.1.4:** What are TxDOT's accountabilities with respect to pass through finance with counties and municipalities?

- **Question D.2: Are controls, oversight mechanisms, and accountability mechanisms sufficient for new revenue sources, project financing, and delivery methods?**
  - **Question D.2.1:** What are the risks of duplication of functions and competencies between RMAs, MPOs, and TxDOT?
  - **Question D.2.2:** Are management controls sufficient to properly account for sources and uses of funds in multi-modal projects?
  - **Question D.2.3:** Should the financial securities offered by RMAs be back-stopped?
  - **Question D.2.4:** Are there economies of scale that can be realized across RMAs and concessionaires?

B. Background

This section provides background on the new roles for RMAs and other local agencies in the application of CDAs for financing transportation improvements.

1. Regional Mobility Authorities

RMAs are created under Texas Transportation Code chapter 370, enacted in 2003. This law authorizes RMAs to undertake a variety of transportation projects on behalf of the citizens of the areas the RMAs are created to serve, generally one or more counties. The policy objective in establishing RMAs is that they will provide local and regional leadership to develop toll financed projects and dedicate project revenues or other locally dedicated funds to finance further investment in transportation infrastructure. To accomplish these objectives RMAs may partner with the state and the private sector to finance transportation projects.

To date seven RMAs have been created, each serving one or two counties and the municipalities therein (except for Camino Real, which serves only the City of El Paso). The scope of projects RMAs are authorized to finance is broad; six have concentrated their efforts to date on the development of toll roads, while Grayson County is involved in a pass through finance agreement. To date only three of the seven have moved beyond initial RMA organization and high level screening of the feasibility of toll road projects. The Central Texas RMA has constructed and begun operation of a toll facility, 183A, outside Austin. At the

Alamo RMA, plans have progressed to the point where construction could be initiated after project financing has been secured. The Northeast Texas RMA is actively partnering with TxDOT to advance Toll 49, a toll road that will ultimately provide an outer loop to the west and south of Tyler in Smith County. The Northeast Texas RMA has not contributed additional financing at this point (the initial sections have been built and are operated as a toll facility by TxDOT) but may ultimately take over Toll 49 and finance its further expansion, at least in part, through debt financing to be backed by the toll revenue. The remaining RMAs include Cameron County RMA, Hidalgo County RMA, Grayson County RMA, the Camino Real RMA serving El Paso. These RMAs are organizing themselves and evaluating project feasibility, but are not close to initiating construction.

Exhibit VIII-1 summarizes the number of RMAs and the scope of their activity as of May 2007.

Exhibit VIII-1: Overview of RMAs' Statuses, May 2007

RMA	Counties	Organizational Development Status	Resources	MOUs or Master Agreements with TxDOT	Status of Project Activity
Central Texas RMA	Travis, Williamson	Created January 2003 Fully operational	Functioning board with11 full-time staff	Toll equity for PE and Construction County grant support in start up	1st segment of 183A opened and operating
Alamo RMA	Bexar	Created December 2003 Planning, Financial Planning, and PE phase	Functioning board with 6 full-time staff	Toll equity for PE County loans for support in start-up	Multiple projects in planning phase
Grayson County RMA	Grayson	Created April 2004	Functioning Board	None	None Transferred responsibility for 289 project to Grayson County, Project being built pursuant to a pass through finance agreement with TxDOT

RMA	Counties	Organizational Development Status	Resources	MOUs or Master Agreements with TxDOT	Status of Project Activity
Northeast Texas RMA	Smith, Gregg, Cherokee, Rusk, Harrison, and Upshur	Created October 2004 Planning, financial planning, and PE phase	Fully functioning board with part-time project director	Toll equity agreement for PE and toll equipment County loan for startup costs	Multiple projects in planning phase Partner with TxDOT in construction of Toll 49
Cameron County RMA	Cameron	Created September 2004 Feasibility study phase	Functioning board with part-time staff loaned from Cameron County	PE funding agreement County loans for startup	PE work proceeding
Hidalgo County RMA	Hidalgo	Created November 2005 Feasibility study phase	Functioning Board with staff loaned from Lower Rio Grande Development Council	County loans for startup	Feasibility being considered
Camino Real RMA	El Paso (note City only)	Created June 2006 Organizational Phase	Functioning board	None	None

2. State Interest in RMAs

The State of Texas, through the Texas Transportation Commission (TTC) and TxDOT, has a large interest in the success of the RMAs because the state's strategy for addressing metropolitan mobility needs is for these organizations to finance and manage transportation infrastructure improvements in their localities that can not be funded through the State Highway Fund. Indeed, Chapter 370 recognizes the important link among TTC, TxDOT, and the RMAs by specifying several key management relationships that must exist.

The TTC approves the creation of all RMAs (370.038 (1)) and is required to issue rules governing both their selection of projects to undertake and auditing and financial reporting requirements (370.038 (2-3)). The finance-related rules have been codified in Title 43, Part 1, Chapter 26, and Subchapter G of the Texas Administrative Code at 26.61 through 26.64. The rules provide minimum guidelines for accounting, financial reporting, auditing, and submission of reports to TxDOT. In addition, the rules governing the provision of financial assistance to toll projects (as most RMA projects for the foreseeable future will require) found in Chapter 27, Subchapter F of the Texas

Administrative Code at 27.55 give more detailed instructions concerning accounting, financial reporting, cost recognition, and auditing in cases where the state provides financial assistance or toll equity.

RMA projects must be included in both the long-range transportation plan (MPO plans) and the Statewide Transportation Improvement Program (STIP) before the RMA can proceed to construct or implement them (370.033 (3) (B)). The RMA may receive funding from TxDOT (370.033 (9)) and it must gain approval from the Texas Attorney General before issuing bonds to finance projects (370.116).

Finally, surpluses created from RMA and CDA projects must be handled in specific ways as defined in Texas Transportation Code 228.006 and 370.174. Surpluses in the case of RMAs may include revenue in excess of those needed to pay debt service and fund legally required debt service reserves, maintenance and operation of the toll project and/or toll road system of which it is a part, and reserves for feasibility studies of extensions of the toll road system within the RMA service area. Surpluses in the case of CDA built and/or operated facilities stem from concession fees paid to RMAs or to TxDOT.

3. Other Local Entities' Roles in CDAs

TxDOT and other local entities as well as RMAs have been empowered to negotiate deals with private investors through CDAs to attract private capital to finance local and regional needs. In both Dallas-Fort Worth and Houston, CDA procurement will not involve an RMA. This development and financing model is available to any area of the state where transportation facilities can earn fares or tolls at a level high enough to attract private investors. Where deals are negotiated that produce concession fees and/or revenue surpluses, the state has provided legal means to govern reinvestment of those funds within the districts from which they were generated.

4. Pass Through Finance

An additional mechanism for supporting local investment in transportation projects to supplement traditional highway funding sources is via pass through finance. Pass through financing is the payment by TxDOT to the project developer based on the use of a new facility. This provides a revenue stream from the state highway fund that contributes to the repayment of a portion of the upfront capital costs incurred by a public or private entity developing the project. The exact terms of such agreements are negotiated between TxDOT and the local jurisdiction. TxDOT reimburses a portion of the project cost by making periodic payments for each vehicle that passes through the highway.

Pass through finance projects leverage state highway fund dollars and enable local communities to get a needed transportation project financed and built more quickly than the traditional state program. Another benefit for communities is that they will be reimbursed by the state as travelers use the project. If the use of the road

is high, the state will repay at a faster rate. If the traffic is lower than projected, repayment will occur over a longer period. To the highway user, pass through financed projects look just like traditional highways. Toll collection monies typically paid by motorists through conventional tolling are instead paid by TxDOT as reimbursement to the public or private entities.

Question D.1. Are controls, oversight mechanisms, and accountability mechanisms sufficient for new revenue sources, project financing, and delivery methods?

Issue: House Bill 3588 (2003) states: "Sec. 370.174. (a) Each year, if an authority [Regional Mobility Authority] determines that it has surplus revenue from transportation projects, it shall reduce tolls, spend the surplus revenue on other transportation projects in the counties of the authority in accordance with Subsection (b), or deposit the surplus revenue to the credit of the Texas Mobility Fund." Compliance with this law requires the State of Texas and the RMA or applicable local entity to agree upon what constitutes "surplus revenue" from projects and put accounts in place to ensure that such surplus revenue is spent or deposited in accordance with the law.

Risk: The following are the principal risks:

- Failure to meet the public sector's basic tests of financial accountability, prudence, and integrity.
- Duplication of effort and inconsistency in procedures through which TxDOT exercises responsibilities with respect to RMAs.

1. Answer

TxDOT has issued some limited rules for RMA accounting and financial reporting that require RMAs to report any surplus they earn to TxDOT in annual financial reports. The rules should be more fully developed to provide definitions and procedures for RMAs to follow to determine what constitutes a surplus.

For concession fees and related revenue that TxDOT receives through CDAs there are adequate controls and accountability.

2. Analysis Strategy

The analysis steps are detailed as follows:

- Reviewed the laws and administrative rules applying to RMAs in areas of budgeting, accounting, financial reporting and auditing.
- Reviewed the financial controls and accountabilities that TxDOT requires of RMAs.
- Interviewed staff from TxDOT and several RMAs, including the two RMAs that are most advanced in their development programs, Alamo RMA and Central Texas RMA.

- Interviewed RMA staff regarding their understanding of the financial management requirements imposed upon them by TxDOT.
- Evaluated RMAs' and TxDOT's practices against the prevailing standards of financial management for state and local government institutions.
- Reviewed the laws and regulations governing CDAs and interviewed select district and headquarters TxDOT staff.

3. Findings

- **TxDOT has issued some limited rules for RMA accounting and financial reporting.**

TxDOT has promulgated some limited rules for RMA accounting and financial reporting located in the Texas Administrative Code Title 43, Part 1, Chapter 26, Subchapter G, numbers 23.61 through 26.65. The rules require RMAs to report any surplus they earn to TxDOT in annual financial reports. These surpluses may accrue from RMA operation of their own projects or from concession fees from a private firm under a CDA.

The rules do not provide any concepts or procedures for RMAs to follow in order to determine what constitutes a surplus. Without some further elaboration of the definition of and means used to calculate surplus, RMAs may vary widely in the nature and amount of surpluses they report since the requirements of bond indentures may vary from one bond issue to another.

- **RMAs will not generate a surplus in the near future.**

For RMAs, the prospect of surplus generation remains sometime in the future because only the Central Texas RMA has reached the point that it is generating any revenue and is some way from having to address surplus revenue reporting. The other RMAs are far from the point of receiving project generated revenue. This provides ample time to develop the necessary accountability for surpluses.

- **The rules TxDOT is applying regarding disposition of revenues from CDAs have the appropriate controls.**

TxDOT has issued extensive rules, located in the Texas Administrative Code at Title 43, Part 1, Chapter 27, 27.1 through 27.9 governing the process of procuring, negotiating and finalizing CDAs. These rules provide for an open and competitive process in the selection of a public or private entity to fulfill the terms of each CDA. Detailed terms regarding the amounts of concession and other revenue are negotiated through this competitive process. The amounts and/or the process for determining the amounts to be paid to TxDOT are to be set forth in each CDA. TxDOT is now developing procedures to define how the revenues it derives through CDAs will be used to improve the transportation facilities in the state in accordance with state law (see Question D.1.1 below for more discussion of this point).

D.1.1. Is TxDOT putting in place the tools for monitoring and mapping CDAs' revenue back to districts?

Issue: There are a series of statutory requirements that hold transportation funding from traditional sources harmless in the event of toll project implementation. This includes the requirement that all surplus revenue from a CDA return to the district in which it was collected.

Risk: Without those agreements and controls, TxDOT will not be in compliance with the law.

1. Answer

Yes, although formally documented procedures have not been promulgated work on this issue is ongoing and proceeding in the proper direction. TxDOT staff will follow procedures that will replicate those used to program other "non-state" revenues and should integrate well into the existing processes.

2. Analysis Strategy

The analysis steps are detailed as follows:

- Conducted fact finding to identify any documented procedures.
- Discussed TxDOT efforts currently in progress to establish a process and financial management procedures for CDA revenue.

3. Findings

- **TxDOT will deposit CDA revenue into the state highway fund.**

TxDOT plans to establish a special fund account within Fund 6 that will be available to the district in which the CDA revenue is derived. The Texas constitution, however, mandates that interest from the non-dedicated funds in the Fund will accrue only to the state's General Fund.

- **Programming, funds management and accounting will need to be integrated to assure that the funds are properly programmed and paid**.

TxDOT has a planned framework that will enable projects to be programmed and the source and use of funds managed and accounted for so that revenue from CDA agreements is allocated back to projects in districts from which the revenue is generated. TxDOT plans to follow the existing processes that are used to manage nonstate funds so that the accounting and reporting methods will conform to existing procedures slightly modified to accommodate this new fund source. Future payments will be added to the account. Future commitments, obligations, and outlays will be recorded against and deducted from the available funds.

- **RMAs and other entities entering into CDAs will establish their own agreements regarding their planned use of CDA revenue.**

Unless TxDOT enters into a contract with an RMA or other entity regarding the use of revenue from a CDA in which TxDOT is investing toll equity, there is no state accountability required for the planned use of CDA revenue by that RMA or other entity.

D.1.2. Does TxDOT require management controls and accountability mechanisms for funds provided or loaned to RMAs?

Issue: The Texas Transportation Commission has authorized funds to RMAs for project development. This includes project-related architectural and engineering work performed by issuing contracts to consulting engineers. It appears that, in some instances, the Texas Transportation Commission has loaned districts funds to RMAs. This is a new practice, and there are no guidelines or procedures for TxDOT district responsibilities or accountability. Some districts provide management and other support based on their competencies, such as negotiating with design consultants on behalf of the RMAs. This is materially significant, because on conventionally funded projects, the "plan it" element of cost averages about 25%.

Risk: Without guidelines for accounting for state funds provided to RMAs, the state may fail to meet the public sector's basic financial management tests of probity, prudence, and protection of assets.

1. Answer

Yes, although agreements have been completed on a case-by-case and project-by project-basis. TxDOT now requires a standardized framework to enable management control.

2. Analysis Strategy

The analysis steps are detailed as follows:

- Interviewed a sample of those TxDOT officials who have provided funds to RMAs as well as those who are responsible for the accounting of funding and loans.
- Interviewed a sample of RMA officials who have received funding from TxDOT.
- Obtained and reviewed copies of a sample of the funding agreements made between TxDOT and RMAs.[123]

[123] Agreements between TxDOT and the following RMAs were reviewed: Central Texas, Alamo, Cameron County, and Hidalgo County.

3. Findings

- **The funding arrangements between TxDOT and RMAs have developed on a case-by-case basis.**

Agreements between TxDOT and RMAs have been completed on a case-by-case basis. Agreements range in size and complexity from agreements to fund project development activities such as planning, environmental analysis, and preliminary engineering, to agreements to share the cost of construction. Exhibit VIII-1 summarizes the nature of the memoranda of agreement and master agreements between TxDOT and each RMA.

Agreements are negotiated at the district level, with each district establishing its own structure and processes. To date most agreements have followed a similar format: They are reviewed and approved centrally, ultimately by the Texas Transportation Commission. There are no centrally approved guidelines that constituent units of TxDOT must follow concerning any accounting for financial or in-kind assistance.

D.1.3. Are management controls and procedures in place to ensure that decision-making regarding projects financed through CDAs, pass through finance, or other RMA actions is integrated into TxDOT procedures for compliance with federal requirements?

Issue: RMAs are granted many of the powers of the state to develop tolled and non-tolled highways, to acquire land, to issue bonds, to charge or regulate tolls, and to provide commercial ancillary services. RMAs may also assume control of toll facilities that are currently operated in their region by a local authority. RMAs may enter into pass through finance agreements with municipalities or counties, and they may enter into CDAs with private parties. While the RMA develops and funds projects, the corresponding MPO plans them. TxDOT will need to ensure consistency in managing its relationships with RMAs and MPOs as they evolve.

Risk: The principal risk is that the responsibilities for oversight of the relationships among TxDOT, MPOs, and RMAs are not clarified and exercised.

1. Answer

Oversight procedures are under development. For all applicable projects, TxDOT's approach is for the new financial management, accounting, and monitoring procedures to follow those now used for federal funds. TxDOT's plan is that RMA funding agreements would specify the requirements that must be met and compliance would be largely a matter of engineering oversight to assure that the requirements of the agreements were being followed.

2. Analysis Strategy

The analysis steps are detailed as follows:

- Conducted interviews with TxDOT and RMA managers to identify current practice.
- Evaluated statutory requirements.

3. Findings

- **There are no standardized policies or guidelines, although RMA law requires they only undertake projects approved by the MPO for their area.**

RMA laws and rules require them to undertake only those projects approved by the MPO for the area. If federal funds are employed, TxDOT will oversee project development to assure that all federal requirements are met so the funds can flow to the project. Similarly, TxDOT applies project prioritization and selection criteria to guide the state's investment decisions against TxDOT's strategic plan goals.

The Transportation Commission funds pass through finance commitments through UTP Category 12, Strategic Priority. Project indices and other methods are being developed so that applications for pass through finance projects, among others, can be evaluated against their contribution to Strategic Plan goals.

D.1.4. What are TxDOT's accountabilities with respect to pass through finance with counties and municipalities?

Issue: TxDOT, RMAs, and counties may jointly undertake toll roads with pass through finance, where TxDOT funds the road on a per-vehicle or per-vehicle-mile basis. Counties may pledge these revenues in their bond issues to fund these projects.

Risk: The pledges of TxDOT and the counties represent a significant transfer and sharing of project risks, which must be fully understood by those responsible for the oversight of these agencies.

1. Answer

TxDOT assumes numerous accountabilities when it enters into pass through finance agreements with other entities. These accountabilities are both financial and procedural because projects developed under these pass through finance agreements must be developed in accordance with all applicable state and federal laws and regulations to be eligible to receive the pass through finance agreements payments from TxDOT that will consist of both federal and state funds. There are specific accountabilities prescribed in each pass through finance agreement.

The nine existing pass through finance agreements were reviewed and conform to state law and regulations pertaining to pass through finance. They address the explicit accountabilities of the parties including TxDOT. TxDOT district and central staff must monitor project progress to assure developers meet the requirements necessary to qualify to receive state and federally supported pass through finance. TxDOT programming staff will need to continue to review future and proposed pass through finance commitments to assure that funds are available to pay the pass through finance when due.

2. Analysis Strategy

The analysis steps are detailed as follows:

- Reviewed the pertinent sections of the Texas Transportation Code at Chapter 222.104 Texas Administrative Code Title 43, Part 1, Chapter 5, Rule 5.51-5.59.
- Analyzed documentation on the nine pass through finance agreements that have been executed to date between TxDOT and other entities, (all local governments).

3. Findings

- **Texas law and regulations were enacted and issued in 2005 to permit TxDOT to enter into pass through finance agreements with public or private entities.**

The law and regulations governing pass through finance agreements (Texas Transportation Code at Chapter 222.104 and Texas Administrative Code Title 43, Part 1, Chapter 5, Rule 5.51-5.59) address two general types of pass through finance arrangements: One arrangement provides for TxDOT to pay pass through financing to a public or private entity that develops a transportation project that meets TxDOT requirements. In such cases, TxDOT is permitted to pay pass through finance to the project developer sufficient to pay the cost of the project but is prohibited from participating in any financing cost the developer may incur. It is, however, permitted to use an inflated cost value if the developer delivers the project earlier than it would have been built under traditional TxDOT funding methods. The second arrangement provides for TxDOT to develop a transportation project and then receive pass through financing from a public or private entity to recover some or all of the cost.

- **To date the Transportation Commission has approved nine pass through finance agreements.**

Some 28 applications for pass through finance projects have been made: There are 9 executed agreements in place and a further 12 are under negotiation. Exhibit VIII-2 lists the approved pass through finance agreements. All nine agreements made to date are with cities or counties. No agreements have been made with local toll authorities, RMAs, or private entities. Eight agreements provide for the local government to be the developer of the project and receive pass through financing from TxDOT. The agreement with Comal County provides for TxDOT to develop a project and receive pass through financing from the county to reimburse it for part of the cost of the project. This agreement provides for a single lump sum payment from the county prior to the receipt of construction bids and so follows more closely a traditional local participation agreement in a state project than a pass through finance agreement.

Exhibit VIII-2: Commission Approved Pass Through Finance Agreements as of May 3, 2007

				Approved Terms			
Sponsor	**Project**	**District**	**Agreement**	PVM - Min-Max (millions)	Term	**Project Cost ($M)**	**Pass Through Amount**
Bexar County	Improvements to FM 3487, etc.	San Antonio	2/8/2007	.10 - $3.75 - $7.51	5-10 yr	$53.0	$37.6
Comal County	Widening SH 46	San Antonio	4/27/2007	.10 - $2.67 - $4.00	4-6 yr	$44.0	$16.0
Galveston County	Improvements to FM 646	Houston	4/30/2007	.15 - $2.68 - $5.37	10-20 yr	$66.3	$53.7
Grayson County	Const. of 12 mile ext SH 289	Paris	11/17/2006	.15 - $5.28 - $7.04	12-16 yr	$63.0	$84.5
Hays County	Improvements to US 290,etc.	Austin	12/20/2006	.14 - $6.66 - $13.32	10-20 yr	$184.3	$133.1
Montgomery County	Const. FM1484,1485,etc.	Houston	9/16/2005	.07 - $10.5 - $17.447	10-17 yr	$219.4	$174.4
San Marcos, City of	Wonder World Dr. Expansion	Austin	10/23/2006	.15 - $3.03 - $6.06	10-20 yr	$48.5	$60.6
Weatherford, City of	Const of SH 171/FM 51, etc.	Fort Worth	11/22/2005	.15 - $3.496 - $5.244	10-15 yr	$53.3	$52.4
Williamson County	Const of US 79, US 183, etc.	Austin	2/22/2006	.10 - $7.59 - $15.19	10-20 yr	$174.8	$151.9

- **All nine agreements create financial obligations for TxDOT.**

The eight agreements in which the local government is the developer require TxDOT to pay pass through financing on an agreed schedule up to a total "not to exceed" amount. In some cases the pass through financing is intended to fully reimburse the local government developer for the estimated costs of the project, but in most the TxDOT obligation is less than the estimated cost. All these agreements include a pass through finance payment methodology and specify minimum and maximum payments in a given period, usually a year. In some agreements, TxDOT assumes up front financial obligations to pay for specified services within the project scope such as preconstruction engineering or right-of-way.

- **TxDOT assumes both current and future financial obligations in all nine agreements.**

Current obligations create commitments of current year funding and so can be accounted for in the normal manner of fund commitments. Future year obligations become commitments of future revenues and so require special treatment. The Transportation Commission funds these commitments through UTP Category 12, Strategic Priority. This category has a preliminary FY 2007 allocation of $150.9 million. The TxDOT programming staff maintains a record of the commitments made under the approved pass through finance agreements by future fiscal year to assure that sufficient funds are reserved to pay them and to identify when the potential arises for over commitment. TxDOT reports these commitments as a footnote on its financial statements and will record liabilities as appropriate.

In those agreements where the local government is the developer, TxDOT generally requires it to meet all the requirements for highway projects under state and federal laws and regulations to qualify to receive state and federal funds. These requirements include state and metropolitan planning requirements, environmental requirements, design and construction standards, right of way acquisition and access rules, civil rights and fair labor standards. In these cases, TxDOT assumes an oversight and review role over the developer to ensure all these requirements and standards are met. In all agreements TxDOT has assumed responsibility for maintenance of the completed facility.

- **Each agreement also places an implicit obligation on TxDOT to assure successful completion of the project after substantial work toward project completion has occurred.**

It will be very difficult, especially after construction is underway, for TxDOT to terminate the project because the developer does not meet some of the requirements cited above. If such a case arose, we believe public pressure would make it necessary for TxDOT to take over the project directly and complete it. The agreements we reviewed contained no specific remedies to address such failures on the part of the developer to meet its contractual obligations.

- **Under the eight agreements in which the local government is the developer, the local government is financing most of the cost of the project up front.**

Future TxDOT pass through financing reimburses the developer for some or all of the cost the developer incurs, excluding all financing costs. We did not determine in our review how the developers in these agreements raised the capital to pay for their portion of project costs initially; it is likely that much of these funds were raised through issuance of debt. Neither TxDOT nor the State of Texas is liable for any of this debt, but if default occurs we believe there may be public pressure for the state to assume some financial responsibility because the facility that debt financed has become part of the state owned transportation infrastructure.

Question D.2. Which controls and accountabilities should be placed on RMAs?

Issue: The relationships and relative roles between MPOs, RMAs, and TxDOT are evolving. Further, the role of TxDOT's districts in project finance, MPO planning, and project decision-making has changed in recent years. Project development and finance must follow a complex set of federal, state, and local policies and procedures. RMAs across TxDOT are in varied levels of institutional development. This audit area evaluates risks and requirements that will need to be addressed to provide clarity and ensure the efficiency and effectiveness of these new institutional relationships.

Risk: The principal risk arises for TxDOT managers because accountability for funds provided or loaned to the RMAs by the Texas Transportation Commission has not been defined. This has the potential to represent large sums. For example, funds from one district of approximately $21 million have been loaned to an RMA for project development work. Further, TxDOT incurs risks if there are inconsistent practices with respect to controls and accountabilities across TxDOT districts.

1. Answer

To date, limited and fragmented controls and accountabilities have been imposed on RMAs. The policy intent is for local control of RMAs. There is a state interest in the provision of assistance to RMAs to ensure standardized controls and accountabilities that address:

- Financial planning and budgeting.
- Accounting and financial reporting.
- Auditing and compliance.
- Procurement.
- CDA procurement.

2. Analysis Strategy

The analysis strategy involved identifying and evaluating current financial management practices against legislative requirements and the prevailing standards for financial management practice in state and local governments.

The analysis steps are detailed as follows:

- Reviewed the laws and administrative rules applying to RMAs in the areas of budgeting, accounting, financial reporting and auditing.
- Interviewed staff from TxDOT and RMAs, including the two RMAs that are more advanced in their development programs: Alamo RMA and Central Texas RMA.
- Assessed current practices against the prevailing standards in financial management for state and local government institutions.

3. Findings

- **The financial management guidelines provided to RMAs are very limited.**

Potential investors in RMA issued securities will require more sophisticated financial management processes for RMAs than those specified in current laws. RMAs, because they are at an early stage of development, could benefit from stronger state requirements for their financial management that anticipate the requirements that RMAs will be required to meet as part of their debt covenants. The early development of standards for budgeting, accounting, financial reporting and auditing can ensure consistency and prevent any future differences between RMAs and the state regarding financial management standards.

- **Development of common standards for accounting, budgeting, and financial reporting among RMAs will ensure greater accountability and be more efficient.**

Common standards for accounting and financial reporting will enhance the ability of the state to compare the results of the various RMA systems. They will also be more efficient because there will be an economy of scale and each RMA will not have to develop new budgeting, accounting, and related procedures. Appendix D provides perspective and direction on the types of guidelines that would benefit RMAs.

D.2.1. What are the risks of duplication of functions and competencies between RMAs, MPOs, and TxDOT?

Issue: RMAs have authority for project development and funding, while MPOs generally conduct planning. Project selection is a process involving coordination and consultation between local agencies, MPOs, and TxDOT. MPOs have the institutional capacity, tools, and capabilities to do analysis and travel demand modeling to evaluate the impacts from projects proposed for RMA development. The MPO planning process identifies transportation system solutions, needs, and an agreed plan for the development of the multi-modal transportation system. Therefore, MPOs have a considerable institutional capacity that can be used by RMAs to evaluate project alternatives.

Risk: It appears to date that there is coordination; an evaluation of the potential for the duplication of staffing and failure to use all investment in analytical capabilities will merit audit analysis.

1. Answer

The risk of duplication at present is slight. RMAs have limited working capital, personnel, or funds to support start-up. To date, TxDOT has provided start-up assistance through grants, loans, and in-kind expertise. As RMAs develop, the risk may increase if they develop functions and competencies that are at MPOs or TxDOT districts.

2. Analysis Strategy

The analysis steps are detailed as follows:

- Interviewed staff of various RMAs, MPOs, and offices of TxDOT regarding respective roles in the transportation planning, project development, and project finance and delivery process.
- Interviewed the staff of toll authorities and transit agencies.
- Analyzed different functions performed and anticipated to be performed by RMAs, TxDOT, and other entities.

3. Findings

- **RMA and MPO staff members view their roles in the transportation planning and project development process as quite distinct.**

RMAs view themselves as developers of projects that MPOs and TxDOT have placed in various plans and programs following state and federal planning and programming requirements. Because the RMAs' programs are at a nascent stage, they are challenged to implement one or two of the already planned and approved projects. Their currently stretched capacities offer little latitude for redundancy with existing capacities at MPOs and TxDOT.

- **Negotiations between TxDOT and RMAs on project funding will further reduce potential for duplication.**

The likelihood of duplication is further limited near term by the fact that virtually all RMA projects for the foreseeable future will require some kind of state financial subsidy or toll equity. In the process of negotiating agreements between the state and RMAs for this funding, TxDOT will have ample opportunity to assure that RMAs are not duplicating functions in the project development area.

- **The potential for duplication will exist in the longer term.**

In the longer term, the risk of duplication will increase if RMAs develop financially successful projects and systems. This would be similar to when a local toll authority develops to the point where it has the financial capacity to finance large projects on its own without toll equity or other financial contribution from the state. Such financial independence would enable an RMA to pursue projects the state or MPO might not prefer, and opens the door to conflicts and duplication of effort with other local and state agencies. Areas where duplication would exist most likely involve traffic and revenue studies and project planning where independent RMAs could develop in-house capacities that would duplicate the work of MPOs and TxDOT planning functions.

D.2.2. Are management controls sufficient to properly account for sources and uses of funds in multi-modal projects?

Issue: Multi-modal projects are often funded from a wide variety of sources: capital might be drawn from several programs, reflecting the span of several modes, and operating revenues are, likely, to come from mature and complex sets of tariffs. The management controls that are currently used to account for the multiplicity of funds used in multi-modal project are applied centrally, by modal experts in TxDOT. If multi-modal projects are to be managed alongside highway projects on the basis of their outcomes then all RMAs will require the same sorts of controls in place to manage multi-modal projects.

Risk: RMAs do not make mode-neutral selections of multi-modal projects because they do not feel properly equipped to manage them; superior multi-modal projects may be passed over as a result.

1. Answer

We found no examples of multi-modal projects toward which RMAs are working. To date no projects have been evaluated or under consideration that would generate revenue from non-highway modes or that involve the

investment of equity by other modes. This indicates that management controls regarding the sources and uses of funds on multi-modal projects are not required. In the event that an RMA or other entity were to develop a park and ride facility or multi-modal terminal through a CDA, the recommendations in audit area D.2 would address issues regarding the source and use of funds.

2. Analysis Strategy

The analysis steps are detailed as follows:

- Interviewed TxDOT, RMA, and other agency staff regarding multi-modal projects.

D.2.3. Should the financial securities offered by RMAs be back-stopped?

Issue: RMAs are new organizations without any credit history. Further, compared to TxDOT or local toll authorities, their costs of capital might be higher.

Risk: There is risk that RMAs' lack of experience will result in higher costs of capital, in terms of their bond ratings and the risk margins that private concessionaires build into their bids.

1. Answer

Yes, a broad strategy of back-stopping project financing including credit support should be considered to reduce RMAs' cost of capital, increase toll feasibility, and increase the competitiveness of CDA procurement. Experience to date confirms expectations regarding the risk management practices in the capital markets. Because RMAs are new organizations with no financial history, limited working capital, and no assets, they will pay more for their capital than TxDOT, established toll authorities, or private entities. Back-stopping would address this and reduce the cost of capital and increase the competitiveness of the public sector comparator in the CDA procurement process.

The State of Texas and its local governments can act to improve the creditworthiness of RMA projects. Almost all RMA toll road projects will require the infusion of equity through a concession or government financing in the form of toll equity or grants to be financially viable at the outset. Some direct support to the creditworthiness of the RMAs will reduce their cost of capital. The recent experience of the Central Texas RMA is indicative of the costs that could be saved through back-stopping. The Central Texas RMA had to purchase bond insurance that cost $9 million that was just over 5% of the proceeds from its bond issue for the 183A project; the Texas Turnpike

Authority also had to purchase insurance for the Central Texas Turnpike. Such requirements for bond insurance could be a severe strain on projects with weaker credit than these projects. Successful back-stopping would result in higher bond ratings that will save money.

2. Analysis Strategy

The analysis steps are detailed as follows:

- Analyzed the Central Texas RMA for the 183A project, the only RMA bond financing that has occurred to date.
- Reviewed national experience with toll road financing including that of the other local toll authorities in Texas, NTTA and HCTRA.

3. Findings

- **In general toll road systems in their start-up phase cannot be 100 percent funded through revenue bonds.**

National experience shows that few toll roads generate enough expected toll revenue in their start-up phase to induce bond investors to provide all the capital needed to build and begin operations of the facility. Experience in Texas confirms this situation.

The Central Texas Turnpike System, the Texas Transportation Authority's project that is adjunct to the RMA's 183A project was selected by the Bond Buyer newspaper as the most creatively funded bond financed project in the southwestern United States.[124] The Bond Buyer cited the mix of local grants, state grants, federal loans, and private debt as its reason for this citation. This citation, while impressive, underlines the funding challenges that local and state toll authorities face in making their projects a reality. It is nearly impossible to finance a new greenfield toll project by capitalizing the prospective net revenue flow from tolls that can be charged on the facility.

Less than half the project cost of 183A had to be financed from the public bond issue. The project cost approximately $230 million: $18 million came from Williamson County as contributed right of way, $52 million was provided in toll equity grants from TxDOT, and there is a $66 million TIFIA loan from the Federal government.

[124] Bond Buyer; 27 November 2002.

- **Despite the considerable financial support for the 183A project from public sources, the Central Texas RMA still faced a bond rating of BBB- and was advised it might not be able to sell the bonds without bond insurance.**

The Central Texas RMA had to purchase bond insurance at a cost of over $9 million to raise the quality of its credit to secure financing and obtain a reasonable though somewhat elevated interest rate on its bonds. Without back-stopping RMAs will pay more for their capital than TxDOT, toll authorities, or other governmental agencies. Toll revenue is uncertain for any prospective project, but more so when the authority seeking to build the facility has no track record and the project is breaking new ground.

A further problem that the Central Texas RMA faced in its financing package was the very conservative estimates of traffic flow and revenue to be expected from the 183A project. In the early stages of operation, traffic volumes are much higher than projected. The credit rating agencies for municipal bonds (the type RMAs will issue) will accept traffic and revenue estimates from only three domestic firms, all of which adopt a very conservative approach.

D.2.4. Are there economies of scale that can be realized across RMAs and concessionaires?

Issue: RMAs are forming to provide regional and local solutions to project funding needs. There is an issue regarding whether there are economies of scale across projects and RMAs that can be yielded across the various concessionaires and tollways. For example, TxDOT currently plans to yield efficiencies by providing one back office for administering the bills and will provide standardized toll-tag support.

Risk: Costs will increase if economies of scale are not realized.

1. Answer

Yes, as is the case with toll revenue collection and processing.

2. Analysis Strategy

The analysis steps are detailed as follows:

- Evaluated functions performed by RMAs, TxDOT, and concessionaires.

3. Findings

- **Toll collection systems benefit from economies of scale.**

TxDOT has developed toll collection systems for its state toll roads and has made the toll collection facility available to the Central Texas RMA for its 183A project. This facility relieves the Central Texas RMA from developing a separate toll collection facility on its own and will create a beneficial economy of scale.

- **Other opportunities to benefit from economies of scale will arise in the areas of transportation planning; traffic forecasting; and financing issues including debt finance, CDA procurement, and maintenance and operations.**

In the above cases, collaboration among the state, local governments, MPOs and RMAs can create economies of scale by avoiding duplication of functions and bringing experienced staff to bear on key processes and decisions that lead to successful projects. This collaboration is occurring somewhat, but actions could be taken to enhance it and make it routine. One way to ensure the RMAs collaborate with other state and local transportation agencies is for the state to provide some operating support in the early stages thus establishing a strong relationship from the beginning. We found that such support is needed when the RMAs are in their start-up phase.

The Central Texas RMA received two grants of $550,000 each from its sponsoring counties, Travis and Williamson, to pay for its operations to the point where bond proceeds could be obtained. These grants were not loans and created no financial liability for the Central Texas RMA. TxDOT also contributed funds on a matching basis to finance the early activities. This secure funding gave the Central Texas RMA the ability to organize, obtain professional staff and consultants, and move deliberately toward project development and construction. Even so, on the eve of the issuance of bonds for the 183A project the Central Texas RMA funds were so low the Executive Director of the authority was forced to delay hiring some needed staff until the bond funds were actually secured.

The other RMAs are operating on much lower funding from their sponsors, funding that takes the form of loans as opposed to grants. The state has not provided matching funds for their operating costs although TxDOT has provided some of their preliminary engineering funds as loans to advance project plans. More mature RMAs offer valuable experience and advice to those just starting out.

C. Recommendations

D.1.1 Define what constitutes an RMA surplus and a method for calculating said surplus.

It is recommended that guidelines be developed regarding what constitutes a surplus as part of developing a set of financial management guidelines governing budget cycles and structure, accounting bases, controls and account structures, financial reporting formats, and financial and compliance auditing guidelines for RMAs. These financial management guidelines should allow RMAs to follow the financial guidelines of the counties or municipalities that form them.

D.1.2 Finalize, document and issue the rules and procedures that ensure CDA revenues are used as required by law.

Procedures currently under development by TxDOT address this recommendation. The rules provide for the funds to be deposited to the specific fund accounts designated for the district from which the fees were earned and provide for communication of their availability to the TxDOT offices that are responsible for assigning and releasing those funds to approved projects in that region.

D.1.3 Establish agreement guidelines encompassing approved uses of state funds provided to RMAs.

This recommendation involves establishing guidelines for the approved use of funds provided by TxDOT to RMAs and for monitoring and auditing the use of the funds to ensure compliance with the guidelines. Such guidelines would compliment the procedural controls. These guidelines would address such issues as when TxDOT funds may be used for administrative and general expense as well as direct project cost, when and if repayment of funds provided is required, and terms of repayment.

The guidelines should also address specific financial and compliance auditing requirements for RMAs. RMAs should be specifically required to obtain annual audits conducted in accordance with Generally Accepted Audit Standards, the standards of the US General Accounting Office ("yellow book"), and the US Office of Management and Budget (OMB Circular A-133). RMAs that issue debt are generally required to meet these requirements under their debt indentures.

D.2.1 The State should specify minimum budgeting, accounting, and related standards for RMAs.

The recommendation is that that the State, under its authority to set rules governing accounting and auditing (of which we view financial planning and budgeting to be a subset), specify some minimum budgeting standards for RMAs that encompasses the scope of the issues detailed in the findings section to audit question D.2. These rules would specify budget cycles and structures and make assignments of responsibilities within these cycles for the RMA board members and staff. Implementing these rules while RMAs are developing will provide needed guidance, avoid the uneven development of structures and processes that may lead to conflicts later, and provide an economy of scale.

D.2.2 The State should establish a mechanism to improve the creditworthiness of RMA projects.

The recommendation is that the State of Texas and its local governments act to improve the creditworthiness of RMA projects. Some direct support to the creditworthiness of the RMAs will be helpful. Bond insurance cost CTRMA a little over 5% of the proceeds from its bond issue for the 183A project. This cost could be a severe strain on projects with weaker credit than the 183A. The full faith and credit of Harris County helped the now very financially successful HCTRA system take off. These proposals involve the state and/or local governments accepting risk on RMA projects. With this risk there also comes opportunity to initiate a local system that will ultimately generate the revenue to finance future projects. Any mechanism that the state uses to improve the creditworthiness of RMA projects will require increased oversight of those projects by TxDOT or another state agency along the lines of recommendations D.1.1 through D.2.1.

Recommendation B.3.2, that TxDOT or another state entity should make equity investments in toll projects, would be such a mechanism. Other mechanisms could include insuring the bond issues of RMAs via a pledge of debt service relief in case of pending default or allowing the credit of the state or local governments to be pledged to back up the RMA debt in the form of a loan guarantee.