State Auditor's Office

John Keel, CPA
State Auditor

A Report on

Statewide Processes Intended to Assist State Entities in Developing Major Information Resources Projects

July 2012

Report No. 12-047

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Overall Conclusion

Of the 15 completed major information resources projects analyzed that began on or after September 1, 2007, 67 percent took longer to implement than originally estimated and 73 percent expended more than the original budget. (See text box for more information about what qualifies as a major information resources project.)

Auditors reviewed the State's controls and agencies' processes for developing major information resources projects. Specifically, auditors analyzed 15 completed projects that began on or after September 1, 2007; surveyed 14 project managers at 12 agencies for projects started during or after January 2004; and analyzed 13 Quality Assurance Team reviews of major information resources projects.

Major Information Resources Projects

According to Texas Government Code, Chapter 2054, a major information resources project is:

- Any information resources technology project identified in a state agency's *Biennial Operating Plan* whose development costs exceed $1.0 million and that:
  - Requires one year or longer to reach operations status,
  - Involves more than one state agency, or
  - Substantially alters the work methods of state agency personnel or the delivery of services to clients.
- Any information resources technology project designated by the legislature in the General Appropriations Act as a major information resources project.

Because higher education institutions do not add capital budget projects to their *Biennial Operating Plans,* this section of the Texas Government Code does not apply to them.

Planning

Agencies did not always have an effective process in place for the initial planning of their projects. Specifically, some agencies did not consistently:

- Involve all key stakeholders early in the development process.
- Involve their internal audit departments during the development of major information resources projects.
- Use a phased approach when developing and implementing major information resources projects.

This report was conducted in accordance with Texas Government Code, Section 321.013.

For more information regarding this report, please contact Ralph McClendon, Audit Manager, or John Keel, State Auditor, at (512) 936-9500.

Oversight

The State has controls to provide oversight of and assistance to agencies developing major information resources projects. Some of those controls include:

- The documentation requirements for submitting a *Legislative Appropriations Request*, including the *Information Technology Detail* form and the *Biennial Operating Plan* (see page 4).
- The requirement that agencies comply with the *Texas Project Delivery Framework* (see page 5) and the *State of Texas Contract Management Guide* (see page 6).
- Oversight by the Quality Assurance Team (see page 5) and Contract Advisory Team (see page 4).

The State Auditor's Office is a member of the Quality Assurance Team. Other members include a representative from the Legislative Budget Board and a representative from the Department of Information Resources. To ensure that it retains its independence as required by certain auditing standards, the State Auditor's Office delegates its voting authority to the Legislative Budget Board for decisions to approve or not approve the expenditure of appropriated funds for major information resources projects.

Reporting of Projects and Costs

Even though state law and guidance requires agencies to report all major information resources projects and associated costs, some state agencies reviewed:

- Failed to report all major information resources projects to the Quality Assurance Team as required.
- Did not fully complete and submit all deliverables as required by the Department of Information Resources' *Texas Project Delivery Framework*.
- Omitted the reporting of state staff salaries and benefits in a major information resources project's initial cost estimate and subsequent reports.

Scope Expansions

In addition, some of the projects reviewed experienced scope expansions. The *Summary of Quality Assurance Team Project Reviews Report* issued in May 2012 identified scope expansions as one cause of project delays. While some scope expansions may be justified to ensure system functionality or to comply with state and federal requirements, sufficient planning early in a project's development could help agencies better identify system requirements and help reduce the need for scope changes at later stages.

Additional Weaknesses

Auditors identified additional weaknesses in the State's processes for developing major information resources projects that should be addressed. Specifically:

- Currently, the State does not require agencies to obtain independent verification and validation services for major information resources projects. Some state governments and federal agencies (see page 9 for more details) require independent verification and validation services to be obtained for major information resources projects to reduce the risk of reworking the project in the later stages at a higher cost.
- There currently is no requirement that agencies respond to the Contract Advisory Team's recommendations for a solicitation that is submitted by an agency for review.

Recommendations

To help address the weaknesses identified above, the Legislature should consider requiring:

- State appropriations for major information resources projects to be subject to the Quality Assurance Team's expressed written approval and notification to the Comptroller of Public Accounts prior to the release of agency funds.
- The Quality Assurance Team to obtain a list of agencies' current information resources projects that are estimated to cost more than $750,000, certified by the agency's executive director and information resource manager.
- Independent verification and validation services to be performed for major information resources projects.
- Agencies to provide written responses to each recommendation provided by the Contract Advisory Team.

Summary of Objective, Scope, and Methodology

The objective of this project was to assess statewide processes intended to assist state agencies and higher education institutions in successfully developing major information resources projects.

The project scope covered major information resources projects started on or after January 2004 and Quality Assurance Team reports from 2007 through March 2012.

The project methodology consisted of collecting information and documentation on the State's controls over the development of major information resources projects; analyzing 15 major information resources projects completed as of December 2011; surveying project managers at 12 agencies for 14 selected major information resources projects that were monitored by the Quality Assurance Team between fiscal years 2007 and 2011; and analyzing the information in Quality Assurance Team reports on the major information resources projects that team monitored from January 2004 through March 2012.

The information in this report was not subjected to all the tests and confirmations that would be performed in an audit. However, the information in this report was subjected to certain quality control procedures to help ensure accuracy. Auditors did not verify the accuracy of the information in the Quality Assurance Team reports reviewed or perform any data reliability work.

During fieldwork for this project, the State Auditor's Office also was conducting an audit of the ReHabWorks System at the Department of Assistive and Rehabilitative Services; therefore, the ReHabWorks System was not included in the 15 projects analyzed for this project. See *An Audit Report on the ReHabWorks System at the Department of Assistive and Rehabilitative Services* (State Auditor's Office Report No. 12-045, July 2012).

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Detailed Results

Chapter 1

Inadequate or Poorly Executed Planning Caused Several of the Project Delays and Cost Increases Among the Projects Analyzed

State agencies and higher education institutions initiated, and the State's Quality Assurance Team monitored, 40 major information resources projects from September 2007 through December 2011. Of those 40 projects, auditors analyzed project data for 15 projects that were completed as of December 2011 and determined that 10 (67 percent) took longer to implement than originally estimated and 11 (73 percent) expended more than the original budget (see Table 2 in Appendix 2 for more information about the projects reviewed).

For this report, auditors reviewed the State's controls and agencies' processes for developing major information resources projects. Overall, auditors reviewed project data for 29 unique major information resources projects. Specifically, auditors analyzed project data for the 15 completed projects discussed above; surveyed 14 project managers at 12 agencies about perceived strengths and weaknesses related to the State's development process for major information resources projects; and analyzed information from 13 major information resources projects for which the Quality Assurance Team issued a report in May 2012, as well as 5 Quality Assurance Team annual reports. Some major information resources projects may be included in more than one of those groups.

Having a good planning process and well-defined requirements could help agencies decrease the risk of project delays and cost overruns. Ten (71 percent) of the 14 project managers surveyed identified the planning and requirements definition phase as the period in which most issues arise that could compromise a project's success. In addition, 8 (57 percent) of the 14 project managers indicated that they would perform better planning on their next project.

Of those 14 projects, 13 were completed or expected to be completed later than originally estimated and 10 expended or were expected to expend more than the original budget. For example, *An Audit Report on Selected Parole Functions at the Department of Criminal Justice and the Board of Pardons and Paroles* (State Auditor's Office Report No. 08-036, June 2008) identified ongoing changes and additions to the design of the Offender Information Management System as contributing factors to delays in that system's implementation. This indicates that the agency did not adequately identify all of the system requirements during the planning stages. By improving their initial planning processes for major information resources projects, agencies

can decrease the need for design changes and increase the likelihood of projects being implemented on time and on budget.

According to the U.S. Chief Information Officers Council, government agencies often develop requirements for information technology projects without adequate input from industry and without sufficient communication between an agency's information technology staff and the program employees who will be using the hardware and software being developed.[1] Auditors identified some areas in which agencies could improve their planning and communication processes for major information resources projects. Specifically:

- **Some agencies did not involve all key stakeholders in the planning process.** Some of the agencies that auditors surveyed indicated that they did not involve all key stakeholders and expected system users in their projects' initial planning phases. When asked what they would do differently the next time they developed a major information resources project, 4 (29 percent) of the 14 project managers surveyed stated they would include all stakeholders and end users in the development process. In addition, 9 (64 percent) project managers stated they did not include internal audit in the development of their projects. According to the Institute of Internal Auditors' *Global Technology Audit Guide*, involving internal audit in the early stages of a project increases the likelihood of the project's success.

- **Large projects that have an extended time line tend to have more implementation issues.** The Quality Assurance Team's *2010 Annual Report* identified a pattern in which major information resources projects involving more than one biennium and more than one agency experienced significant delays, which typically resulted in the agencies requesting additional funds to complete the projects. Incremental approaches that structure major information resources projects into manageable phases can make the projects easier to plan and develop.

- **Insufficient attention to rigorous estimation of costs can lead to ineffective project planning and management.** The Quality Assurance Team's *2011 Annual Report* noted that some agencies relied on insufficiently developed estimates to plan major information resources projects instead of using established and repeatable project cost estimation techniques to plan projects. Some agencies appeared to treat estimated costs as a placeholder to get a major information resources project started, without performing sufficient analysis on how much funding would be required to achieve the goals that the agencies presented to the Legislature as justification for doing the projects. As the work began on some of those projects, the scopes tended to increase and the agencies frequently requested additional

[1] See *25 Point Implementation Plan to Reform Federal Information Technology Management*, December 9, 2010, http://www.cio.gov/documents/25-Point-Implementation-Plan-to-Reform-Federal%20IT.pdf.

funds to complete the projects. Developing realistic cost estimates can help agencies establish realistic budgets and provide standards against which actual costs can be measured.

- **Many of the projects had scope/functionality changes.** Of the 13 major information resources projects that the Quality Assurance Team reviewed in early 2012, 9 (69 percent) experienced scope/functionality changes. In addition, the *Summary of Quality Assurance Team Project Reviews Report* released in May 2012 identified that 12 of those 13 projects were completed late or were projected to be completed late. While some of the scope/functionality changes were because federal requirements/standards changed during the development of the system, other scope expansions may have been avoided if the agency had performed sufficient planning during the initial stages of project development.

In addition to scope/functionality expansions, agencies cited other reasons for project delays. Those reasons included:

- Problems with contractors not completing work on time.
- Problems with procurement of needed equipment through the state data center services vendor.
- Competition for agency resources from the Office of the Comptroller of Public Accounts' projects.

Chapter 2

Some State Agencies Did Not Consistently Comply with the State's Requirements When They Developed Their Major Information Resources Projects

The State has established controls to provide oversight of agencies developing major information resources projects; however, some state agencies did not always comply with all of the State's controls.

Chapter 2-A

The State Has Established Controls to Provide Oversight of and Assistance to Agencies Developing Major Information Resources Projects

The State has controls in place to assist agencies in the development of major information resources systems. Those controls include:

- **The *Information Technology Detail* form.** Agencies must submit this form as part of their *Legislative Appropriations Requests*. The *Information Technology Detail* form explains how an agency will manage its information resources, implement an information resources strategic plan, and allocate its information resources budget in the next biennium. That form also is the basis for the Quality Assurance Team's review and approval of major information resources projects. On the form, agencies are required to include all project costs, including all salary and benefit costs for staff working on the project, from the planning and analysis phase through the post-implementation phase.

- **The *Biennial Operating Plan*.** Agencies must submit a *Biennial Operating Plan* to the Legislative Budget Board after each legislative session. The *Biennial Operating Plan* describes an agency's current and proposed projects, including major information resources projects, for the biennium and how the projects will be developed on time and on budget. The *Biennial Operating Plan* also should include an explanation of how the project(s) will produce quantifiable returns on investment while meeting any criteria set by the Department of Information Resources and the Quality Assurance Team. An agency is required to amend its *Biennial Operating Plan* to reflect changes that occur during the biennium. The Quality Assurance Team uses the *Biennial Operating Plan* as supporting information for project approval.

- **The Contract Advisory Team.** The Contract Advisory Team reviews agency solicitation documents, identifies risks, and provides recommendations to mitigate the risks. The Contract Advisory Team also reviews the documents to determine whether agencies have the tools in place to track vendor performance, measure success, and verify that the products received meet the specifications. If the Contract Advisory Team does not

issue a response to a submission within 20 business days, the agency may proceed with issuance of its solicitation. Agencies are required to resubmit their solicitation document(s) for Contract Advisory Team review when:

- A change causes the estimated value for the original term of the contract (not including any renewal periods) to increase by 25 percent or more; or

- There are significant revisions, deletions, and/or additions to the specifications, statement of work, set(s) of deliverables, performance measures, and/or payment methodology.

- **The Quality Assurance Team.** The Quality Assurance Team is comprised of representatives from the Legislative Budget Board, the State Auditor's Office, and the Department of Information Resources. It must review and approve major information resources projects before an agency can expend appropriated funds for a project. The Quality Assurance Team also requires agencies to develop corrective action plans for identified project risks, monitors and reports on the status of major information resources projects, and makes recommendations to the Legislature on ways the State could reduce the risk of overruns and failures during the development of major information resources projects. According to Texas Government Code, Section 2054.1181, the Quality Assurance Team has the authority to discontinue a major information resources project, subject to Legislative Budget Board approval. The Quality Assurance Team did not discontinue any projects during the scope of this report (January 2004 through December 2011).

- **The *Texas Project Delivery Framework*.** This framework establishes a consistent statewide method for the selection, control, and evaluation of major information resources projects. The *Texas Project Delivery Framework* is designed to be customized to fit specific agency and project needs. It includes templates, questionnaires, checklists, and guidelines that are designed to complement other state guidance and controls, including the Office of the Comptroller of Public Accounts' *State of Texas Contract Management Guide* and Quality Assurance Team processes. The *Texas Project Delivery Framework* also includes extensions, which provide additional guidance related to the development of major information resources projects. The *Texas Project Delivery Framework* requires agencies to submit specified deliverables at certain points in the development of a major information resources project (see Table 1 on the next page and Appendix 3 for more information.)

Table 1

Texas Project Delivery Framework Submission Requirements	
Deliverable	**When Agency Must Submit Deliverable**
▪ Business Case ▪ Business Case Workbook ▪ Statewide Impact Analysis	Must be submitted to the Quality Assurance Team prior to Quality Assurance Team's approval of the project. Normally, this is part of an agency's *Legislative Appropriations Request*.
▪ Project Plan	Must be submitted to the Quality Assurance Team prior to spending more than 10 percent of the funds allocated to a project and/or prior to an issuance of a vendor solicitation for the project.
▪ Acquisition Plan, if applicable	Must be submitted to the Quality Assurance Team prior to a solicitation being sent to the Contract Advisory Team.
▪ Monitoring Reports	Must be submitted to the Quality Assurance Team on a monthly or quarterly basis until a project is completed.
▪ *Post-implementation Review of Business Outcomes*	Must be submitted to the Quality Assurance Team within six months after a project has been completed.

Source: The *Texas Project Delivery Framework*.

- **The State of Texas *Contract Management Guide*.** The Office of the Comptroller of Public Accounts' *State of Texas Contract Management Guide* includes recommendations for developing and improving contract management processes and practices. The *State of Texas Contract Management Guide* also includes an addendum that provides specific contract management practices, processes, and strategies for the procurement of technology-related goods and services. The Department of Information Resources is responsible for reviewing and updating that addendum.

Chapter 2-B

State Agencies Did Not Always Comply with All of the State's Controls for the Development of Major Information Resources Projects

Some state agencies did not consistently comply with the State's requirements or follow its guidance for developing major information resources projects. For example:

- Section 9.02, page IX-32, the General Appropriations Act (82nd Legislature), requires a state agency to receive approval from the Legislative Budget Board and the Quality Assurance Team before it can expend appropriated funds for a major information resources project. However, there is no effective method to identify a major information resources project that an agency has not reported to the Quality Assurance Team. For example, the Quality Assurance Team identified that the Health Professionals Council developed a major information resources project without obtaining an approval from the Quality Assurance Team as

required by law. In addition, the Health Professions Council did not submit any of the required project deliverables.

- Auditors analyzed 15 major information resources projects completed as of December 2011 that were approved by the Quality Assurance Team.[2] While all projects submitted a business case and a statewide impact analysis to the Quality Assurance Team as required, each of the following projects were missing a required deliverable:

  - The Texas Commission on Environmental Quality (TCEQ) did not submit a business case workbook[3] for its TCEQ Automated Budget System project.

  - The Health and Human Services Commission did not submit a *Post Implementation Review of Business Outcomes* for its Extended Enterprise Identity and Access Management project (see text box for more information about that review).

  - The Department of Family Protective Services did not provide evidence that it submitted a project plan for its Fostering Connections project.

- Some agencies did not include all project-related costs in their initial cost estimates and subsequent reports as required. For 6 (46 percent) of the 13 projects that the State Auditor's Office had reviewed on behalf of the Quality Assurance Team, the agencies had not included in their monitoring reports the costs associated with the salaries and benefits for state employees performing work on the project. Both the *Information Technology Detail* form and the *Texas Project Delivery Framework* require agencies to report state staff salaries and benefits as part of total project costs. Not including all salary and benefit costs results in an agency underestimating the actual costs of developing and implementing a major information resources project.

Post-implementation Review of Business Outcomes

A *Post-implementation Review of Business Outcomes* describes the expected benefits and outcomes compared to the realized benefits and outcomes of implementing a major information resources project. In that report, the agency also identifies the lessons it learned that can be used to improve agency and/or state level processes. The agency must submit a *Post-implementation Review of Business Outcomes* to the Quality Assurance Team within six months after a project has been completed.

[2] During fieldwork for this project, the State Auditor's Office also was conducting an audit of the ReHabWorks System at the Department of Assistive and Rehabilitative Services. See *An Audit Report on the ReHabWorks System at the Department of Assistive and Rehabilitative Services* (State Auditors Office Report No. 12-045, July 2012).

[3] A business case workbook is submitted with a business case. A business case workbook comprises multiple spreadsheets that allow an agency to enter cost estimates, quantitative benefits, and other evaluation factors.

Chapter 3

Auditors Identified Additional Weaknesses in the State's Processes for Monitoring Major Information Resources Projects

Auditors identified weaknesses in the State's controls for the oversight of major information resources projects in the areas of solicitations and contracts, Quality Assurance Team monitoring, the *Texas Project Delivery Framework*, and cost verification. Those weaknesses are discussed below.

Solicitations and Contracts

Auditors identified the following related to solicitations and contracts for major information resources projects:

- Agencies are not required to provide documentation to the Contract Advisory Team showing that the Quality Assurance Team has approved the major information resources project. As a result, there is a risk that agencies will post a solicitation for a contract without obtaining the proper approvals from the Quality Assurance Team.

- While the Contract Advisory Team reviews the initial contract solicitation for a major information resources project, after solicitations become contracts, there is no requirement for the Contract Advisory Team to monitor any contract amendments. The Contract Advisory Team provides comments to the agencies on the solicitations, however the agency is not required to respond to or accept any of the comments. The General Appropriations Act (82nd Legislature) does state that, for contracts having a total value in excess of $1.0 million, an amendment to a contract that changes the total value of the contract or any element of the contract by more than 10 percent of the contract's total value is not valid without the Quality Assurance Team's approval. However, the Quality Assurance Team verifies only that a significant change is proposed and that agency management has approved the change; it does not review the contents of contract amendments.

Quality Assurance Team Monitoring

Auditors identified the following weaknesses in the Quality Assurance Team's oversight of major information resources projects:

- The Quality Assurance Team approved some projects even though some of the agencies had not quantified the tangible and/or intangible project benefits and returns on investment. Specifically, of the 14 completed major information resources projects analyzed that submitted a business case workbook, three (21 percent) did not identify any projected benefits related to the implementation of the project. Conducting a thorough cost-benefit analysis that identifies both tangible and/or intangible benefits prior to beginning projects would help agencies reduce the risk that they

could implement projects that do not provide any significant benefits to the State.

- Agencies submit the business cases for new projects along with their *Legislative Appropriations Requests*. However, the Quality Assurance Team reviews a business case for a new project after an agency's *Legislative Appropriations Request* has been through the legislative process and funding has been approved.

Texas Project Delivery Framework

Auditors received survey feedback regarding *the Texas Project Delivery Framework* including the following:

- Four project managers surveyed indicated that they had not received training on the *Texas Project Delivery Framework*. Two of those managers indicated they were not aware that training was offered.

- Eight project managers surveyed indicated that the *Texas Project Delivery Framework*'s instructions were not clear and could be clarified.

- Five project managers surveyed indicated that they would find it helpful if the *Texas Project Delivery Framework* included examples of completed deliverables that could be used as guidance while developing their own deliverables.

In addition, agencies are required to complete a new business case when a project's costs increase by 10 percent or more. It is important that an agency notify oversight entities of scope and cost changes. The process of completing a new business case can be lengthy and cumbersome and often requires agencies to complete unnecessary rework. However, at this time, there is not a more concise method available to agencies for communicating that information to the Quality Assurance Team.

Independent Verification and Validation

The State of Texas does not require an independent verification and validation evaluation to be conducted for large major information resources projects. New York, Virginia, and Georgia require independent verification and validation evaluations to be performed for major information resources projects that exceed a monetary threshold. The U.S. Department of Health and Human Services and the U.S. Department of Education also require independent verification and validation evaluations for major information resources projects.

Although obtaining independent verification and validation evaluations creates an initial cost, those services can decrease the risk of having to rework a project in the later stages at a higher cost. The Institute of Internal Auditors in its *Global Technology Audit Guide* determined that finding and fixing a

software problem after delivery is often 100 times more expensive than finding and fixing it during the requirements or design phases. In addition, a case study published by the U.S. Department of Defense calculated that the return on investment from an independent verification and validation evaluation is 1.25 to 1.82. This means that for every $1 spent on independent verification and validation evaluations, the benefit received would be between $1.25 and $1.82.

Chapter 4

Legislative Recommendations

To address some of the identified weaknesses in the State's processes for development major information resources projects, the Legislature should consider requiring:

- State appropriations for major information resources projects to be subject to the Quality Assurance Team's expressed written approval and notification to the Comptroller of Public Accounts prior to the release of agency funds.
- The Quality Assurance Team to obtain a list of agencies' current information resources projects that are estimated to cost more than $750,000, certified by the agency's executive director and information resource manager.
- Independent verification and validation services to be performed for major information resources projects.
- Agencies to provide written responses to each recommendation provided by the Contract Advisory Team.

Appendices

Appendix 1

Objective, Scope, and Methodology

Objective

The objective of this project was to assess statewide processes intended to assist state agencies and higher education institutions in successfully developing major information resources projects.

Scope

The project scope covered major information resources projects started on or after January 2004 and Quality Assurance Team reports from 2007 through May 2012.

Methodology

The project methodology consisted of collecting information and documentation of the State's controls over the development of major information resources projects; analyzing 15 major information resources projects started on or after September 1, 2007, and completed as of December 2011; surveying project managers at 12 agencies for 14 selected major information resources projects that were monitored by the Quality Assurance Team between fiscal years 2007 and 2011; and analyzing the information in Quality Assurance Team reports on the major information resources projects it monitored from January 2004 through March 2012.

The information in this report was not subjected to all the tests and confirmations that would be performed in an audit. However, the information in this report was subjected to certain quality control procedures to help ensure accuracy. Auditors did not verify the accuracy of the information in Quality Assurance Team reports reviewed or perform any data reliability work.

During fieldwork for this project, the State Auditor's Office also was conducting an audit of the ReHabWorks System at the Department of Assistive and Rehabilitative Services; therefore, the ReHabWorks System was not included in the 15 projects analyzed for this project. See *An Audit Report on the ReHabWorks System at the Department of Assistive and Rehabilitative Services* (State Auditor's Office Report No. 12-045, July 2012).

Information collected and reviewed included the following:

- Annual Quality Assurance Team reports released from fiscal years 2007 through 2011.
- Thirteen project review reports issued by the Quality Assurance Team in May 2012.
- *Texas Project Delivery Framework* deliverables (project plans, business cases, business case workbooks, monitoring reports, and *Post-Implementation Review of Business Outcomes* reports) submitted to the Quality Assurance Team by agencies through May 2012.
- State Auditor's Office reports related to major information resources projects.
- Quality Assurance Team documentation, including its charter, policies and procedures, and monitoring report instructions.
- Guidance and instructions for the *Texas Project Delivery Framework*, statewide impact analysis, and business cases for major information resources projects.
- Legislative Budget Board instructions for preparing and submitting *Biennial Operating Plans*, *Legislative Appropriations Requests*, and *Information Technology Detail* forms.
- The Office of the Comptroller of Public Accounts' *State of Texas Contract Management Guide*.
- State laws in Georgia, New York, California, and Virginia related to the requirements for obtaining independent verification and validation evaluations.

Procedures and tests conducted included the following:

- Surveyed 14 project managers at 12 agencies regarding their major information resources projects and analyzed the responses.
- Reviewed and analyzed the information in Quality Assurance Team annual reports for fiscal years 2007 through 2011.
- Reviewed *Texas Project Delivery Framework* deliverables (project plans, business cases, business case workbooks, monitoring reports, and *Post-Implementation Review of Business Outcomes* reports) submitted to the Quality Assurance Team by agencies through May 2012.
- Reviewed 13 project review reports issued by the Quality Assurance Team in May 2012.

- Analyzed 15 major information resources projects that had been started on or after September 1, 2007, and completed as of December 2011.
- Reviewed information related to major information resources projects on the Web sites for the Texas Transparency initiative (http://www.texastransparency.org/), the U.S. Chief Information Officers Council (http://www.cio.gov/), and the U.S. Government Accountability Office (http://www.gao.gov/).
- Created flow charts showing the State's processes for the development of major information resources projects.
- Interviewed members of the Contract Advisory Team.
- Interviewed members of the Quality Assurance Team.
- Interviewed staff at the Department of Information Resources.

Criteria used included the following:

- Department of Information Resources' *Texas Project Delivery Framework Handbook*, Version 2.6, November 18, 2011.
- *Quality Assurance Team Policy and Procedures Manual*, Version 1.3, June 30, 2009.
- *Quality Assurance Team Charter*, Version 1.0, November 1, 2006.
- The Office of the Comptroller of Public Accounts' *State of Texas Contract Management Guide*, updated on January 10, 2012.
- Texas Government Code, Chapters 2054 and 2262.
- *Global Technology Audit Guide 12: Auditing IT Projects*, the Institute of Internal Auditors, March 2009.
- Title 1, Texas Administrative Code, Chapter 216.
- General Appropriations Act (82nd Legislature).
- *Enterprise Value: Governance of IT Investments, The Val IT Framework 2.0*, Information Systems Audit and Control Association, 2008.
- Legislative Budget Board instructions for preparing and submitting *Biennial Operating Plans* and *Information Technology Detail* forms for information resources.
- *25 point Implementation Plan to Reform Federal Information Technology Management*, Vivek Kundra, U.S. Chief Information Officer, December 9, 2010.

- *Information Technology – Critical Factors Underlying Successful Major Acquisitions,* U.S. Government Accountability Office Report No. GAO-12-7, October 2011.

- *Information Technology – Office of Management and Budget and Agencies Need to Improve Planning, Management, and Oversight of Projects Totaling Billions of Dollars*, U.S. Government Accountability Office Report No. GAO-08-1051T, July 31, 2008.

Project Information

Project fieldwork was conducted from March 2012 through May 2012. The information in this report was not subjected to all the tests and confirmations that would be performed in an audit. However, the information in this report was subjected to certain quality control procedures to help ensure accuracy.

The following members of the State Auditor's staff performed this project:

- Serra Tamur, MPAff, CISA, CIA (Project Manager)
- Rebecca Franklin, CFE, CGAP, CISA, CICA (Assistant Project Manager)
- Kelsey Arnold
- Nick Frey
- Ellie Thedford, CGAP
- Dennis Ray Bushnell, CPA (Quality Control Reviewer)
- Ralph McClendon, CISSP, CCP, CISA (Audit Manager)

Appendix 2

Projects Analyzed and Agencies Surveyed for This Report

Table 2 lists the 15 projects that auditors analyzed for this report. All 15 projects were started on or after September 1, 2007, and completed as of December 2011.

Table 2

Major Information Resources Projects Auditors Analyzed for This Report

Agency	Major Information Resources Project	Original Budget [a]	Final Budget	Original Duration (in Months)	Final Duration (in Months)
Commission on Environmental Quality	Integrated Billing and Accounts Receivable System	$ 550,800	$1,173,105	24.00	28.27
Commission on Environmental Quality	TCEQ Automated Budget Systems	$1,107,839	$2,027,216	24.00	32.42
Department of Aging and Disability Services	Application Remediation Project	$5,500,000	$7,698,000	14.27	35.51
Department of Family and Protective Services	Fostering Connections Project	$1,511,966	$1,244,633	11.97	16.93
Department of Family and Protective Services	National Youth in Transition Database	$2,575,963	$1,468,120	22.98	20.61
Department of Transportation	Project Development Management System	$1,986,000	$2,109,505	15.09	18.08
Department of Transportation	Statewide Analysis Model, Version II	$864,250 [b]	$ 920,463	21.96	31.96
Health and Human Services Commission	Extended Enterprise Identity and Access Management Project	$2,636,001	$2,004,881	23.97	12.69
Office of the Comptroller of Public Accounts	Treasury Operations Project	$7,747,019	$12,531,175	41.00	41.00
Office of Court Administration	Texas Appeals Management and E-filing System	$3,500,000	$4,126,053	29.95	48.99
Texas Education Agency	Public Education Information Management System Redesign Phase I	$3,852,000	$4,514,259	19.46	19.46
Texas Education Agency	Public Education Information Management System Redesign Phase II	$3,852,000	$3,647,796	23.97	23.97
Parks and Wildlife Department	Oracle e-Business Information System (BIS) Transition Project	$1,590,041	$4,945,547	12.03	37.94
Texas Workforce Commission	eStrategy/ Employment Service Unemployment Insurance (ESUI) Integration Phase 3	$2,281,828	$2,543,445	17.95	24.00
Texas Workforce Commission	The Workforce Information System of Texas (TWIST)/Child Care Consolidation Project	$3,203,466	$3,499,474	22.55	50.47

[a] These are the budgets listed in the initial estimated project cost section of the agency's first monitoring report submitted to the Quality Assurance Team.

[b] The business case workbook that the Department of Transportation submitted for this project originally estimated the project's cost at $1.7 million. As a result, the project was monitored as a major information resources project.

For this report, auditors also surveyed project managers at 12 agencies for 14 major information resources projects that were monitored by the Quality Assurance Team between fiscal years 2007 and 2011. Table 3 lists the agencies surveyed and their related projects. It should be noted that six of the projects listed in Table 3 are also included in the list of projects analyzed in Table 2.

Table 3

Agencies and Related Major Information Resources Projects Included in Survey	
Agency	**Major Information Resources Project**
Office of the Attorney General	Texas Child Support Enforcement System Infrastructure Enhancements and Improvements Project
Commission on Environmental Quality	Integrated Billing and Accounts Receivable System
Commission on Environmental Quality	TCEQ Automated Budget Systems
Department of Aging and Disability Services	State Supported Living Center Telecommunications Project
Department of Family and Protective Services	Fostering Connections Project
Department of Public Safety	Drivers License Reengineering Project
Department of State Health Services	Enhance and Optimize WIC Client Service Delivery Project
Department of State Health Services	Health Registries Improvement Project
Department of Transportation	Statewide Analysis Model, Version II
Health and Human Services Commission	Medicaid Eligibility and Health Information Project
Midwestern State University	Mustangs Great Advances in Technology (G.A.I.T.) Project
Parks and Wildlife Department	Oracle e-Business Information System (BIS) Transition Project
Texas Education Agency	Consolidated Entitlements Management System, Phases I and II
Texas Workforce Commission	The Workforce Information System of Texas (TWIST)/Child Care Consolidation Project

Auditors also analyzed project information for 13 projects at 7 agencies from Quality Assurance Team review reports that were released in the May 2012. Table 4 lists the agencies reviewed and their related projects. It should be noted that 5 of the projects listed in Table 4 were included in the 15 projects listed in Table 2, and 6 of the projects listed in Table 4 were included in the survey of project managers listed in Table 3.

Table 4

Agencies and Major Information Resources Projects included in the Project Reviews Report Issued by the Quality Assurance Team May 2012	
Agency	**Major Information Resources Project**
Commission on Environmental Quality	Air Permit Allowable Database
Commission on Environmental Quality	TCEQ Automated Budget Systems
Department of Family and Protective Services	Fostering Connections Project
Department of State Health Services	Automated Medication Administration Record System
Department of State Health Services	Health Registries Improvement Project
Department of State Health Services	Trauma Registry Improvement System Project
Department of Transportation	Compass Project
Department of Transportation	Statewide Analysis Model, Version II
Department of Transportation	Texas Permit Routing Optimization System
Office of the Comptroller of Public Accounts	Treasury Operations Project
Parks and Wildlife Department	Oracle e-Business Information System (BIS) Transition Project
Parks and Wildlife Department	Texas Parks System
Texas Education Agency	Consolidated Entitlements Management System, Phases I and II

Appendix 3

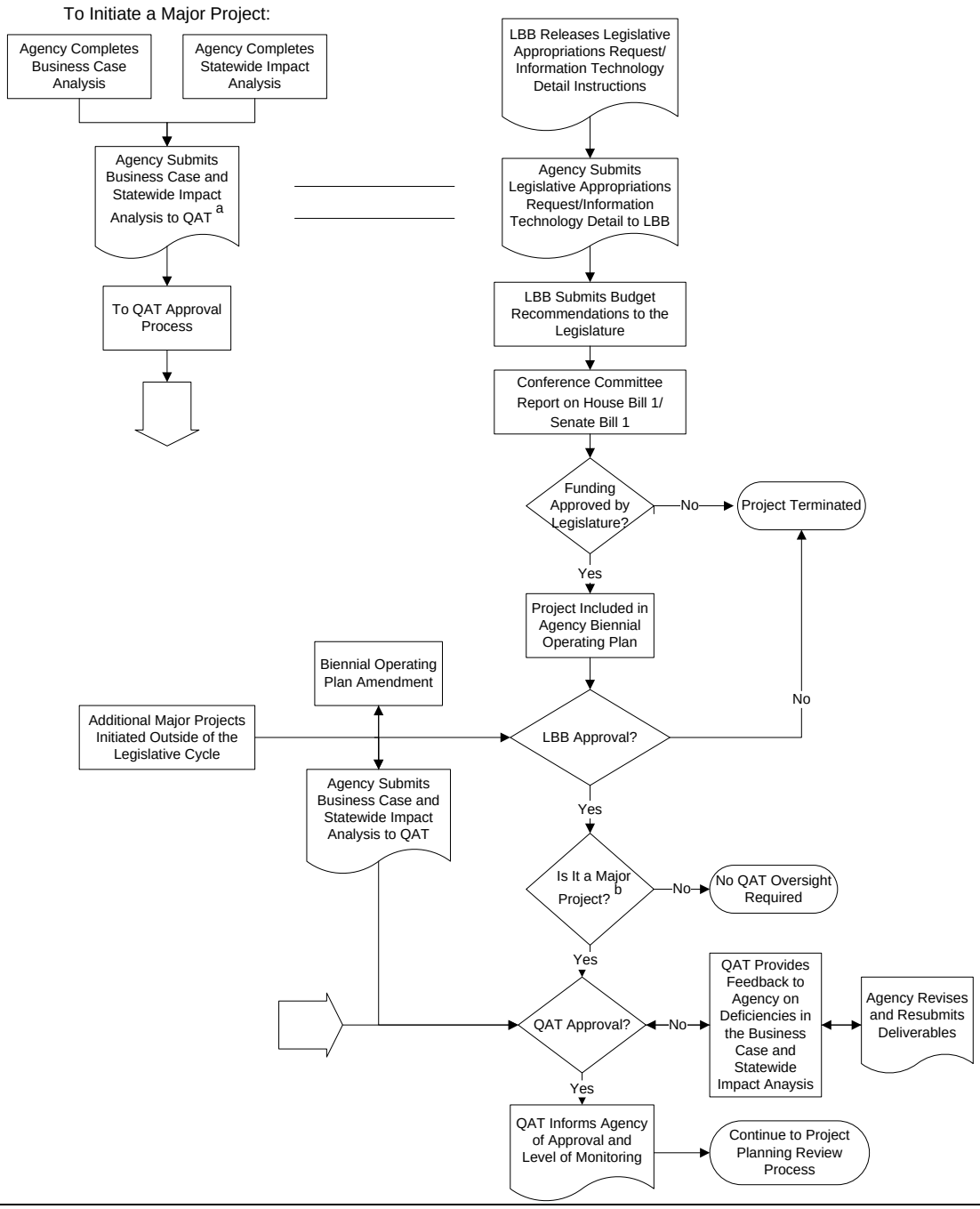
State Processes for the Development of Major Information Resources Projects

Figures 1 through 7 on the following pages show the State's processes for the development of major information resources projects, including the roles of the Quality Assurance Team (QAT) and the Legislative Budget Board (LBB). More information about those processes, which the *Texas Project Delivery Framework* refers to as "review gates," is available on the Department of Information Resources' Web site at http://www.dir.texas.gov/management/projectdelivery/projectframework/Pages/Framework.aspx.

Figure 1

Business Justification Review Process

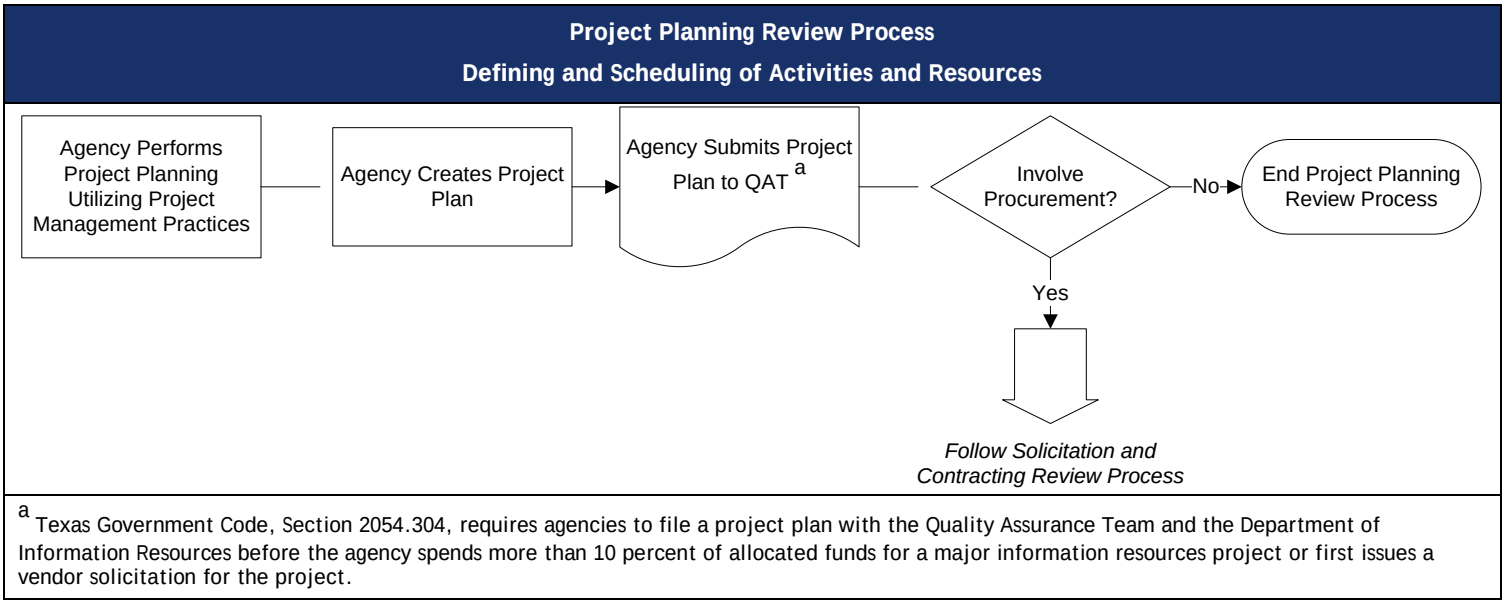
Project and/or Alternative Selection, Approval, and Initiation



a Texas Government Code, Section 2054.303, requires agencies to prepare for each proposed major information resources project: (1) a business case providing the initial justification for the project, including the anticipated return on investment in terms of cost savings and efficiency, and (2) a statewide impact analysis of the project's effect on the State's common information resources infrastructure, including the possibility of reusing code or other resources. The agency is required to file the documents with the Quality Assurance Team when the agency files its *Legislative Appropriations Request*.

b According to Texas Government Code, Section 2054.003.

Figure 2



a Texas Government Code, Section 2054.304, requires agencies to file a project plan with the Quality Assurance Team and the Department of Information Resources before the agency spends more than 10 percent of allocated funds for a major information resources project or first issues a vendor solicitation for the project.

Beginning in the project planning review process and continuing through project development, agencies must submit project status information to QAT for monitoring purposes. Figure 3 shows the process for those monitoring reports.

Figure 3

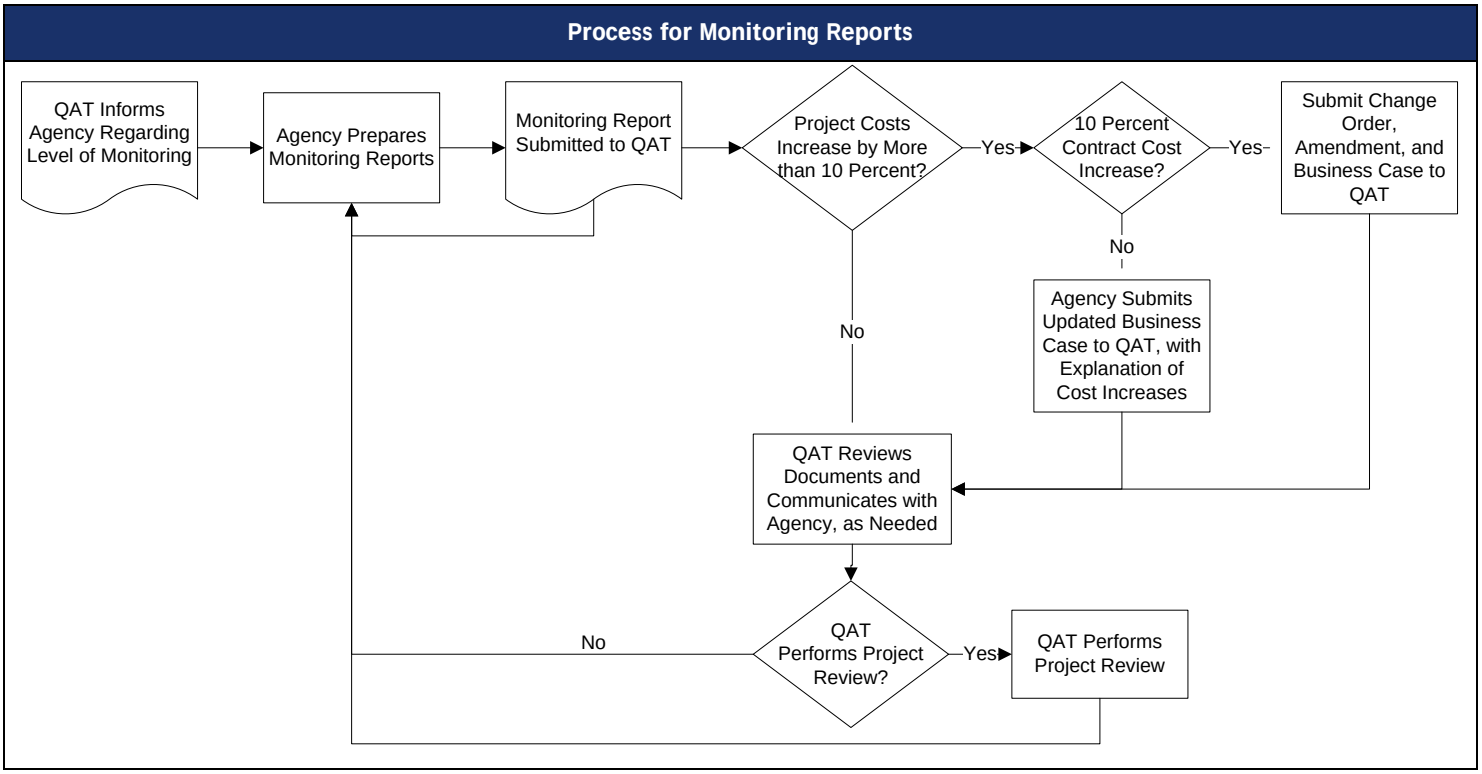


Figure 4

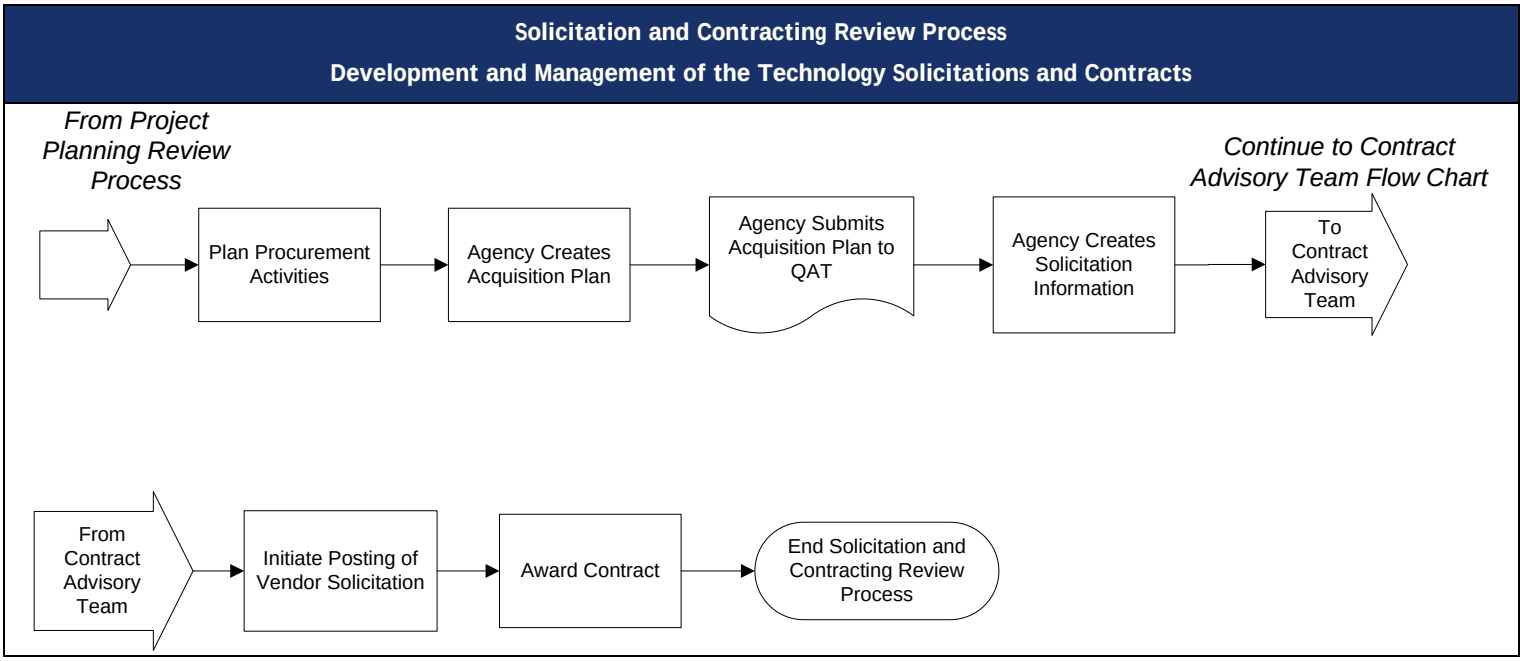
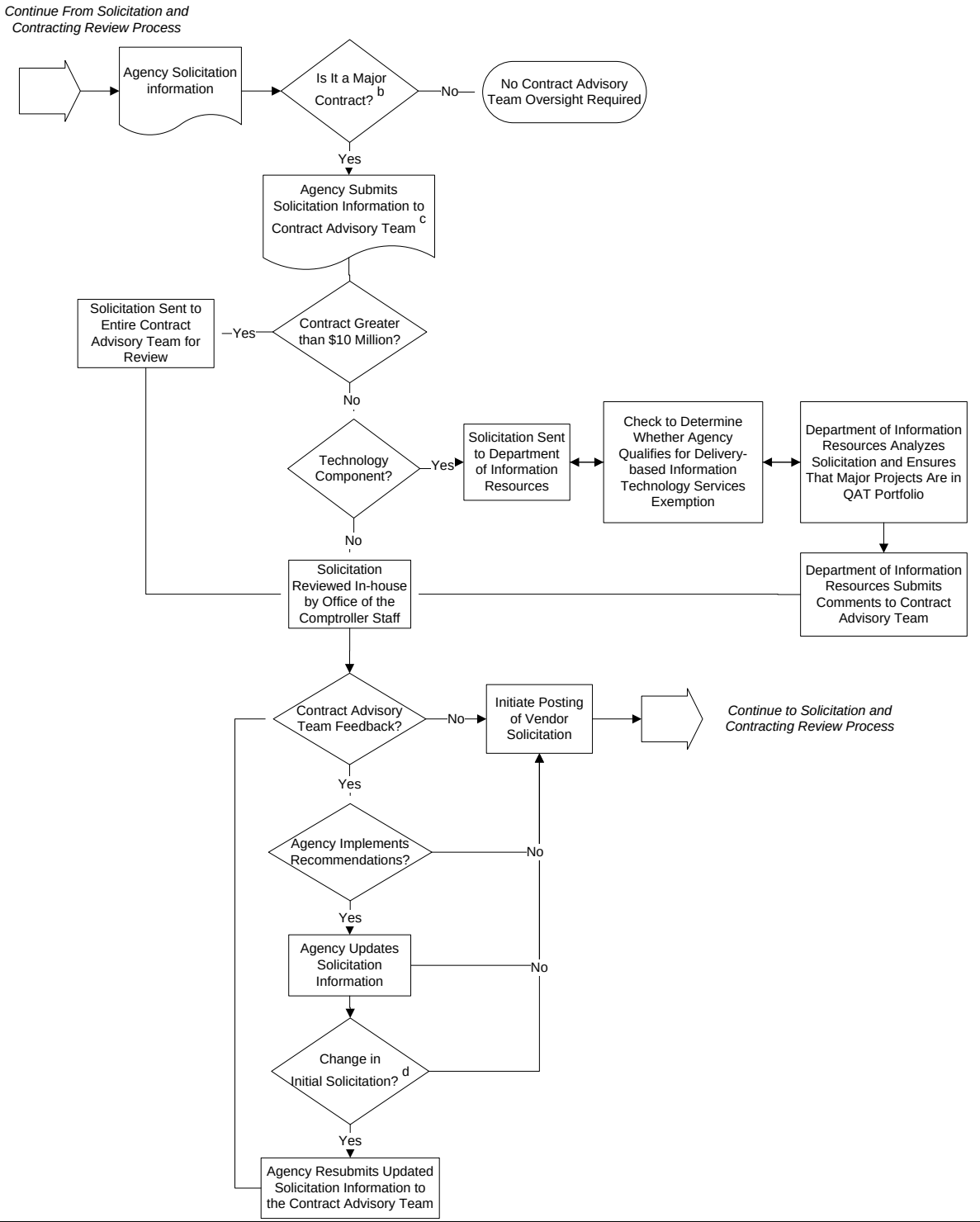

Solicitation and Contracting Review Process
Development and Management of the Technology Solicitations and Contracts
From Project Planning Review Process
Plan Procurement Activities
Agency Creates Acquisition Plan
Agency Submits Acquisition Plan to QAT
Agency Creates Solicitation Information
To Contract Advisory Team
Continue to Contract Advisory Team Flow Chart
From Contract Advisory Team
Initiate Posting of Vendor Solicitation
Award Contract
End Solicitation and Contracting Review Process

Figure 5

Process for Contract Advisory Team's Review of Major Information Resources Projects [a]



[a] The Contract Advisory Team includes one representative from each of the following agencies: the Office of the Attorney General, the Office of the Comptroller of Public Accounts, the Department of Information Resources, and the Office of the Governor.

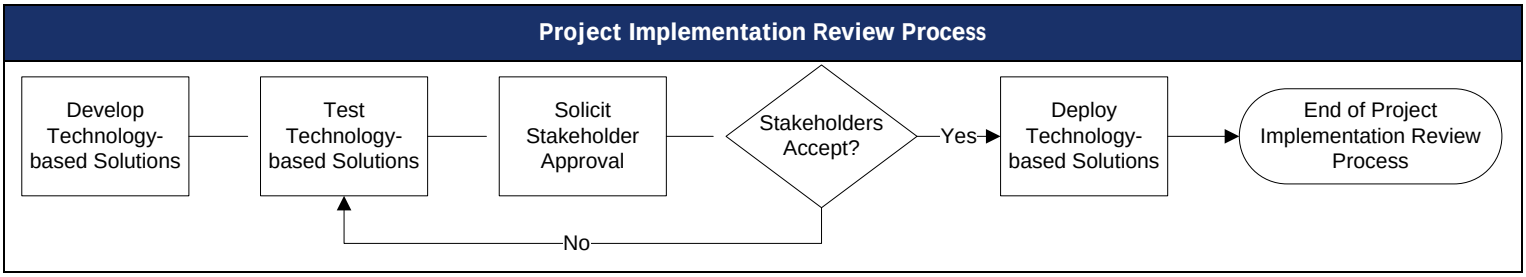
Process for Contract Advisory Team's Review of Major Information Resources Projects [a]

[b] Texas Government Code, Section 2262.001, defines a major contract as having a value of at least $1.0 million.

[c] According to the *State of Texas Contract Management Guide*, the Contract Advisory Team has 20 business days after its receipt of solicitation information to respond to an agency.

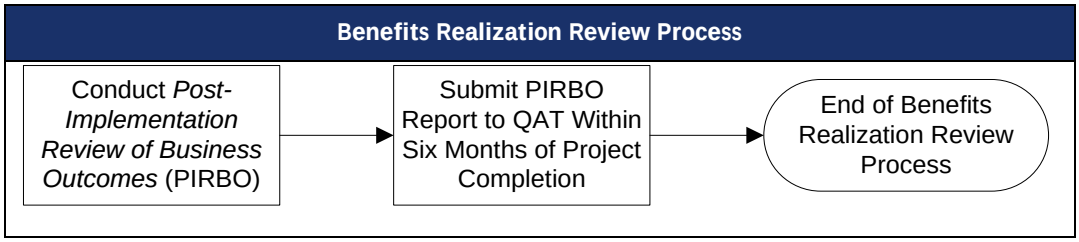
[d] If an agency's initial major contract solicitation document changes substantially, the *State of Texas Contract Management Guide* requires the agency to resubmit its solicitation document(s) for Contract Advisory Team review. Changes in the major contract solicitation are considered substantial when (1) the solicitation change caused the estimated value for the original term of the contract (not including any renewal periods) to increase by 25 percent or more or (2) there are significant revisions, deletions and/or additions to the specifications, statement of work, set(s) of deliverables, and/or performance measures, payment methodology, and other items.

Figure 6



The business realization review process, shown in Figure 7, includes evaluating project outcomes and determining whether the major information resources project achieved the desired benefits, goals, and objectives from the business justification and project planning review processes.

Figure 7



Appendix 4

Related State Auditor's Office Work

Related State Auditor's Office Work		
Number	**Product Name**	**Release Date**
12-045	An Audit Report on the ReHabWorks System at the Department of Assistive and Rehabilitative Services	July 2012
11-035	An Audit Report on the Development of the Texas Child Support Enforcement System 2.0 at the Office of the Attorney General	July 2011
10-034	An Audit Report on Selected Information Technology Projects at the Texas Medical Board, the Texas Alcoholic Beverage Commission, and the Texas Water Development Board	July 2010
08-036	An Audit Report on Selected Parole Functions at the Department of Criminal Justice and the Board of Pardons and Paroles	June 2008
02-319	A Review of State Entities' Quality Assurance Procedures	February 2002

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