Utah Department of Transportation

Review of Cash Management Practices

FINAL REPORT

Table of Contents

Executive Summary ................................................................................................................. E-1
  A. Introduction .................................................................................................................. E-1
  B. Approach ...................................................................................................................... E-1
  C. Variables That Impact the Cash Balance ..................................................................... E-2
  D. Summary of Issues and Recommendations ............................................................ E-4

I. Introduction ......................................................................................................................... 1
  A. Background .................................................................................................................. 1
  B. Approach ...................................................................................................................... 2
  C. Report Structure ......................................................................................................... 3

II. Variables That Impact the Cash Balance ......................................................................... 4
  A. Introduction .................................................................................................................. 4
  B. Revenue Forecast ........................................................................................................ 4
  C. STIP Development and Budgeting ............................................................................. 4
  D. Programming Funds for STIP Projects .................................................................... 10
  E. Project Delivery .......................................................................................................... 10

III. Cash Management Policy, Management Controls, and Procedures ......................... 12
  A. Introduction .................................................................................................................. 12

IV. Cash Management Information and Monitoring ................................................................ 16
  A. Introduction .................................................................................................................. 16
  B. Issues, Findings, and Recommendations .................................................................... 16

V. STIP Development and Budgeting ................................................................................. 19
  A. Introduction .................................................................................................................. 19
  B. Issues, Findings, and Recommendations .................................................................... 19
VI. Project Delivery ................................................................................................................. 22
   A. Introduction .................................................................................................................... 22
   B. Issues, Findings, and Recommendations ........................................................................ 22

VII. Concept Model for Recommendations ............................................................................ 25
   A. Introduction .................................................................................................................... 25
   B. Dynamic Cash Flow Forecasting .................................................................................... 25
   C. Key Components of the Cash Flow Management Model .................................................. 27
   D. Management Reporting Responsibilities .......................................................................... 29

APPENDIX A: Best Practices Survey
Executive Summary

A. Introduction

The Overview Assessment identified a large concern of the Utah Department of Transportation (UDOT) management that there needs to be explicit policies and stronger management controls and procedures for cash management. These procedures must ensure that the fiscal analysis undertaken to financially constrain the Statewide Transportation Improvement Program (STIP) and manage STIP delivery meets with UDOT’s requirements for cash management. The purpose of this Review of Cash Management Practices focus area analysis is to evaluate these and other cash management issues, and to develop recommendations that will enable UDOT to establish stronger policies, procedures, and accountability structures that minimize the risk of having a deficit fund balance and improve cash management practices.

The recommendations made in this report reflect the following attributes of good cash management for a state transportation provider:

- Policy, procedures, and accountability for decision making that impacts cash are in place.
- Sufficient cash should be available at the time required to cover expenses without having to borrow.
- Funds should be put to work on projects as early as possible to maximize benefits to highway users.
- The necessary tools and information should be at hand to make informed cash management decisions and minimize the risk of deficit fund balance at the close of the fiscal year.

B. Approach

The review involved the following steps:

- Evaluation of the procedures and practices used to forecast funds required to implement the STIP.
- Determination of the current and future business requirements for cash management.
- Assessment of how STIP management practices are impacting cash management.
- Evaluation of current policies, procedures and management controls.
- Review of organizational roles and responsibilities.
- Conducting a best practice survey of other states to identify applicable improvement opportunities.
C. Variables That Impact the Cash Balance

As UDOT delivers its programs, a number of variables impact the Department’s cash balance. These are summarized in Exhibit E-1 on the following page.

- **Revenue Forecast.** Historically, the Department has used a number below other state agencies’ forecasts to be on the conservative side. This has worked well in the past, until fiscal year 1998 when revenues fell approximately $10 million below the “conservative” estimate.

- **State Match Estimate.** The Department’s state match estimate is based on historical participation ratios by major funding category. This method has worked well enough in the past; however, recently the method has been less precise as a result of participation ratios changing with TEA-21. As the Department works with smaller cash balances the accuracy of the state match estimate increases in importance.

- **Programming Funds for STIP Projects.** Program management is almost exclusively focused on ensuring that all available federal funds are obligated. As projects are entered into the annual STIP, the Program Development Group sets up, in one fiscal year, the entire approved funding for the projects regardless of the project duration. Many projects are multi-year and preliminary engineering and right-of-way costs are incurred in prior years before a project is let. For this reason actual construction-related costs in a given fiscal year are not equal to programmed STIP funding. The Department does not currently produce a cash flow projection of the STIP.

- **Project Delivery.** As UDOT’s capital program is delivered in any given fiscal year, the following project delivery decisions are made in response to timing and changes in scope which have a direct impact on the demand for cash:
  - The month or quarter a project is let for construction.
  - Decisions to go advanced construction on a project.
  - The overall level of accrued unbilled amounts on federal projects.
  - Project change orders and if/when to modify federal agreements.
  - Use of consultants.
  - The size and timing of Orange Book contracts.

- **Pace of Federal Reimbursement.** UDOT is efficiently securing the fast reimbursement of funds from the federal government.
Exhibit E-1: Variables Impact Cash Balance

1. Revenue forecast for fiscal year - *is it accurate?*
2. New STIP for given fiscal year –
   Variables:
   - State match estimate – *is it accurate?*
   - Any advanced construction decisions?
   - Types and mix of projects will affect flow and timing of expenditures
   - When will the project be let – *is timing linked to cash availability?*
   - Accrued unbilled amounts on federal projects – *affects cash balance*
   - Use of consultants

3. Ongoing Agreements or Programs –
   Variables:
   - Operating programs (appropriations) – *when is anticipated expenditure?*
   - Transfers to other agencies and other funds – *when is anticipated expenditure?*
   - Preservation program (Orange Book Contracts) – *timing of contract award, contract amounts*

Preliminary Engineering and Prior Year STIP Obligation
- Financial obligation on multi-year projects from prior fiscal year(s)
- P.E. and ROW costs incurred for subsequent fiscal year(s) STIP projects

Are there sufficient revenues to fund:
- this fiscal year STIP expenditures
- ongoing agreements/programs
- P.E. and ROW costs incurred for STIP projects in subsequent fiscal year(s)

*If not, what will not get done?*

Time

July 1

June 30
D. Summary of Issues and Recommendations

Issues and recommendations are summarized below in Exhibit E-2.

**Exhibit E-2: Summary of Issues and Recommendations**

<table>
<thead>
<tr>
<th>A. Cash Management Policy, Management Controls, and Procedures</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Issue: There is limited policy, management controls, and procedures for decisions that affect cash.</td>
</tr>
<tr>
<td><strong>Recommendations:</strong></td>
</tr>
<tr>
<td>• Establish policy and procedures that ensure that the Office of the Comptroller has direct authority over:</td>
</tr>
<tr>
<td>− Monitoring and forecasting revenue.</td>
</tr>
<tr>
<td>− Monitoring and forecasting cash flow, including for STIP delivery.</td>
</tr>
<tr>
<td>− The overall level of accrued unbilled amounts on federal projects.</td>
</tr>
<tr>
<td>− Decision to go advanced construction on projects.</td>
</tr>
<tr>
<td>• Establish policy and procedures that ensure that the Office of the Comptroller has approval authority regarding financial feasibility of:</td>
</tr>
<tr>
<td>− Annual project letting schedule and changes.</td>
</tr>
<tr>
<td>− Size and timing of Orange Book contracts.</td>
</tr>
<tr>
<td>− STIP and amendments to the STIP.</td>
</tr>
<tr>
<td>• Establish business rules and procedures governing the management and control of federal and state authorization for projects and changes to authorization amounts to ensure that cash management impacts are addressed.</td>
</tr>
<tr>
<td>2. Issue: Cash management and related issues are not understood or important to areas outside the Comptroller’s Office.</td>
</tr>
<tr>
<td><strong>Recommendations:</strong></td>
</tr>
<tr>
<td>• Communicate the recommended policies and procedures to increase understanding of the importance of cash management.</td>
</tr>
<tr>
<td>3. Issue: Current legislation does not allow UDOT to co-mingle the significant cash reserves in the Centennial Highway fund to manage the Transportation Fund Balance.</td>
</tr>
<tr>
<td><strong>Recommendations:</strong></td>
</tr>
<tr>
<td>• Seek legislative authority to transfer funds from the Centennial Highway fund to the Department’s Transportation Fund Balance on a short-term basis to manage unanticipated cash needs.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>B. Cash Management Information and Monitoring</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Issue: Current cash management monitoring methods are ad hoc and after the fact, resulting in a reactive rather than proactive approach to cash management.</td>
</tr>
<tr>
<td><strong>Recommendations:</strong></td>
</tr>
<tr>
<td>• Implement a monthly cash management reporting system to provide the Office of the Comptroller information from which to apply stronger management controls:</td>
</tr>
<tr>
<td>− Use the recommended STIP cash flow projection.</td>
</tr>
<tr>
<td>− Undertake revenue forecasting as part of cash management and financial planning.</td>
</tr>
<tr>
<td>− Hold monthly meetings on cash management.</td>
</tr>
<tr>
<td>− Strengthen existing revenue forecasting model and perform monthly variance analyses.</td>
</tr>
<tr>
<td>• Develop tools to perform longer-range revenue projections.</td>
</tr>
</tbody>
</table>
Use the model to determine longer-range state match requirements and whether policy change is needed to enable the substitution of federal for state funds in the Centennial Highway fund.

- Minimize cash balances through proactive use of short-term borrowing from the State Treasury to manage special cash needs (for example, advanced construction).

### C. STIP Development and Budgeting

1. **Issue:** The state match estimate is not built from the project level upward but is instead based on historical percentages.

   **Recommendation:**
   - Refine development of state match estimate to be built up from project level and to reflect participation ratios consistent with TEA-21.

2. **Issue:** There is no cash flow projection of the STIP and budget/expenditure based program management.

   **Recommendation:**
   - Develop a dynamic monthly cash flow projection of the STIP to include preconstruction, contractor payments, federal reimbursement schedule and consultant costs.
   - Use the Preconstruction Program Management System (PPMS), Contractor Payment model, and other existing tools as the basis for cash flow projection of the STIP delivery.
   - Require Comptroller’s Office approval for project timing decisions to better mesh with cash flow considerations.

3. **Issue:** Orange Book contracts can use up funds quickly depending upon the timing and amount of contracts.

   **Recommendation:**
   - Require Comptroller’s Office approval over the timing and size of Orange Book projects to ensure cash availability.

### D. Project Delivery

1. **Issue:** Decisions to go advanced construction on federal aid projects reduce cash balance.

   **Recommendation:**
   - Decisions to go advanced construction need to factor in if funds are available. For this reason, these decisions should require approval from the Comptroller’s Office.
   - Given the limited availability of state funds UDOT should aim to use advanced construction only in the “window” between the beginning of the state fiscal year and the end of the federal fiscal year.

2. **Issue:** Large accrued unbilled amounts on federally funded projects are costly and reduce available state funds for federal match and other expenditures.

   **Recommendations:**
   - Given that the Department is operating with reduced cash balances, reduce the amount and actively manage accrued unbilled balances by project on a weekly basis.
   - Decisions on the level of accrued unbilled costs and if/when to modify agreements on federal contracts are budget decisions. These decisions most appropriately fall within the Comptroller’s Office area of responsibility.
I. Introduction

A. Background

The Overview Assessment identified a large concern of the Utah Department of Transportation (UDOT) management that there needs to be explicit policies and stronger management controls and procedures for cash management. These procedures must ensure that the fiscal analysis undertaken to financially constrain the Statewide Transportation Improvement Program (STIP) and manage STIP delivery meets with UDOT’s requirements for cash management. The purpose of this Review of Cash Management Practices focus area analysis is to evaluate these and other cash management issues, and to develop recommendations that will enable UDOT to establish stronger policies, procedures, and accountability structures that minimize the risk of having a deficit fund balance and improve cash management practices.

A number of factors are driving the Department’s concerns. A significant issue is state law restrictions on how UDOT can use a large proportion of state revenue. In addition, the program has grown as a result of TEA-21 increasing the overall state match required. As a result of this, UDOT has less flexibility and lower fund balances. In this environment it is important to strengthen the policies, procedures, and management controls and accountability for variables that affect cash management. This requires explicit policies, procedures and authority, and ensuring that the information required to manage and control cash is available and accurate.

The purpose of this Review of Cash Management Practices is to evaluate current procedures, roles, and responsibilities and develop recommendations that will enable UDOT to strengthen them and minimize the risk of having a deficit fund balance.

The recommendations made in this report reflect the following attributes of good cash management for a state transportation provider:

- Sufficient cash should be available at the time required to cover expenses without having to borrow.
- Funds should be put to work on projects as early as possible to maximize benefits to highway users.
- The necessary tools and information should be at hand to make informed cash management decisions and minimize the risk of a deficit fund balance at the close of the fiscal year.
B. Approach

Dye Management Group, Inc.’s approach included the following elements:

1. **Evaluation of the procedures and practices used to forecast funds required to implement the STIP**

   This task involved the following work steps:
   
   - Clarifying UDOT’s business requirements for financial forecasting for the STIP.
   - Interviewing the Program Development Group employees to determine procedures and practices used.
   - Evaluation of procedures, including spreadsheets and other forecasting tools.

2. **Determination of the current and future business requirements for cash management**

   This task involved the following work steps:
   
   - Interviewing the Comptroller’s Office and defining current business requirements.
   - Reviewing current procedures and models.
   - Assessing future business requirements arising from restrictions on the use of state funds.

3. **Assessment of how STIP management practices are impacting cash management**

   This task evaluated management practices and procedures for STIP related variables that affect cash operations. This helped to identify the factors that are affecting the coordination of STIP forecasting and forecasting cash required for the budget.

4. **Evaluation of current policies, procedures, and management controls**

   This task involved interviewing process participants and reviewing applicable documented procedures and control mechanisms.
5. **Review of organizational roles and responsibilities**

   This task involved conducting interviews and reviewing position descriptions.

6. **Conducting a best practice survey to identify applicable improvement opportunities**

   This task involved undertaking a best practice survey of a sample of state departments of transportation to identify best and innovative practices that are being used for cash management purposes.

C. **Report Structure**

   The report first presents an overview of the variables that impact the cash balance, and then presents findings and recommendations related to the major areas or functions that are important to cash management. In the final section, a recommended cash management approach is presented at a high level.

   The main sections of the report are as follows:

   II. **Variables That Impact the Cash Balance.** This section presents the most important variables, by major area, that impact the demand for cash.

   III. **Cash Management Policy, Procedures and Management Controls.** This section addresses policy, roles, and responsibilities for strengthening management controls and implementing recommendations detailed in the other sections.

   IV. **Cash Management Information and Monitoring.** This section addresses findings and recommendations regarding how cash management information is gathered, reported, and monitored.

   V. **STIP Development and Budgeting.** This section provides the review results of how STIP development and budgeting affects the demand for cash.

   VI. **Project Delivery.** This section provides the review results of how various decisions made during the delivery of projects influence cash balances.

   VII. **Concept Model for Recommendations.** This section presents a cash management model for implementing the recommendations.

**Appendix A.** This appendix summarizes the results of the best practices analysis.
II. Variables That Impact the Cash Balance

A. Introduction

Delivery of UDOT’s capital and operating programs over the course of any given fiscal year requires balancing revenues, as they accrue over time, against expenditures, as the Department delivers its programs. There are a number of variables, both on the revenue and the expenditure side, constantly influencing the Transportation Fund cash balance. This section discusses the variables that impact cash by major area. Exhibit II-1 details the major variables that impact UDOT’s cash balances and issues associated with cash management.

B. Revenue Forecast

Currently, forecasting of UDOT’s revenues is based on an amalgamation of the forecasts prepared by the Program Development Group, the Governor’s Office of Planning and Budget, the Legislative Fiscal Analyst, and the Tax Commission.

A revenue estimate is developed each year for the legislative session. Historically, the Program Development Group has used a number below that used by the other agencies to be on the conservative side. This worked well in the past, until fiscal year 1998 when revenues fell approximately $10 million below the Program Development Group’s “conservative” estimate.

The Program Development Group currently provides for UDOT’s ongoing revenue monitoring and forecast updates. Trend-line analysis is used to forecast the various components of user fee revenue.

C. STIP Development and Budgeting

1. State Match Estimate

The Department’s state match estimate for federal aid projects in the STIP is prepared by the Program Development Group based on historical participation ratios by major funding category.

The state match is thus built on a top down method as opposed to being built from the individual project level upward. This provides an overall estimate of state revenue requirements. State and local match requirements changed with TEA-21 and the federal program increased, a higher level of precision is now required based on the actual state match requirements for each project. As the Department manages
with smaller cash balances and limited available state funds, the accuracy of the state match estimate increases in importance.
### Exhibit II-1: Variables That Impact Cash Balance

<table>
<thead>
<tr>
<th>Activity</th>
<th>Current Organizational Area of Responsibility</th>
<th>Variables Impacting Cash Balance</th>
<th>Issues</th>
<th>Impact on Cash Management</th>
</tr>
</thead>
<tbody>
<tr>
<td>Revenue Forecast</td>
<td>UDOT Program Development Group.</td>
<td>Amount of user fee revenue is influenced by population growth, economic activity, VMT, etc.</td>
<td>• The Governor’s Office of Planning &amp; Budget, Legislative Fiscal Analyst, Tax Commission, and the Program Development Group develop revenue forecasts.</td>
<td>• Large downside risk to overestimation of user revenues.</td>
</tr>
<tr>
<td></td>
<td>Governor’s Office of Planning and Budget.</td>
<td></td>
<td>• UDOT tends to use a number below that used by the Governor’s Office of Planning &amp; Budget.</td>
<td>• Overestimated user fee revenues will lead to cash deficit unless program cut or projects delayed/cancelled.</td>
</tr>
<tr>
<td></td>
<td>Legislative Fiscal Analyst.</td>
<td></td>
<td>• Historically, UDOT forecast has been good until recently.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Tax Commission.</td>
<td></td>
<td>• Recent fuel tax increase did not generate additional revenue.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• UDOT does not perform longer range forecast.</td>
<td></td>
</tr>
<tr>
<td>STIP Development and Budgeting</td>
<td>UDOT Program Development Group.</td>
<td>State match estimate.</td>
<td>• Developed by a general estimate based on historical percentages. Built from top down, not bottom up (project level).</td>
<td>• Direct impact on cash if state match estimate is wrong.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Some participation ratios have changed – shifting to larger state share.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Growth in the federal program (TEA-21) requires larger total state match.</td>
<td></td>
</tr>
<tr>
<td>Activity</td>
<td>Current Organizational Area of Responsibility</td>
<td>Variables Impacting Cash Balance</td>
<td>Issues</td>
<td>Impact on Cash Management</td>
</tr>
<tr>
<td>----------</td>
<td>-----------------------------------------------</td>
<td>---------------------------------</td>
<td>--------</td>
<td>---------------------------</td>
</tr>
</tbody>
</table>
| STIP Development and Budgeting (cont.) | UDOT Program Development Group. | Timing of work versus year in which funds obligated. (Cost of a multi-year project is included in its entirety in the year it is listed in the STIP). | - Cash flow impacts of STIP are not forecast out when STIP developed or as part of ongoing program and cash management.  
- Changes in the annual funding levels create variances which could result in either overruns or underruns. | - Results in cash deficit if there is a cumulative overrun on projects in the STIP in a given fiscal year and if there is insufficient unused STIP funding from prior years to cover the multi-year construction costs. |
| | | | - Accuracy of STIP estimates for key components, P.E., ROW, Construction, C.E., and Utilities. | - Are P.E. and ROW costs properly built in to the STIP?  
- As project costs change, there is little feedback information on the cash flow impacts.  
- Decisions to use consultants for PE or CE. | - Direct impact on cash if project cost elements not accurate.  
- Changes in scope, schedule, budget impact cash.  
- Can impact cash if not accounted for in cash flow analysis. |
| | | | - Non-participating costs. | - Some costs of a project may not be eligible for federal reimbursement (e.g., settlement payments).  
- Comptroller’s Office needs to be informed. | - Direct impact on cash when these are unanticipated and not reimbursed by federal funds. |
<table>
<thead>
<tr>
<th>Activity</th>
<th>Current Organizational Area of Responsibility</th>
<th>Variables Impacting Cash Balance</th>
<th>Issues</th>
<th>Impact on Cash Management</th>
</tr>
</thead>
<tbody>
<tr>
<td>Project Delivery</td>
<td>UDOT Program Development Group.</td>
<td>Accrued unbilled amounts on federal projects.</td>
<td>• The timing and decision related to modified agreements.</td>
<td>Direct impact on cash: • If agreement is not modified, then state expenditure on project increases. • Timing of modified agreement affects state exposure and cash flow.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Advanced construction authorization.</td>
<td>• This is a management decision to advance a project for reasons such as user benefits.</td>
<td>• Direct impact on cash to float the project until funds can be converted in next fiscal year.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>STIP project schedule.</td>
<td>• Not linked to the availability of funds and cash projections. • No multi-year cash flow of program delivery.</td>
<td>• Direct impact on cash, especially when carrying low balances.</td>
</tr>
<tr>
<td>Project Managers.</td>
<td>Use of consultants for design or construction management services.</td>
<td></td>
<td>• How decision is made and reported.</td>
<td>• Direct impact on cash management as it affects timing of work.</td>
</tr>
<tr>
<td>Construction.</td>
<td>Change orders.</td>
<td></td>
<td>• How monitored to track cash flow implications.</td>
<td>• Direct impact on flow of project expenditures which could lead to cash impact depending on timing and trade-offs in STIP.</td>
</tr>
<tr>
<td></td>
<td>Incentives offered to contractors for early completion.</td>
<td></td>
<td>• Management decision which affects project timing.</td>
<td>• Impact on expenditure flow for project (accelerated) may lead to cash problem if balances low.</td>
</tr>
<tr>
<td>Activity</td>
<td>Current Organizational Area of Responsibility</td>
<td>Variables Impacting Cash Balance</td>
<td>Issues</td>
<td>Impact on Cash Management</td>
</tr>
<tr>
<td>--------------------------------</td>
<td>-----------------------------------------------</td>
<td>--------------------------------------------------------------------------------------------------</td>
<td>----------------------------------------------------------------------</td>
<td>-------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Ongoing Agreements or Programs</td>
<td>Comptroller’s Office. UDOT Program Development Group.</td>
<td>Operating programs (appropriations).</td>
<td>• When is anticipated expenditure?</td>
<td>• Capable of allocating budget to anticipated month(s) of expenditure, therefore cash impact is anticipated.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Transfers to other agencies and other funds.</td>
<td>• When is anticipated expenditure and how much is the transfer?</td>
<td>• Timing and impact can be accurately determined for cash flow purposes, therefore cash impact is anticipated.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Preservation program (Orange Book Contracts).</td>
<td>• Timing of contract award and amount of contract need to be considered.</td>
<td>• Those projects can use up funds quickly and lead to cash problems if balances are low.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Deposits by local governments and billing against the amounts on deposit.</td>
<td>• Should show up in STIP if a project cost.</td>
<td>• Can lead to a cash impact depending on timing.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Need alerting mechanism if there is an agreement to pay local government.</td>
<td></td>
</tr>
<tr>
<td>Other Variables</td>
<td>UDOT Program Development Group. Construction.</td>
<td>Contractor workload and weather.</td>
<td>• Unable to predict.</td>
<td>• Affects project timing and expenditure flow; could lead to cash problem when balances are low.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Inventory.</td>
<td>• Cash expended to replenish or accumulate inventory (materials stockpiles and warehouse stock).</td>
<td>• Expenditures and the timing of expenditures on inventory place demand on cash that may be difficult to predict.</td>
</tr>
</tbody>
</table>
D. Programming Funds for STIP Projects

The principal objective of the program management work performed by the Program Development Group is to ensure that all available federal funds are obligated in accordance with federal requirements. This is being accomplished successfully.

The Program Development Group uses the projected state funds (free revenue), federal obligation authority, and estimated miscellaneous funds to determine what funding level can be used to match available resources with the Transportation Commission’s prioritized listing of projects. As projects are entered into the annual STIP, the Program Development Group sets up, in one fiscal year, the entire approved funding for the projects regardless of the project duration. This approach has been successful in obtaining federal funds. However, current business practices do not provide the information required to evaluate the cash flow implications of the STIP.

This is important for cash management because:

- The cost of a multi-year project is included in its entirety in the year it is listed in the STIP. Actual expenditures are incurred over multiple years.
- A large portion of Preliminary Engineering and Right-of-Way costs are incurred prior to the project being in year one of the STIP.
- The construction costs are not all incurred in the current STIP year. Construction expenditures on many projects are incurred across more than one state or federal fiscal year.

Lacking information on the cash flow impacts of STIP implementation, UDOT has had to be reactive to ensure that the STIP expenditures match the annual budget without incurring budget over/under-runs.

E. Project Delivery

As UDOT’s capital program is delivered in any given fiscal year, a number of project delivery decisions are made in response to timing and changes in scope that have a direct impact on the demand for cash. These decisions can affect the use and availability of state funds. They alter the effective reimbursement rate from the Federal Highway Administration (FHWA). As the effective rate becomes lower, the state match requirement increases. When this is not managed, the risk of being in a deficit balance also increases.

Currently, many of the decisions regarding the variables that affect cash are made outside of the direct control or immediate coordination of the Comptroller’s Office. In response to recent concerns over cash management there is now increased coordination. However,
there are no explicit policy, procedures, and lines of authority regarding cash management for many of the variables that affect cash.

The following is a list of these decisions/variables:

- The month or quarter a project is let for construction.
- Decisions to go advanced construction on a project.
- The overall level of accrued unbilled amounts on federal projects.
- Project change orders and if/when to modify federal agreements.
- The size and timing of Orange Book contacts.
III. Cash Management Policy, Management Controls, and Procedures

A. Introduction

The Comptroller’s Office is ultimately responsible for the Department’s cash balance and for seeing that it maintains and closes each fiscal year with a positive ending balance. As UDOT has become more successful with STIP delivery, projects are making it to the contracting phase by the end of the fiscal year. The Department has implemented an aggressive contract maintenance program beginning in 1996, and the Transportation Fund balance has been very low in recent years with little contingency for revenue shortfalls. This became most apparent last year at fiscal year 1998 close out, when the Department was struggling, for the first time ever, to close out with a positive balance.

The previous Section outlined the major variables that impact the cash balance. It is noteworthy that, while the Comptroller’s Office is ultimately responsible for maintaining a positive cash balance, many of the variables/decisions that impact cash are influenced or controlled outside the Comptroller’s Office.

This limits the direct management control and accountability for cash management. This section identifies the major issues and findings related to policy, management controls, and procedures.

B. Issues, Findings, and Recommendations

1. Issue: There is limited policy, management controls, and procedures for decisions that affect cash management.

   a. Findings:

   • The principal policy and management control affecting cash management are the statutory requirements for year end and daily balances.

   • There are no documented policies or procedures for some of the key variables that affect cash management balances such as the level of accrued unbilled expenditures on federal projects.

   • For many of the other variables that affect cash, such as the letting schedule and the size and timing on Orange Book contracts current policies and
procedures do not address the availability of cash to meet projected expenditures.

- Policies and procedures for STIP development and delivery only consider cash availability as an input into initial STIP development. There are no procedures for evaluating the cash flow impacts of the STIP or its financial feasibility based on anticipated state receipts.

- While the Comptroller’s Office is directly accountable for year end and day-to-day fund balances, the Comptroller does not have management control or line management authority over the variables impacting cash.

b. **Recommendation:** Establish policy and procedures that ensure that the Office of the Comptroller has direct authority over:

- Monitoring and forecasting revenue.
- Monitoring and forecasting cash flow, including for STIP delivery.
- The overall level of accrued unbilled amounts on federal projects.
- Decision to go advanced construction on projects.

- Direct authority can be accomplished through organizational changes that place responsibility for revenue forecasting, managing federal agreements and billing federal expenditures and decisions to go advance construction in the Comptroller’s Office and/or providing the Comptroller authority to establish policy, procedures, and management control for these functions. This performance audit recommends elsewhere that all revenue forecasting, projecting and monitoring functions are placed in the Comptroller’s Office. (Section IV.B.1.b.recommendations). Regarding the functions of managing federal agreements, this is currently bundled with a number of other responsibilities. Given this, the recommendation is that the Comptroller’s Office sets policy and procedures but at present does not assume line management responsibility for federal agreements.

c. **Recommendation:** Establish policy and procedures that ensure that the Office of the Comptroller has approval authority regarding financial feasibility of:

- Annual project letting schedule and changes.
- Size and timing of Orange Book contracts.
- STIP and amendments to the STIP.
• The purpose of the recommendation is to establish a stronger management control to ensure that the letting schedule, STIP development and amendments, and the size and timing of Orange Books’ contracts can be managed efficiently given forecast state revenues. The recommendation provides the Comptroller’s Office approval authority when these decisions are made and regarding changes that impact cash.

d. Recommendation: Establish business rules and procedures governing the management and control of federal and state authorization for projects and changes to authorization amounts to ensure that cash management impacts are addressed.

• In the current cast environment, the Comptroller’s Office is de facto providing this role. The Comptroller’s Office will be better positioned to exercise this approval authority once the recommendations for cash management information and monitoring are implemented.

2. Issue: Cash management and related issues are not understood or important to areas outside the Comptroller’s Office

a. Findings:

• Cash management and the level of cash balances is a relatively new concern for UDOT. The impact of project timing, STIP changes, the level of accrued unbilled expenditures on cash is not widely understood.

• STIP development and project timing has been driven by the need to obligate federal funds and the business goal of getting projects ready to go as quickly as possible.

• UDOT’s culture has not been oriented to considering cash implications and consulting with the Comptroller’s Office.

b. Recommendation: Communicate the recommended policies and procedures to increase understanding of the importance of cash management.

• The recommendation involves ensuring that cash management concerns are communicated to line managers responsible for the different functional areas that impact cash documented.

• Procedures, training and other activities where applicable should address cash management issues to increase understanding.
3. Issue: Current legislation does not allow UDOT to co-mingle the significant cash reserves in the Centennial Highway fund to manage the Transportation Fund balance.

   a. Findings:
      
      • The best practices survey of other states showed that most states have the ability to transfer funds between, for example, their highway fund and their municipal fund, to manage short-term cash needs.

      • Given the cash reserves currently in the Centennial Highway fund, providing the flexibility in the use of these funds presents a solution to managing unanticipated cash needs.

   b. Recommendation: Seek legislative authority to transfer funds from the Centennial Highway fund to the Department’s Transportation Fund balance on a short-term basis to manage unanticipated cash needs.

      • This will allow the Department to use the combined Transportation Fund and Centennial Highway fund balances to determine the Department’s fund balance at the fiscal year end. The recommendation would not change the policy that all Centennial Highway fund dollars are dedicated to specific fund projects. It would enable UDOT to use the balance to better manage cash.
IV. Cash Management Information and Monitoring

A. Introduction

Given the number of different factors that impact UDOT’s cash position identified in Section II, it is important to have information from which to manage cash proactively. The recommended management controls and approval authority for the Comptroller’s Office requires information about the current and forecast cash position of the department. This makes information and monitoring critical to managing cash proactively. This section presents the issues and findings related to cash management information and monitoring and makes recommendations on how to improve the processes.

B. Issues, Findings, and Recommendations

1. Issue: Current cash management monitoring methods are ad hoc and after the fact, resulting in a reactive rather than proactive approach to cash management

   a. Findings:

      • The Comptroller’s Office currently monitors the cash balance in four ways. They are: 1) preparing, reviewing, and evaluating monthly financial statements including revenues, expenditures, and fund balance, 2) analyzing federal reimbursement activity to determine if revenues are being received at anticipated levels, including an analysis of changes in the federal accrued unbilled receivable, 3) reporting and evaluating remaining balances on state construction and maintenance contracts to determine funding obligations, and 4) reconciling and transferring appropriate funding between the Transportation Fund and the Centennial Highway fund.

      • The Comptroller’s Office does not prepare a month-by-month cash flow forecast, derived from its revenue sources and its capital and operating programs. Lack of a monthly cash flow forecasting and monitoring program leaves the Department unable to anticipate cash demands properly and be proactive in terms of cash management.
• With the current lack of forecasting and monitoring tools, the Department is forced to maintain a large amount of cash as contingency against revenue shortfalls to reduce the risk of a close out deficit balance. However, this is an inefficient use of funds, since the goal is to put the money to work delivering UDOT’s programs.

• Since 1990, a contractor payment model has been tested in the Comptroller’s Office. This type of tool is used widely in other states and will form an important component to cash flow modeling and forecasting. The model appears to produce reasonable forecasts, which could be improved with better inputs. UDOT has already done some work to interface PPMS to this model.

• The Department’s revenue forecasting is currently based on trend-line or straight-line methods and does not incorporate economic and demographic variables. For this reason, the Department was not in a position to anticipate and respond to the lower than anticipated user fee revenue in fiscal year 1998.

• Revenue forecasting is not currently organizationally linked with the cash monitoring function in the Comptroller’s Office.

• The Department is not currently undertaking long-term financial planning and therefore will not be able to respond strategically and proactively to changing trends in revenue generation and expenditure flow.

b. **Recommendation: Implement a monthly cash management reporting system.**

Elements of the reporting system should include:

• Monthly management information reports on cash flow and projections should be developed and implemented as part of an ongoing cash management approach. The monthly reports should use the recommended STIP cash flow projection. UDOT’s cash management model, or system of models, should include the ability to forecast and/or analyze the impact of the following components:
  – Contractor payments (in-house model may be able to provide).
  – Project change orders.
  – Accrued unbilled amounts on federally funded projects.
  – Advanced construction decisions.
  – Reimbursement schedules on federally funded projects.
- Contract maintenance payment schedule.
- Preconstruction, construction engineering, and right-of-way costs.

- Hold monthly meetings as needed on cash management. These meetings should involve the appropriate persons from the Comptroller’s Office, the Program Development Group, and Construction. Region participation may be desirable.

- Strengthen the current revenue forecasting model and perform monthly variance analyses. This will be relatively easy to implement and will improve the Department’s confidence in its revenue forecasts.

- Undertake revenue forecasting as part of cash management and financial planning. The revenue forecasting function most logically belongs in the Comptroller’s Office. Ideally, one person should be in charge of revenue and expenditure forecasting and cash management reporting.

c. **Recommendation: Develop tools to perform longer-range revenue projections.**

- This recommendation involves undertaking longer-range revenue (three to eight year) forecasts and scenario testing. This will provide input to address strategic issues and enable UDOT to evaluate policy issues such as whether to seek legislation that would enable the substitution of federal or state funds for Centennial Highway fund Projects.

d. **Recommendation: Minimize cash balances through proactive use of short-term borrowing from the State Treasury to manage special cash needs (for example, unanticipated demands or advanced construction).**

- With good information on cash balance status and proven forecasting abilities, the Department will be able to proactively use short-term borrowing from the State Treasury for special cash needs or for short-term cash flow deficits.

- This could be most effectively managed by UDOT seeking authority to make transfers (to effectively borrow) from the Centennial Highway Fund during the fiscal year. This would reduce the cost to UDOT because there would be no interest paid to the State Treasury.
V. STIP Development and Budgeting

A. Introduction

The ability to properly manage cash balances is dependent upon the accuracy of project cost estimates in the STIP and the timing of construction in any given fiscal year. There are a number of variables that impact the accuracy of the STIP – some that can be controlled and others that cannot. The goal with regard to cash management is to better understand the variables and be able to monitor and anticipate their influence. This section outlines the major STIP-related variables that impact the demand for cash and makes recommendations on how better to manage them.

B. Issues, Findings, and Recommendations

1. Issue: The state match estimate is not built from the project level upward but is instead based on historical percentages

   a. Findings:

   • Currently, the state match estimate is derived from historical participation ratios by project funding category.
   • Participation ratios increased with TEA-21.

   b. Recommendation: Refine development of state match estimate to be built up from project level and to reflect participation ratios consistent with TEA-21.

   • This recommendation should be relatively easy to implement. It will increase the accuracy of the state match estimate for implementing the STIP.

2. Issue: There is no cash flow projection of the STIP and budget/expenditure based program management.

   a. Findings:

   • The STIP is managed with the objective of obligating federal funds. UDOT has a successful process for this.
• Current program management does not account for the cash flow requirements of STIP delivery. Total amounts programmed for a project, whether they are single construction season or multi-year projects are shown in the STIP in the year that funding is available. Each fiscal year then has projects at various stages of completion, along with the new STIP projects begun in that year. The Department has no cash flow projection for the STIP to determine what actual STIP project expenditure will occur in any given fiscal year.

• Preliminary engineering and right-of-way expenditures normally occur prior to the project being listed in year one of the STIP.

• Currently, preconstruction and construction engineering costs are split between operational budgets for in-house work and construction budgets for consultant work. There is no place currently where the two are reconciled to a total annual budget where comparisons between budget and actual can be made.

• The STIP deals with the available funding levels for a specific year. Projects in the STIP are listed by fiscal year. The quarter and month that projects are let directly impacts state cash exposure, especially when projects cut across fiscal years. These decisions are made outside of the organizational area responsible for cash management.

b. **Recommendation: Develop a dynamic monthly cash flow projection of the STIP to include preconstruction, contractor payments, federal reimbursement schedule, and consultant costs.**

• This could also bring together the total annual budget for preconstruction, right-of-way, construction, and construction engineering costs. This will allow the Department to better plan and manage its expenditures. Many other states forecast project payout at least three years into the future.

c. **Recommendation: Use the Preconstruction Program Management System (PPMS), the Contractor Payment Model, and other existing tools as the basis for cash flow projection of the STIP delivery.**

• UDOT’s existing project management tools can be used as the basis for establishing a cash flow projection model. The model can be used to evaluate whether the STIP delivery schedule can be implemented with the available state funds. As the model is updated it will enable the month-to-month cash position to be managed.
d. **Recommendation:** Require Comptroller’s Office approval for project timing decisions to better mesh with cash flow considerations.

- The recommended model can be used to ensure that the STIP construction schedule is compatible with the Department’s cash flow.

3. **Issue:** Orange Book contracts can use up funds quickly depending upon the timing and amount of contracts

a. **Findings:**

- The timing and award of Orange Book contracts has become an issue over the last two or three years. It was determined that there was greater benefit to the state if these contracts could be awarded earlier in the year. Essentially, the decision was made to advance the award of the contracts by as much as three or four months. This means that contracts that previously were awarded July 1 of a particular year were in fact advertised and awarded several months earlier, with work starting in the spring, as early as weather and related conditions would allow.

- When the Department was running higher fund balances, the strategy of advancing Orange Book projects earlier was viable. As the fund balance decreased, and as UDOT continued the practice of early award and notice to proceed on Orange Book work, there was a significant draw on state funds that ultimately was a major contributing factor to the difficulty experienced in achieving a positive closing balance in fiscal year 1998.

b. **Recommendation:** Require Comptroller’s Office approval over the size and the timing of Orange Book projects to ensure cash availability.

- This recommendation will ensure that when the schedule for Orange Book projects is developed, it is acceptable to the Comptroller’s Office based on forecast cash availability.

- Improved cash management methods, including a budget forecast of annual construction expenditures will enable the optimal timing of Orange Book projects by month or quarter.
VI. Project Delivery

A. Introduction

As UDOT delivers its capital programs over the course of any given fiscal year, a number of decisions are made that affect the demand for cash. It is important to identify and analyze how and why these decisions are made in order to better manage cash balances. This section isolates the most important decisions made that impact cash, examines the way they are made, and presents recommendations on how better to manage these decisions.

B. Issues, Findings, and Recommendations

1. Issue: Decisions to go advanced construction on federal aid projects reduce the cash balance

a. Findings:

- Advanced construction uses state funds during the current period with the expectation that in the following fiscal year federal funds will be received to reimburse the state. The determination to use advanced construction on a federal aid project is generally made by the Program Development Group. At times, the Comptroller’s Office has been involved with the determination. A thorough evaluation of the impact of such a decision on cash and fund management is not performed.

- In years when the Department has maintained a high fund balance, the decision to go advanced construction on a project could be made with relatively low risk. The project would be started, and for a few months paid for solely from state funds, with the knowledge that early in the new federal fiscal year the conversion could take place and federal revenue would be received. The need to determine the impact is now more critical given the narrow operating margin the Department has with respect to funds available.

- There is a window between UDOT’s fiscal year end on June 30 and the federal fiscal year end on September 30, in which advanced construction can be undertaken without impacting the Department close out. This is an optimal time to do advanced construction, since the funds can be...
converted early in the new federal fiscal year and only one quarter into UDOT’s fiscal year.

b. **Recommendation:** Decisions to go advanced construction need to factor in if funds are available. For this reason, these decisions should require approval from the Comptroller’s Office.

- This recommendation reduces the risk of being in a deficit fund balance or cash position. In addition, with the Comptroller’s Office having approval, there will be less reason to carry a higher contingency balance.

- With better cash management and lower cash balances carried there may be less funds available for advanced construction. Short-term borrowing is one option to advance projects when there are reasons, such as timing or user benefits, that warrant it.

c. **Recommendation:** Given the limited availability of state funds, UDOT should aim to use advanced construction only in the “window” between the beginning of the state fiscal year and the end of the federal fiscal year.

- This represents an optimal timing opportunity to minimize risk of advanced construction decisions when balances are low.

2. **Issue:** Large accrued unbilled amounts on federally funded projects are costly and reduce available state funds for federal match and other expenditures

a. **Findings:**

- The level of accrued unbilled amounts is determined as a cooperative effort between the Comptroller’s Office and the Program Development Group. In the spring of 1997, representatives from both groups met and decided to make a concerted effort to keep the accrued unbilled amount at or below $10 million. This has not been accomplished in every month since the time of the decision, but improvements are very evident based on the information monitored.

- High levels of accrued unbilled amounts are generally considered inefficient – the lost interest cost of maintaining a $10 million accrued unbilled balance is several hundred thousand dollars per year. Some states, for example Idaho and Wyoming, are managing accrued unbilled amounts as low as $2 million. An argument in favor of maintaining larger accrued unbilled balances is that federal obligation authority can be used
on new projects as opposed to old ones. This, however, effectively increases the state match on the old projects.

- The Program Development Group currently makes decisions on whether and when to modify federal agreements when eligible costs have increased above the original agreement amount (i.e. accrued unbilled costs). The group has established dollar-based criteria that help determine when a modified agreement on a federal aid project will be processed. Currently, when a project exceeds $50,000 above the original contract amount it becomes a candidate for a modified agreement. Many agreements that meet that criteria are not modified.

- At the time of this writing, Construction is implementing a real-time project tracking system (Project Development Business System). This automated system will track contractors’ work, project managers’ time, expenditures, change orders, and so on. This new system will provide the data to use in examining anticipated construction budget versus actual expenditures.

b. **Recommendation:** Given that the Department is operating with reduced cash balances, reduce the amount and actively manage accrued unbilled balances by project on a weekly basis.

  - This can be accomplished relatively easily by modifying agreements sooner and more frequently. In some cases there may be reasons for not modifying agreements, for example to advance new projects rather than use federal money on old ones. These issues should be reviewed and a management policy determined.

c. **Recommendation:** Decisions on the level of accrued unbilled costs and if/when to modify agreements on federal contracts are budget decisions. These decisions most appropriately fall within the Comptroller’s Office area of responsibility.

  - As the department responsible for cash management, the Comptroller’s Office is the logical place for these decisions to be made. Clearly these decisions need to be made in consultation with the Program Development Group and the appropriate Project Manager.

  - The Comptroller’s Office should be provided the authority to establish policy and procedures for billing the federal government and reducing accrued unbilled costs. Meeting performance goals in this area should be part of the performance plan for the responsible functional area.
VII. Concept Model for Recommendations

A. Introduction

In order for UDOT to minimize the risk of a deficit cash balance, while still aggressively delivering projects, will require a marked improvement in data collection, reporting, forecasting and budget development.

The relevant questions to be answered in terms of sizing the implementation of a new cash management approach include:

- How do you generate and then report/model the required information?
- What level of automation can be built on from existing tools?
- How can existing tools such as PPMS and the contractor payment model be adapted to fulfill cash management information/planning requirements?
- How will all the required information be brought together, analyzed and presented?
- What management procedures and organizational responsibilities are required?

Additional analysis will be required to answer these questions. However, at this stage a high level model of cash flow projection requirements, the key components of a cash flow management model, and management reporting responsibilities are presented below.

B. Dynamic Cash Flow Forecasting

In order to be proactive in managing cash effectively, the Department will need to implement a dynamic monthly cash forecasting and monitoring process. The degree to which existing forecasting tools within the Department can fulfill, or be adapted to fulfill, the requirements for this process will require detailed evaluation. Exhibit VI-1 on the following page shows the factors that need to be forecasted in order to develop a dynamic monthly cash flow projection.

Dynamic cash flow projecting means that forecasts are updated every month as new actual data is recorded. In this sense, the Department’s cash forecast then becomes a “rolling” forecast. This replaces budget or forecast expenditures with actual throughout the fiscal year, providing monthly updated data from which to assess current cash management implications for year end fund balance. A number of other states model their cash flow at least two years out and some three or more years.
### Exhibit VII-1

**Dynamic Cash Flow Projection Model**

<table>
<thead>
<tr>
<th></th>
<th>July</th>
<th>August</th>
<th>September</th>
<th></th>
<th>June</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>CASH BALANCE BROUGHT FORWARD</strong></td>
<td>$ C_1</td>
<td>$ C_2</td>
<td>$ C_3</td>
<td></td>
<td>$ C_{12}</td>
</tr>
<tr>
<td><strong>REVENUES</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>FREE REVENUE</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Motor Fuels Tax</td>
<td>$ x_1</td>
<td>$ x_1</td>
<td></td>
<td></td>
<td>$ x_1</td>
</tr>
<tr>
<td>Special Fuels Tax</td>
<td>$ x_2</td>
<td>$ x_2</td>
<td></td>
<td></td>
<td>$ x_2</td>
</tr>
<tr>
<td>Motor Vehicle Registration</td>
<td>$ x_3</td>
<td>$ x_3</td>
<td></td>
<td></td>
<td>$ x_3</td>
</tr>
<tr>
<td><strong>Total Free Revenues</strong></td>
<td>$ r_{1July}</td>
<td>$ r_{1August}</td>
<td></td>
<td></td>
<td>$ r_{1June}</td>
</tr>
<tr>
<td><strong>OTHER REVENUE</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Federal Reimbursement</td>
<td>$ x_1</td>
<td>$ x_1</td>
<td></td>
<td></td>
<td>$ x_1</td>
</tr>
<tr>
<td>General Fund</td>
<td>$ x_2</td>
<td>$ x_2</td>
<td></td>
<td></td>
<td>$ x_2</td>
</tr>
<tr>
<td><strong>Total Other Revenues</strong></td>
<td>$ r_{2July}</td>
<td>$ r_{2August}</td>
<td></td>
<td></td>
<td>$ r_{2June}</td>
</tr>
<tr>
<td><strong>TOTAL REVENUES</strong></td>
<td>$ R_{July}</td>
<td>$ R_{August}</td>
<td>$ R_{June}</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>EXPENDITURES</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PAYROLL</td>
<td>$ x_1</td>
<td>$ x_1</td>
<td></td>
<td></td>
<td>$ x_1</td>
</tr>
<tr>
<td>CONTRACTOR PAYMENTS</td>
<td>$ x_2</td>
<td>$ x_2</td>
<td></td>
<td></td>
<td>$ x_2</td>
</tr>
<tr>
<td>STATE MATCH</td>
<td>$ x_3</td>
<td>$ x_3</td>
<td></td>
<td></td>
<td>$ x_3</td>
</tr>
<tr>
<td>OTHER</td>
<td>$ x_4</td>
<td>$ x_4</td>
<td></td>
<td></td>
<td>$ x_4</td>
</tr>
<tr>
<td>LESS TRANSFERS OUT</td>
<td>$ x_5</td>
<td>$ x_5</td>
<td></td>
<td></td>
<td>$ x_5</td>
</tr>
<tr>
<td><strong>TOTAL EXPENDITURES</strong></td>
<td>$ E_{July}</td>
<td>$ E_{August}</td>
<td>$ E_{June}</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>ENDING CASH BALANCE</strong></td>
<td>$ C_{2}</td>
<td>$ C_{3}</td>
<td>$ C_{13}</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Prepare 12 month forecast at beginning of fiscal year

Update forecast with each month of actual data
C. Key Components of the Cash Flow Management Model

1. Revenue Forecasts

This report has recommended that an econometric approach be taken to forecast the Department’s revenues. This will be easy to implement for the components of free revenue such as the motor fuels tax, motor vehicle registration, and so on. Forecasts should be monthly and, as part of a dynamic process, should be updated as actual data is recorded. Careful monitoring of actual revenue and updated forecasts is important. Variance between actual and forecast revenue needs to be managed.

Federal reimbursement forms a large part of the “other” revenue component. Reimbursement on federal aid projects is really a lagged function of contractor payment. For this reason, a federal reimbursement schedule can be developed from the contractor payments model described below. Other revenue items may be more difficult to forecast as they may not follow as identifiable a trend as user fee revenues. In this case, assumptions and history must be used to make a projection. Of course these assumptions need to be revisited and adjusted as actual data comes in.

2. Contractor Payments Forecast

Contractor payments form the largest proportion of cash payments throughout the fiscal year. Forecasting of contractor payments is critical for a number of reasons:

- When combined with the preconstruction cost forecast from PPMS the Department will be able to cash flow out the STIP.
- Contractor payments forecasts should encompass federal-aid construction projects and state construction projects.
- The contractor payments forecast allows for analysis of advanced construction decisions impact on cash flow, project change orders and the level of accrued unbilled costs.
- As noted in the section above, the contractor payments forecast also provides the input to determine the federal reimbursement schedule.

Since 1990, a contractor payment model has been tested in the Comptroller’s Office. This type of tool is used widely in other states and will form an important component to cash flow modeling and forecasting. The model appears to produce reasonable forecasts, which could be improved with better inputs.
To fully determine the applicability of the current model to perform the functions above will require more analysis. Based on our analysis to date, it will require additional capability to be built in to meet the Department’s needs.

3. **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, where the cash impacts are relatively predictable based on the contract work schedule. State match payments will be a function of the cash out forecast of the STIP described above.

Orange Book projects are single season preservation projects that can use up funds quickly depending on the timing and number/size of projects. For this reason, Regional schedules for Orange Book projects should pass through the Comptroller’s Office to confirm the availability of cash to meet the program. The Comptroller’s Office may have to specify changes to Regional Orange Book schedules if there is incompatibility with cash flow to meet the demands of the STIP year one letting schedule.

4. **Project Delivery Variables**

Another important component of the cash flow model will be the timely and consistent monitoring of key project delivery variables. These variables impact on costs and/or timing of cash demands for projects. The principal project delivery variables to monitor include:

- **Advanced construction decisions.** It is recommended that, in an environment of low cash balances, the Comptroller’s Office approve decisions to go advanced construction. Additionally, the cash impacts of such decisions also require continuous monitoring.

- **The level of accrued unbilled costs.** This report has recommended managing the level of accrued unbilled costs downward as an efficiency improvement. Project level accrued unbilled amounts should be analyzed on a weekly basis by the Comptroller’s Office and communication with Project Managers initiated to determine if agreement should be modified, if there will be more unbilled costs, etc. Financial criteria, both at the project level and at the aggregate level, for accrued unbilled costs should be institutionalized.

- **Consultant preconstruction and construction engineering costs.** There is a general concern that these costs are not well reported and brought together in a meaningful way. PPMS and the new project tracking system in Construction are tools to provide this data.
As changes in project scope and/or timing are made, project cash flow projections will need to be updated. This is the one of the key purposes for having a dynamic cash flow projection – to provide a “feedback loop” for changes in project delivery variables.

D. Management Reporting Responsibilities

Implementing a dynamic cash flow projection approach as outlined above will require a change in some functions of the organization, an investment in the tools required, and management commitment to make cash management an important part of the Department’s corporate culture.

The approach outlined above may take some time to fully scope and implement. The whole process to develop a dynamic cash projection model and reporting system will require a phased approach. The most important component to be developed is the Department’s ability to cash flow out the STIP. However, there are some improvements that can be made almost immediately to improve the Department’s confidence in cash management. Most of these improvements have to do with management reporting.

Different areas of the organization – principally the Comptroller’s Office, the Program Development Group, Construction, and the regions – all make decisions that impact cash and/or have responsibility of cash management. Successful cash management requires effective information flow, active management, and bringing people together on an ongoing basis. For this reason, this report has recommended monthly cash management coordination meetings whereby representatives from these key areas of the organization can meet to review and coordinate cash management with delivery of the Department’s programs.

Some of the management reporting improvements that can be implemented immediately, and with relatively little cost, include:

- **Coordination of project timing.** Coordination of project timing between the Regions, the Program Development Group, Project Development, Operations, and the Comptroller’s Office could be implemented immediately. Currently, directors at the regional level make decisions on federal-aid, state and Orange Book construction project timing. Project timing has been identified as a key variable that must be managed to effectively manage cash. There should be a monthly basis to discuss and coordinate project timing and the impact on cash.

- **Revenue forecasting and variance analysis.** Revenue forecasting methods and monitoring could be strengthened immediately. This report has recommended that this function be part of the financial planning and cash management function of the organization. It makes good business sense that these functions be integrated.
- **Monitoring the level of accrued unbilled costs.** The Comptroller’s Office currently produces monthly reports on the aggregate level of accrued unbilled costs. This report has recommended that accrued unbilled costs be managed downward and analyzed weekly at project level basis. This improvement could be implemented immediately and would improve the cash balance.

- **Decisions on advanced construction.** This report has recommended that, given the Department’s current environment of low cash balance, advanced construction only occur within the optimal “window” to do so. This window is between the beginning of the Department’s fiscal year and the end of the end of the federal fiscal year.
Appendix A: Best Practices Survey

A. States Contacted

Telephone interviews were conducted with key staff involved in program management and financial management in the following state departments of transportation:

- Arizona
- Idaho
- Illinois
- Iowa
- Kansas
- Kentucky
- Michigan
- Mississippi
- South Carolina
- Tennessee
- Virginia
- Washington
- Wyoming

B. Findings

Interviews with the above 13 Departments of Transportation (DOTs) have revealed some consistent trends. The following factors appear to be elements of successful cash management:

1. In-house models to forecast cash flow of the STIP

   There appears to be no “off-the-shelf” tool for cash flow modeling. Instead, models are built up from historical expenditure patterns in the particular state, and “expenditure curves” are developed. These curves include contractor payments on construction projects (such as UDOT’s contractor payment model) and are also developed for contract maintenance and debt service. Some states have models which include the preconstruction through construction phases and cash flow out of the STIP, others just include construction.

   Based on our telephone interviews with the state DOTs, ideally a cash management modeling process would be able to account for the following components:

   - Cash flow impacts of program delivery.
   - Contractor payments.
   - Project change orders.
   - Accrued unbilled amounts on federally funded projects.
2. **Cash flow reports on a monthly basis**

States that appear to maintain lesser balances and manage cash more aggressively produce regular reports that compare forecast cash flow to actual. These states generally update their cash information and projections monthly. Many states have monthly cash management meetings including finance, accounting, and budget staff along with person(s) responsible for programming. The meetings are formed to manage project overruns, projects added, new funds, etc. This ensures an “in-the-loop” approach to any decisions made that impact the demand for cash.

3. **Communication, coordination, and information flow between the budgeting and programming areas**

From all interview responses this appears to be the paramount success factor for effective cash management. Regardless of the varying organizational structures, communication, coordination, and information flow ensure that decisions that affect cash balances are made in a concerted and informed way. This helps to avoid cash management “surprises”. Concerns voiced by the interviewees from the different states were usually linked to a breakdown in communication, coordination, and information flow between those departments that control or make decisions which impact cash balances.

4. **For the states that have tight cash balances, decisions that affect the demand for cash are made by those responsible for cash**

Not all states, but those that appear to maintain lesser balances and manage cash more aggressively, require the approval and notification of the financial area for anything affecting cash flow. Finance works closely with programming but makes decisions, or is involved in consideration of variables that impact cash (accrued
unbilled balances, advanced construction, change orders, etc.). Wyoming is a good example of this. Here the finance department determines the “how much and when” and the programming department determines the “how and what”.

5. **Many states minimize cash contingency balances to “keep the money at work” for the state**

An example is Iowa, which manages its cash balances down to approximately one-half million dollars. This requires well-informed cash management practices, forecasting, and constant monitoring and analysis.

6. **States aggressively manage accrued unbilled balances to get cash in**

This is generally viewed as desirable since maintaining large accrued unbilled balances is effectively loaning money to the federal government when the state could be earning the interest. For example, Washington State undertakes a weekly review of unbilled balances to manage and keep balances low.

7. **Most states have fund transferability or some method of providing for unanticipated cash demands**

Most states have the ability to transfer funds or projects between their highway fund and say, their municipal fund if need be. Some of the larger states have pre-authorized bonding capability allowing bond sales to meet cash needs if required. A planned approach to cash management, based on quality forecasts and analysis, is a requirement to use these and/or other potential short-term borrowing avenues effectively.

Transfer of funds or projects between different highway funds (for example the highway fund and the municipal fund and short-term borrowing from the state treasury are applicable to UDOT.

Pre-authorized bond sales are not a practical option given the Department’s program size and current cash position. It is generally states with significantly larger programs than UDOT’s that can pre-authorize bond sales. These states are forced to maintain large cash balances for bond rating purposes.

The Department can undertake short-term borrowing from the State Treasury to meet unanticipated demand for cash (for example, to go advanced construction on a project). There is an interest cost associated with doing so. Improved cash forecasting tools will allow the Department to present a business case to the Treasury if and when short-term borrowing is needed.
UDOT has significant cash reserves in the Centennial Highway fund which, based on legislation, cannot be used to augment the Transportation Fund balance. An option for the Department, to meet unanticipated cash needs, is to seek legislative authority to transfer funds from the Centennial Highway fund to the Department’s Transportation Fund balance on a short-term basis. This would allow the Department to use the combined Transportation Fund and Centennial Highway fund balances to determine the Department’s fund balance at the fiscal year end. Given the cash reserves currently in the Centennial Highway fund, increasing flexibility on the use of these funds presents a solution to managing unanticipated cash needs.

8. **Econometric approach to forecasting revenue**

Using economic and demographic variables in revenue forecasting allows the states to detect and plan for structural shifts in revenue generation. About half of the states contacted use an econometric approach, while the other half use more basic trend or straight-line approaches. Econometric methods are also superior for long-term revenue forecasting.

9. **Long-term financial planning**

Most state DOTs are performing long-term revenue and expenditure forecasting as part of their overall financial planning effort. The horizon varies from three to six years, but all of the states interviewed develop long-term forecasts of revenue and expenditures. Anticipated funds for STIP projects in future years are forecast based on assumptions developed by programming and finance. Programming then fits projects within the forecast funds available. While there are always differences in funding levels when the forecast year is reached, the long-term forecasts allow the DOTs to plan strategically and to be able to anticipate cash demands and respond accordingly.