

**DISTRICT OF COLUMBIA
WATER AND SEWER AUTHORITY**

Board of Directors

Audit Committee

Thursday, July 23, 2015

9:30 a.m.

1. **Call to Order**.....Nicholas A. Majett, Chairperson
2. **Introductory Remarks from KMPG Regarding the Financial Statement Audit**.....KMPG
3. **Internal Audit Update**..... Dan Whelan, Auditor General
 - A. **Review the Status of Internal Audit Plan**
 - B. **Follow-Up Report on Prior Audit Findings**
 - C. **Procurement Internal Audit Report**
 - D. **Contractor Management Internal Audit Report**
 - E. **Hotline Update**
4. **Executive Session*** Nicholas A. Majett, Chairperson
5. **Adjournment**..... Nicholas A. Majett, Chairperson

* The DC Water Board of Directors may go into executive session at this meeting pursuant to the District of Columbia Open Meetings Act of 2010, if such action is approved by a majority vote of the Board members who constitute a quorum to discuss: matters prohibited from public disclosure pursuant to a court order or law under D.C. Official Code § 2-575(b)(1); contract negotiations under D.C. Official Code § 2-575(b)(1); legal, confidential or privileged matters under D.C. Official Code § 2-575(b)(4); collective bargaining negotiations under D.C. Official Code § 2-575(b)(5); facility security under D.C. Official Code § 2-575(b)(8); disciplinary matters under D.C. Official Code § 2-575(b)(9); personnel matters under D.C. Official Code § 2-575(b)(10); proprietary matters under D.C. Official Code § 2-575(b)(11); decision in an adjudication action under D.C. Official Code § 2-575(b)(13); civil or criminal matters where disclosure to the public may harm the investigation under D.C. Official Code § 2-575(b)(14), and other matters provided in the Act.



District of Columbia Water and Sewer Authority

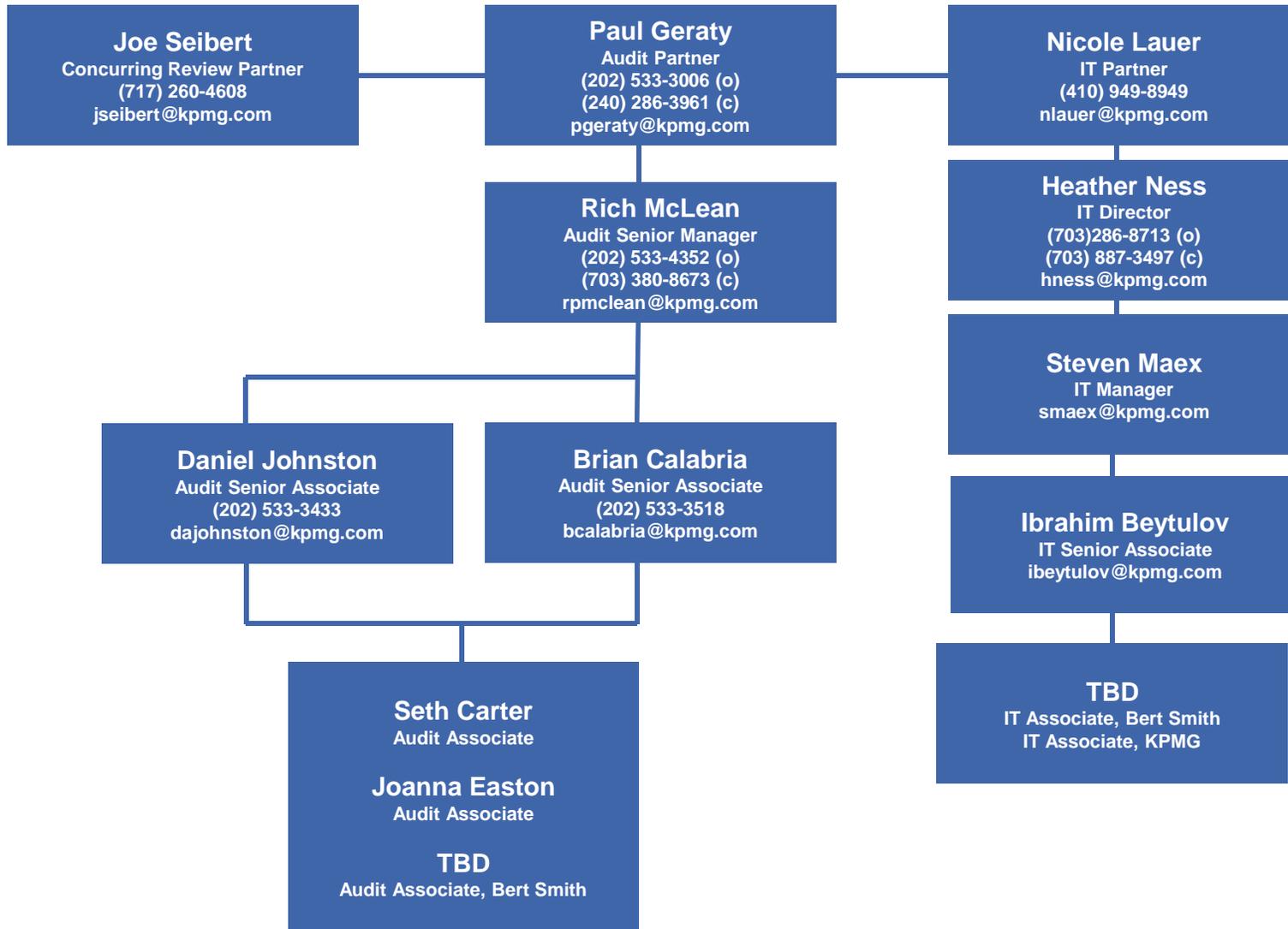
**Financial Statement Audit &
OMB Circular A-133 Single Audit
Fiscal Year 2015 –
Entrance Conference**

July 23, 2015

Meeting Objectives

- Introductions
- DC Water Engagement Team
- Scope
- KPMG's Responsibilities
- Management's Responsibilities
- KPMG's Financial Statement Audit Approach
- KPMG's Single Audit Methodology
- IT Audit Approach
- Audit Timeline
- Audit Deliverables
- Audit Strategies – KPMG
- Notice of Finding and Recommendation (NFR) Process
- Administrative and Other Matters

The DC Water Engagement Team



Scope

- Audit of FY 2015 DC Water Financial Statements and OMB Circular A-133 Single Audit
 - Report on financial statements
 - Report on Internal Control over Financial Reporting and Compliance with Laws and Regulations Based on Audit of Financial Statements Performed in Accordance with *Government Auditing Standards*
 - Report on Compliance with Requirements that Could Have a Direct and Material Effect on Each Major Program and on Internal Control Over Compliance in Accordance with OMB Circular A-133
- Follow-up on findings, comments, and recommendations from the FY 2014 audit
- Management Letter

KPMG's Responsibilities

Financial Statement Audit

- The objective of an audit of financial statements is to enable the auditor to express an opinion whether the financial statements are prepared, in all material respects, in accordance with U.S. GAAP
 - Because of the nature of audit evidence and the characteristics of fraud, we are able to obtain reasonable, but not absolute, assurance that material misstatements will be detected.
 - To test and report on internal control over financial reporting, but not to opine, to ensure that DC Water has sufficient controls to address the risk of fraud and the risk of management override of other controls.
 - We will conduct the audit in accordance with auditing standards generally accepted in the U.S. and *Government Auditing Standards*, issued by the Comptroller General of the United States.

KPMG's Responsibilities (Continued)

OMB Circular A-133 Audit (Single Audit)

- The objective of a Single Audit is to enable the auditor to express an opinion on the compliance requirements for each major Federal program.
 - A single audit is designed to provide reasonable assurance about whether noncompliance with OMB Circular A-133, *Audits of States, Local Governments, and Non-Profit Organizations*, compliance requirements could have a direct and material effect on each major Federal program.
 - To test and report on internal control over compliance in accordance with OMB Circular A-133, but not to opine.
 - We will conduct the audit in accordance with auditing standards generally accepted in the U.S. and *Government Auditing Standards*, issued by the Comptroller General of the United States.

KPMG's Responsibilities (continued)

- Comply with the Code of Professional Conduct adopted by the AICPA
- Perform the audit with an attitude of professional skepticism.
- Communicate all required information to management and those charged with governance (i.e., SAS 114):
 - Significant matters
 - Significant deficiencies and material weaknesses in internal control identified in the audit
 - Instances of non-compliance with A-133 compliance requirements
- Issuing the independent auditors' reports (previously discussed)
- Issuing a management letter, if necessary
- Reading the other accompanying information included in DC Water's Comprehensive Annual Financial Report (CAFR) to identify material inconsistencies or misstatement of facts, if any, with the audited financial statements
 - Our auditors' report on the financial statements does not extend to other information in documents containing audited financial statements

Management's Responsibilities

- Adopting sound accounting policies and procedures
- Fairly presenting the financial statements in conformity with U.S. GAAP promulgated by the Government Accounting Standards Board (GASB)
- Fairly presenting federally funded expenditures in conformity with OMB Circular A-133's compliance requirements in the Schedule of Expenditures of Federal Awards (SEFA)
- Establishing and maintaining effective internal control over financial reporting
- Establishing and maintaining effective internal controls to prevent, deter, and detect fraud
- Establishing and maintaining effective internal controls to ensure compliance with OMB Circular A-133 compliance requirements for expenditures funded by federal dollars
- Identifying and confirming that DC Water complies with laws and regulations that are direct and material to its financial statements and major Federal award programs
- Complying with the requirements of laws, regulations, contracts, and grants applicable to its Federal programs
- Making all financial records and related information available to us
- Providing us with a management representation letter confirming certain representations made during the financial statement audit and Single Audit

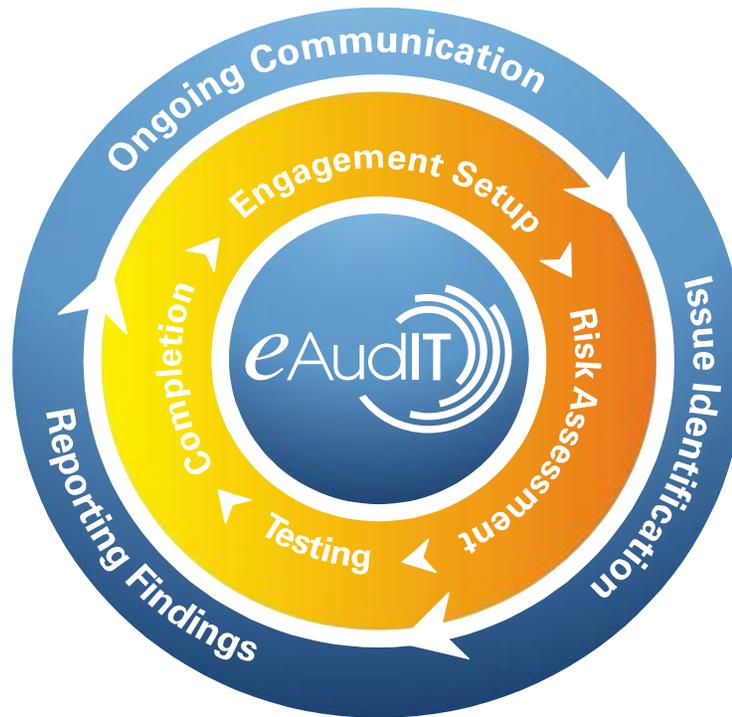
KPMG Financial Statement Audit Approach

Engagement Setup

- Tailor the eAudit workflow to your circumstances
- Access global knowledge specific to your industry

Completion

- Form and issue audit opinion on financial statements
- Issue management letter
- Debrief audit process



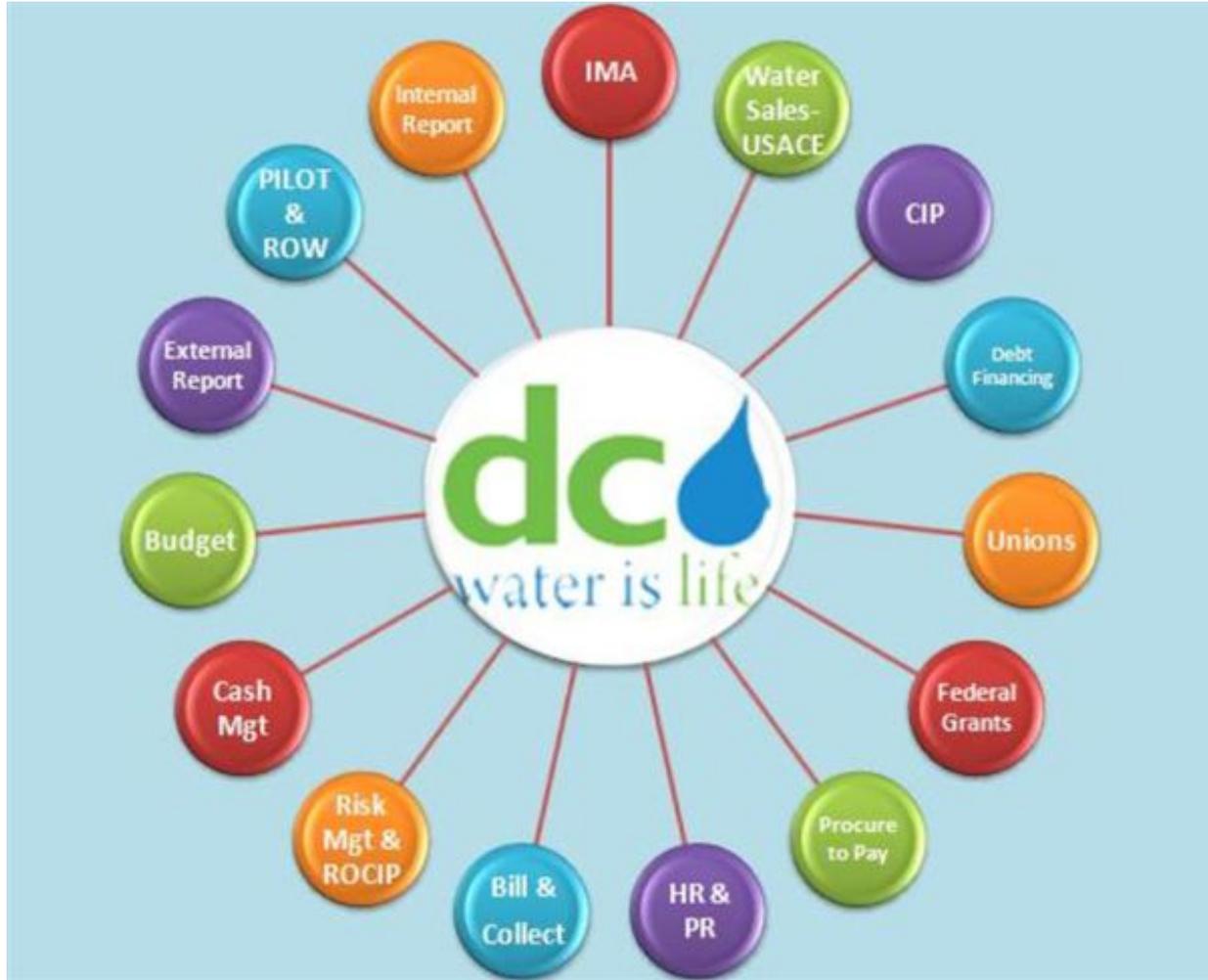
Risk Assessment

- Understand business and financial processes
- Identify significant risks
- Determine audit approach
- Evaluate design and implementation of internal controls

Testing

- Test effectiveness of internal controls
- Perform substantive tests
- Check financial statements

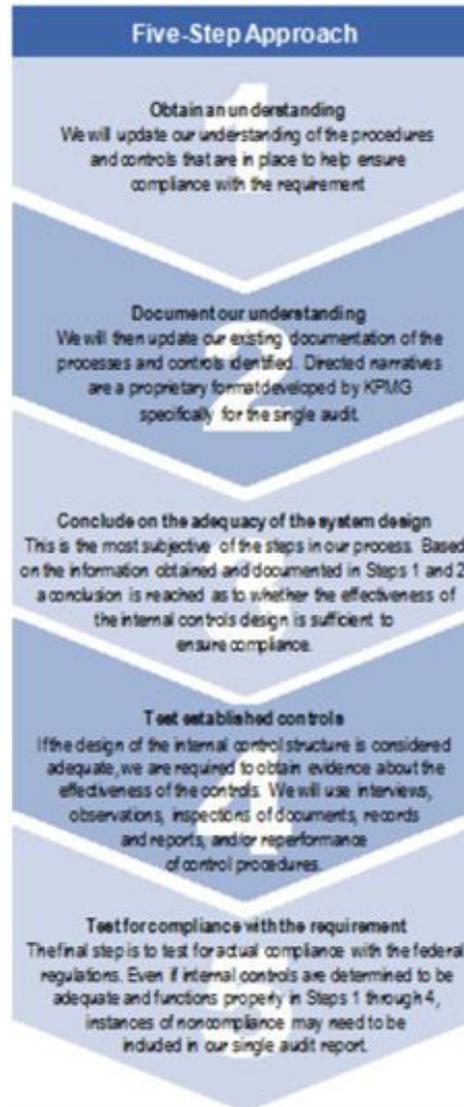
DC Water Significant Business Processes and Transactions



Our audit will cover all of DC Water's core business processes and activities.

KPMG's Single Audit Methodology (SAM)

The Single Audit Procedures will be Integrated with the Financial Statement Audit Procedures to the Extent Practical



Utilize KPMG Proprietary OMB Circular A-133 Single Audit Workflow (SAW)

IT Audit Approach

- Obtain overview of IT environment including:
 - Key IT roles and responsibilities
 - Policies and procedures in place to guide IT operations
 - Key systems related to financial reporting

- Identify key automated business process (application) controls in areas such as:
 - A/P and Procurement
 - A/R and Revenue
 - Financial Reporting

- Identify and review general IT controls that support consistent operation of identified application controls in areas such as:
 - Access to programs and data
 - Program change
 - Program development
 - Computer operations

IT team is fully integrated into the audit.



Audit Timeline

| Phase | Timeframe |
|---|---------------------|
| Planning | 8/3/15 – 8/28/15 |
| Process Understanding | 8/3/15 – 8/28/15 |
| Interim Internal Control and Substantive Testwork | 8/10/15 – 8/28/15 |
| General IT Control Testing | 8/31/15 – 9/18/15 |
| Final Internal Control Testwork | 10/19/15 – 11/4/15 |
| Substantive Testwork | 10/19/15 – 12/4/15 |
| Financial Reporting | 11/16/15 – 12/18/15 |
| CAFR Tie-out | 1/4/16 – 1/15/16 |
| Single Audit Compliance Testwork | 10/19/15 – 1/15/16 |

Deliverables

| Deliverable | Date |
|---|----------|
| Management Representation Letter | 11/25/15 |
| Draft audit opinion on Lifiable Financial Statements & Notes | 12/11/15 |
| Final audit opinion on Lifiable Financial Statements & Notes | 12/18/15 |
| Final audit opinion on CAFR | 1/15/16 |
| Final report on internal control and compliance in accordance with <i>Government Auditing Standards</i> | 2/1/16 |
| Report on compliance with OMB Circular A-133 requirements | 2/1/16 |
| Review of Data Collection Form | 2/1/16 |
| Issue draft management letter | 1/15/16 |
| Issue final management letter | 2/1/16 |

Audit Strategies – KPMG

- All Processes: perform interim internal control testwork over the period 10/1-6/30
- Update our understanding for the 4th quarter through a combination of inquiries and sampling techniques during final phase of the audit
- Perform some substantive procedures at an interim date [using June 30th hard close]
- Test certain OMB Circular A-133 compliance requirements that impact our opinion on the financial statements during the financial statement audit

Notice of Finding and Recommendation (NFR) Process

- Verify factual accuracy of NFR condition with responsible party
- Communicate the issue to management
- Draft, approve, and issue formal NFR to management
- NFR response requirements
 - Concur or don't concur with the facts of the condition
 - Management signature and date
 - Management response
 - Provide responses within 5 business days or less of distribution
- Review NFRs at weekly/bi-weekly status meetings
- Include in management letter and/or Report on Internal Control and Compliance in Accordance with *Government Auditing Standards*

New Accounting Standards Effective in FY 2015

- *GASB 68, Accounting and Financial Reporting for Pensions – an amendment of GASB Statement No. 27*
- *GASB 69, Government Combinations and Disposals of Government Operations*
- *GASB 71, Pension Transition for Contributions Made Subsequent to the Measurement Date—an amendment of GASB Statement No. 68*

We do not expect these new standards to have any impact on DC Water’s financial statements in FY 2015.

For Your Reference

- KPMG Ethics and Compliance Hotline
 - **Scope** – To provide a confidential, non-retaliatory, and anonymous hotline to the following individuals/organizations for the good faith reporting of concerns about possible violations of law, professional and ethical standards, and KPMG policy.
 - Available to KPMG partners and employees, as well as clients, contractors, vendors, and others in a business relationship with KPMG, including other KPMG member firms whose partners and employees may be working with the U.S. firm on engagements with U.S. clients
 - **Contact information**
 - Phone: 1-877-576-4033
 - Website: www.kpmgethics.com
- KPMG Government Institute*
 - **Scope** – To serve as a strategic resource for government at all levels, and also for higher education and non-profit entities seeking to achieve high standards of accountability, transparency, and performance. The institute is a forum for ideas, a place to share leading practices, and a source of thought leadership to help governments address difficult challenges such as effective performance management, regulatory compliance, and fully leveraging technology.
 - **Contact information**
 - Jeff Steinhoff, Executive Director (jsteinhoff@kpmg.com)
 - Website: www.kpmginstitutes.com/government-institute/

*The KPMG Government Institute is a member of the KPMG Institute Network (www.kpmginstitutes.com).

Open Discussion/ Questions





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DC Water Audit Committee Meeting

July 23, 2015



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Agenda

- **Internal Audit Status**
- **Follow-up on Prior Audit Findings**
- **Procurement Internal Audit**
- **Engineering - Contractor Management Internal Audit**
- **Hotline Update**
- **Executive Session**

Internal Audit Status

| Audit | Status |
|-------------------------------------|-----------------------|
| Intellectual Property | Report Complete |
| IT Policy and Procedure * | Report Complete |
| Timekeeping | Report Complete |
| IT Network Security * | Report Complete |
| Procurement | Report Complete |
| SCADA* | Report Complete |
| Engineering – Contractor Management | Report Complete |
| Rates and Revenue | Fieldwork In-Progress |
| IT Vendor Management * | Fieldwork In-Progress |
| Overtime ** | Fieldwork In-Progress |
| Washington Aqueduct Contract | Postponed to FY2016 |
| Budgeting ** | In Planning Stage |
| Follow-Up | On-going |
| Hotline | On-going |



*Report to be addressed during executive session

**Report will be issued in FY2016

Follow-up on Prior Audit Findings

| Audit Report/Subject | Report Issue Date | Corrective Actions | | | | |
|--|-------------------|--------------------|-----------|----------|-----------------|-----------------|
| | | Total | Open | Closed | Pending Testing | Action Deferred |
| Organizational Policies & Procedures | 02/23/2010 | 1 | 0 | 0 | 0 | 1 |
| Safety Program Training & Compliance | 10/07/2010 | 1 | 0 | 0 | 0 | 1 |
| Pumping & Storage - Water Leakage | 03/01/2011 | 1 | 0 | 0 | 0 | 1 |
| Human Capital Management | 11/29/2011 | 1 | 0 | 0 | 0 | 1 |
| Maintenance Services | 04/18/2012 | 2 | 2 | 0 | 0 | 0 |
| IT Helpdesk & Computer Operations | 10/05/2012 | 1 | 1 | 0 | 0 | 0 |
| Fleet Management | 04/17/2013 | 2 | 2 | 0 | 0 | 0 |
| Process Control System (PCS) | 09/04/2013 | 7 | 6 | 0 | 1 | 0 |
| Sewer - Emergency Maintenance | 06/18/2013 | 2 | 2 | 0 | 0 | 0 |
| Water Services - Distribution Maintenance Branch | 10/28/2013 | 4 | 3 | 0 | 1 | 0 |
| Legal Operations | 02/11/2014 | 1 | 1 | 0 | 0 | 0 |
| OSHA | 02/18/2014 | 1 | 1 | 0 | 0 | 0 |
| Disposal of Assets | 02/18/2014 | 2 | 2 | 0 | 0 | 0 |
| Emergency Management - Recovery | 05/12/2014 | 2 | 2 | 0 | 0 | 0 |
| DSS - Construction & Repair | 05/12/2014 | 7 | 7 | 0 | 0 | 0 |
| Emergency Management - Mitigation | 06/27/2014 | 1 | 1 | 0 | 0 | 0 |
| Outsider Contractor Management - Part 2 | 07/22/2014 | 2 | 2 | 0 | 0 | 0 |
| Disaster Recovery | 07/31/2014 | 1 | 0 | 1 | 0 | 0 |
| IT Asset Management | 09/10/2014 | 5 | 1 | 2 | 2 | 0 |
| Warehouse Operations | 09/15/2014 | 4 | 1 | 0 | 2 | 1 |
| GIS Mapping | 06/23/2014 | 3 | 3 | 0 | 0 | 0 |
| | Total | 51 | 37 | 3 | 6 | 5 |



On October 1, 2014, there was a total of 82 open prior audit findings

Follow-up on Prior Audit Findings

Status by Business Area

| | DETS | Blue Plains | Customer Care & Operations | Office of the General Counsel | IT | Support Services | Finance | Office of the General Manager |
|------------------------------|------|-------------|----------------------------|-------------------------------|----|------------------|---------|-------------------------------|
| Closed Since Last AC Meeting | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 |
| Open Management Action Plans | 3 | 8 | 15 | 1 | 4 | 6 | 0 | 0 |
| Pending Testing | 0 | 1 | 1 | 0 | 2 | 2 | 0 | 0 |
| Action Deferred | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 3 |
| 51 Total | 3 | 9 | 17 | 1 | 9 | 9 | 0 | 3 |

Corrective action themes

| Category | Number of corrective actions |
|--|------------------------------|
| Policy and Procedure Update / Approval | 19 |
| Employee Development / Training | 7 |
| Asset Management | 11 |
| Catch Basin Pilot Program | 3 |
| Vacant Position Dependency | 3 |
| Contractor / Vendor Dependency | 4 |

Follow-up on Prior Audit Findings

- We have implemented the Auditor Assistant Issue Tracker to manage the prior audit findings. This allows process owners to view open issues in real-time and provide updates, request closure and request extensions.
- Items pending testing will be addressed and updated as soon as possible.
- We are satisfied with management's responses and planned actions, and will perform follow-up on the observations in the course of routine follow-up procedures.

| All Issues by Audit | |
|---|-------------|
| Expand All Collapse All | |
| ID | Target Date |
| 2010 Corporate Policies & Procedures | |
| Open | |
| 38 | 01/01/2100 |
| 2010 Safety Programs Training & Awareness | |
| Open | |
| 74 | 01/01/2100 |
| 2011 Human Capital Management | |
| Open | |
| 97 | 01/01/2100 |
| 2011 Pumping & Storage - Water Treatment | |
| Open | |
| 72 | 01/01/2100 |
| 2012 IT Helpdesk & Computer Operations | |

Procurement Internal Audit

The scope of the Procurement audit included:

- Review of the pre-award and selection / award phases of the procurement process for the Department of Procurement (Goods & Services) and the Department of Engineering and Technical Services (DETS);
- Compliance with DC Water's Procurement Regulations and Procurement Manual; and
- Follow-up on the status of the existing recommendations and improvement opportunities from prior Procurement-related reports.

During the audit period of October 1, 2013 through March 31, 2015, the following depicts the number and value of contracts that were *awarded* at DC Water:

| Executed Contract Type | # of Awards | Value of Award (\$) |
|---------------------------|-------------|---------------------|
| Goods and Services | 52 | \$141,259,447.85 |
| Construction | 28 | \$488,960,749.62 |
| A/E | 9 | \$96,768,444.00 |
| Total | 89 | \$726,988,641.47 |

Procurement Internal Audit

| Observations | Risk Rating |
|---|-------------|
| 1. Accuracy of Evaluation Scoring Sheets | High |
| 2. Procurement Manual Acquisition Planning Procedures | Low |

| Improvement Opportunity |
|--|
| 1. Public Notification of Contract Award |

We are satisfied with management’s responses and planned actions, and will perform follow-up on the observations in the course of routine follow-up procedures.

Procurement Internal Audit

The following is a status report on the recommendations made through prior internal audits and consulting reports. The reported status below documents the progress made towards completion, as represented by management to internal audit.

| Status of Procurement- Related Recommendations | | | |
|--|--------|-------------|-----------------|
| Prior Reports | Closed | In-Progress | Action Deferred |
| Outsider Contractor Management – Part 1 and Part 2 (2014) <i>SC&H Group, LLC</i> | 0 | 2 | 0 |
| Disposal of Assets (2014) <i>SC&H Group, LLC</i> | 0 | 1 | 0 |
| Governance Assessment of DC Water’s Procurement (2014) <i>Veolia</i> | 14 | 8 | 1 |
| Evaluation Report of DC Water and Sewer Authority’s Procurement Department (2012) <i>Hill-Christian Consulting Group (HCCG)</i> | 0 | 10 | 0 |

Key

Closed – The recommendation was closed due to completion or upon evaluation and discussion with management, the recommendation was not valid

In Progress – The recommendation is being addressed and management action plans have been provided.

Action Deferred – The recommendation requires additional resources or dependent upon a system change or management decision

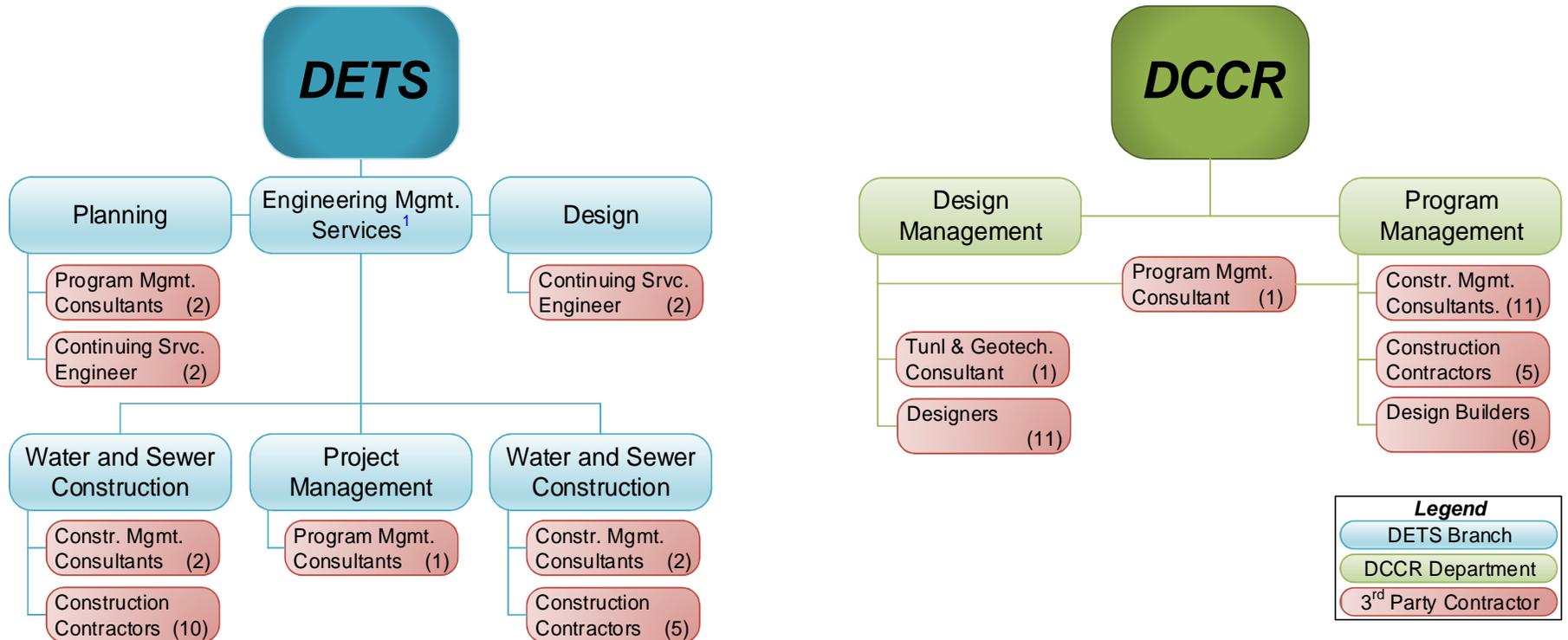
Engineering - Contractor Management Internal Audit

This internal audit of the Authority's vendor / contractor management function represents the first phase of a three phased audit plan encompassing the Authority's engineering and construction function.

The primary objectives of the internal audit of the Authority's vendor / contractor management included the following:

- To obtain an understanding of the processes and controls in-place at DETS and DCCR for administering a construction project utilizing 3rd party vendor / contractor agreements;
- To identify and assess the design of monitoring controls in-place over high risk outsourced program management, design or construction management functions;
- To develop recommendations for improvements to vendor / contractor monitoring controls, outsourcing structures, contract language, process flow, etc.

Engineering - Contractor Management Internal Audit



¹The Engineering Management Services Branch assists with the review of contractor invoices and change orders, administers the Capital Improvement Plan, applicable project budgets, specifications, and is heavily involved in the procurement of Construction contracts and AE Agreements, including MBE/WBE participation.

Through our work we did not identify any specific instances of missing or improperly designed controls over DETS vendor/contractor monitoring, but have identified two (2) process improvement opportunities.

Engineering - Contractor Management Internal Audit

| Improvement Opportunities |
|---|
| 1. Design Build Contract Delivery Methodology |
| |
| 2. Building Information Modeling |
| |

Hotline Update

Last audit committee meeting we reported that 3 cases were open. Since the last audit committee meeting:

| Hotline Calls | |
|----------------------|---|
| Calls Received | 6 |
| Fraud Claims | 3 |
| Other | 3 |
| Cases Closed | 4 |
| Cases Currently Open | 5 |

- Implemented a web reporting tool, allowing DC Water employees another outlet to report claims of fraud, waste and abuse.
- Conducted joint quarterly meeting with Legal Counsel, Labor Relations, Security and Internal Audit.

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Audit Committee - 3. Internal Audit Update- Dan Whelan, Auditor General

| | | 2010 | 2011 | 2012 | 2013 | 2014 | Proposed 2015 | Preliminary 2016 | Preliminary 2017 | | | | | | | | | | | | |
|---|--|------|------|------|------|------|---------------|------------------|------------------|---|---------------------|---|------------------|---|--|---|--------------|---|-----------------|---|----------------------------------|
|   | | | | | | | | | | | | | | | | | | | | | |
| <p align="center">DC Water & Sewer Authority Audit Plan October 2009 through September 2014 Proposed 2015, 2016 and 2017</p> | | | | | | | | | | | | | | | | | | | | | |
| <p>Key -</p> <table border="1"> <tr><td>X</td><td>Proposed Audit Plan</td></tr> <tr><td>X</td><td>Audit In Process</td></tr> <tr><td>#</td><td>Audit complete, Open Management Action Plans</td></tr> <tr><td>X</td><td>Audit Issued</td></tr> <tr><td>X</td><td>Action Deferred</td></tr> <tr><td>X</td><td>Audit Closed, No Follow-up Items</td></tr> </table> | | | | | | | | | | X | Proposed Audit Plan | X | Audit In Process | # | Audit complete, Open Management Action Plans | X | Audit Issued | X | Action Deferred | X | Audit Closed, No Follow-up Items |
| X | Proposed Audit Plan | | | | | | | | | | | | | | | | | | | | |
| X | Audit In Process | | | | | | | | | | | | | | | | | | | | |
| # | Audit complete, Open Management Action Plans | | | | | | | | | | | | | | | | | | | | |
| X | Audit Issued | | | | | | | | | | | | | | | | | | | | |
| X | Action Deferred | | | | | | | | | | | | | | | | | | | | |
| X | Audit Closed, No Follow-up Items | | | | | | | | | | | | | | | | | | | | |
| Overall Audit Functions | | | | | | | | | | | | | | | | | | | | | |
| Risk Assessment | | | | | | | X | | | | | | | | | | | | | | |
| Update Risk Assessment and Audit Plan Development | | | | | | | | X | X | | | | | | | | | | | | |
| Follow-up Procedures | | | | | | | X | X | X | | | | | | | | | | | | |
| Quality Control - Board meetings, Status Reporting | | | | | | | X | X | X | | | | | | | | | | | | |
| Fraud, Waste & Abuse Hotline Management | | | | | | | X | X | X | | | | | | | | | | | | |
| Entity - Wide | | | | | | | | | | | | | | | | | | | | | |
| Office of the General Manager | | | | | | | | | | | | | | | | | | | | | |
| Intellectual Property | | | | | | | X | | | | | | | | | | | | | | |
| Organization Governance | | | | | | | | | | | | | | | | | | | | | |
| Organization Policies & Procedures | | | | | | | | | | | | | | | | | | | | | |
| Succession Planning | X | | | | | | | | X | | | | | | | | | | | | |
| External Affairs | | | | | | | | | | | | | | | | | | | | | |
| Community Outreach & Education | | | | | | | | | | | | | | | | | | | | | |
| Government Relationships | | | | | | | | | | | | | | | | | | | | | |
| Finance | | | | | | | | | | | | | | | | | | | | | |
| Financial Accounting and Reporting | | | | | | | | | | | | | | | | | | | | | |
| Accounts Payable | | | X | | | | | | | | | | | | | | | | | | |
| Fixed Assets & Equipment | | | | | | | | X | | | | | | | | | | | | | |
| Financial Statement Consolidation & Reporting | | | | | | | | | | | | | | | | | | | | | |
| General Ledger | | | | | | | | | | | | | | | | | | | | | |
| Grant Operations | | X | | | | | | | | | | | | | | | | | | | |
| Payroll | | | X | | | | | | | | | | | | | | | | | | |
| Timekeeping | | | | | | | X | | | | | | | | | | | | | | |
| Overtime | | | | | | | | X | | | | | | | | | | | | | |
| Financial Planning and Analysis | | | | | | | | | | | | | | | | | | | | | |
| Annual Budgeting & Planning | | | | | | | | X | | | | | | | | | | | | | |
| Treasury, Debt and Risk | | | | | | | | | | | | | | | | | | | | | |
| Cash Receipts | X | | | X | | | | | X | | | | | | | | | | | | |
| Debt Management | | | | | | | | | | | | | | | | | | | | | |
| Insurance Program Procurement & Insurance Claims Management | | | X | | | | | | | | | | | | | | | | | | |
| Investments and Cash Management | | | | X | | | | | X | | | | | | | | | | | | |
| Rates and Revenue Calculation | | | | | | | X | | | | | | | | | | | | | | |
| General Counsel | | | | | | | | | | | | | | | | | | | | | |
| Legal Operations | | | | | | | | | | | | | | | | | | | | | |
| Regulatory Compliance Monitoring | X | | | X | | | | | | | | | | | | | | | | | |
| Information Technology | | | | | | | | | | | | | | | | | | | | | |
| GIS System | | | | | | | 3 | | | | | | | | | | | | | | |
| Access Provisioning and DeProvisioning | X | | | | | | | | | | | | | | | | | | | | |
| Asset Management | | | | X | | | 3 | | | | | | | | | | | | | | |
| Business & Operating Applications | | | X | | | | | | | | | | | | | | | | | | |
| Customer Data Collection and CIS | | | | | | | | X | | | | | | | | | | | | | |
| Disaster Recovery & Business Continuity Plans | | X | | | | X | | | X | | | | | | | | | | | | |
| Financial Applications | | | | | | | | X | | | | | | | | | | | | | |
| Governance & Strategy Review | | | X | | | | | X | | | | | | | | | | | | | |
| Help Desk & Computer Operations | | | 1 | | | | | | | | | | | | | | | | | | |
| Human Resource/Employee Privacy | | | | | | | | | X | | | | | | | | | | | | |
| Information Security Policy | | | | | | | X | | | | | | | | | | | | | | |
| Internal & External Network Intrusion/Penetration Testing | X | | | X | | | X | | | | | | | | | | | | | | |
| Internal Network & Telecommunications | | | | X | | | | | | | | | | | | | | | | | |
| Incident Response | | | | | | | | X | | | | | | | | | | | | | |
| Physical Security | | | | | | | | | X | | | | | | | | | | | | |
| SCADA | | | | | | | X | | | | | | | | | | | | | | |
| SDLC and Change Management | X | | | X | | | | | X | | | | | | | | | | | | |
| Vendor Management | | X | | | | | X | | | | | | | | | | | | | | |
| Labor Relations | | | | | | | | | | | | | | | | | | | | | |
| Labor Relations - Contract Management & Compliance | | | | | | | | X | | | | | | | | | | | | | |
| Workers Compensation | | | | | | | | X | | | | | | | | | | | | | |
| Support Services | | | | | | | | | | | | | | | | | | | | | |
| Facilities Management | | | | | | | | | | | | | | | | | | | | | |
| Facility Operations, Maintenance & Costs | | | | | | | | | X | | | | | | | | | | | | |
| Fleet | | | | | | | | | | | | | | | | | | | | | |
| Fleet Management | | X | | 2 | | | | | X | | | | | | | | | | | | |
| Human Capital Management | | | | | | | | | | | | | | | | | | | | | |
| Employee Benefit Plans | | | | | | X | | | | | | | | | | | | | | | |
| Employee New Hire and on-boarding Processing | | | | | | | | X | | | | | | | | | | | | | |
| Recruitment & Training System | | | | | | | | | X | | | | | | | | | | | | |
| Human Capital Management | | X | | | | | | | | | | | | | | | | | | | |
| Occupational Safety and Health | | | | | | | | | | | | | | | | | | | | | |
| OSHA | | | | | | | 1 | | | | | | | | | | | | | | |
| Safety Programs, Training & Compliance | X | | | | | | | | | | | | | | | | | | | | |
| Procurement | | | | | | | | | | | | | | | | | | | | | |
| Disposal of Assets | | | | | | | 2 | | | | | | | | | | | | | | |
| Outside Contractor Management - Part 1 | | | | | | | X | | X | | | | | | | | | | | | |
| Outside Contractor Management - Part 2 | | | | | | | 2 | | | | | | | | | | | | | | |
| Procurement Operations | X | | | | | | X | | | | | | | | | | | | | | |
| Purchasing Cards (P-Card Program) | | X | | X | | | | | X | | | | | | | | | | | | |
| Warehousing & Inventory | | | X | | | | 3 | | | | | | | | | | | | | | |
| Security | | | | | | | | | | | | | | | | | | | | | |
| Facility Security & Contingency Planning | | X | | | | | | | | | | | | | | | | | | | |
| Individual Function Audits | | | | | | | | | | | | | | | | | | | | | |
| Blue Plains | | | | | | | | | | | | | | | | | | | | | |
| Maintenance Services | | | | | | | | | | | | | | | | | | | | | |
| Maintenance Services Operations | | | 2 | | | | | X | | | | | | | | | | | | | |
| Plant Operations | | | | | | | | | | | | | | | | | | | | | |
| Biosolids Management | | | X | | | | | | | | | | | | | | | | | | |
| Chemical Purchasing | | | | X | | | | | | | | | | | | | | | | | |
| Process Control System (PCS) | | | | | 7 | | | | | | | | | | | | | | | | |
| Water and Sewer Pumping | | | | | | | | | | | | | | | | | | | | | |
| Pumping & Storage Water Leakage Review | | X | | | | | | | | | | | | | | | | | | | |
| Customer Care & Operations | | | | | | | | | | | | | | | | | | | | | |
| Customer Service | | | | | | | | | | | | | | | | | | | | | |
| Automated Meter Reading (AMR) & Customer Billing | | X | | | | | | X | | | | | | | | | | | | | |
| Customer Service Operations | | | X | | | | | | | | | | | | | | | | | | |
| Emergency Management | | | | | | | | | | | | | | | | | | | | | |
| Emergency Management - Mitigation & Response | | | | | | 1 | | | | | | | | | | | | | | | |
| Emergency Management - Recovery | | | | | | | 2 | | | | | | | | | | | | | | |
| Sewer Services | | | | | | | | | | | | | | | | | | | | | |
| Sewer Services - Construction & Repair | | | | | | 7 | | | | | | | | | | | | | | | |
| Sewer Services - Distribution | | | | | | | | | | | | | | | | | | | | | |
| Sewer Services - Emergency Maintenance | | | | | 2 | | | | | | | | | | | | | | | | |
| Utility Services - Water | | | | | | | | | | | | | | | | | | | | | |
| Washington Aqueduct Contract | X | | | | | | | X | | | | | | | | | | | | | |
| Fire Hydrant Maintenance | | X | | | | | | | | | | | | | | | | | | | |
| Utility Services - Water Distribution | | | | X | | | | | | | | | | | | | | | | | |
| Utility Services - Water Maintenance | | | | | 4 | | | | | | | | | | | | | | | | |
| Department of Engineering & Technical Services | | | | | | | | | | | | | | | | | | | | | |
| Clean Rivers | | | | | | | | | | | | | | | | | | | | | |
| Clean Rivers Project Management | | | | | | X | | | | | | | | | | | | | | | |
| Engineering and Technical Services | | | | | | | | | | | | | | | | | | | | | |
| Engineering - Budget Management | | | | | | | | | X | | | | | | | | | | | | |
| Engineering - Contractor Management | | | | | | | X | X | | | | | | | | | | | | | |
| Engineering - Project Planning & Design; Procurement | X | | | X | | | | | | | | | | | | | | | | | |
| Capital Projects | | | X | | | | | | | | | | | | | | | | | | |
| Permit Operations | | | | | | | | | | | | | | | | | | | | | |
| Permit Operations | | X | X | | | | | | | | | | | | | | | | | | |
| Contingency and Requested Audits and Projects | | | | | | | | | | | | | | | | | | | | | |
| Total by Year | | 0 | 0 | 3 | 15 | 25 | TBD | TBD | TBD | | | | | | | | | | | | |
| Total open items | | | | 43 | | | | | | | | | | | | | | | | | |
| Total proposed audits | | | | | | | 10 | 15 | 13 | | | | | | | | | | | | |

Internal Auditor Follow-Up Report on Prior Audit Findings
Summary of Audit Corrective Actions

DC WATER INTERNAL AUDIT

July 2015

| Audit Report/Subject | Management Comments | Auditor Status Up-Date | Report Issue Date | Business Area | Corrective Actions | | | | |
|--|---------------------|------------------------|-------------------|----------------------------|--------------------|-----------|----------|-----------------|-----------------|
| | | | | | Total | Open | Closed | Pending Testing | Action Deferred |
| Organizational Policies & Procedures | July 2015 | July 2015 | 02/23/2010 | OGM | 1 | 0 | 0 | 0 | 1 |
| Safety Program Training & Compliance | July 2015 | July 2015 | 10/07/2010 | OGM | 1 | 0 | 0 | 0 | 1 |
| Pumping & Storage - Water Leakage | July 2015 | July 2015 | 03/01/2011 | Customer Care & Operations | 1 | 0 | 0 | 0 | 1 |
| Human Capital Management | July 2015 | July 2015 | 11/29/2011 | OGM | 1 | 0 | 0 | 0 | 1 |
| Maintenance Services | February 2015 | February 2015 | 04/18/2012 | Blue Plains | 2 | 2 | 0 | 0 | 0 |
| IT Helpdesk & Computer Operations | July 2015 | July 2015 | 10/05/2012 | IT | 1 | 1 | 0 | 0 | 0 |
| Fleet Management | July 2015 | April 2015 | 04/17/2013 | Support Services | 2 | 2 | 0 | 0 | 0 |
| Process Control System (PCS) | July 2015 | July 2015 | 09/04/2013 | Blue Plains | 7 | 6 | 0 | 1 | 0 |
| Sewer - Emergency Maintenance | March 2015 | March 2015 | 06/18/2013 | Customer Care & Operations | 2 | 2 | 0 | 0 | 0 |
| Water Services - Distribution Maintenance Branch | February 2015 | February 2015 | 10/28/2013 | Customer Care & Operations | 4 | 3 | 0 | 1 | 0 |
| Legal Operations | February 2015 | February 2015 | 02/11/2014 | OGC | 1 | 1 | 0 | 0 | 0 |
| OSHA | July 2015 | July 2015 | 02/18/2014 | Support Services | 1 | 1 | 0 | 0 | 0 |
| Disposal of Assets | June 2015 | June 2015 | 02/18/2014 | Support Services | 2 | 2 | 0 | 0 | 0 |
| Emergency Management - Recovery | April 2015 | April 2015 | 05/12/2014 | Customer Care & Operations | 2 | 2 | 0 | 0 | 0 |
| DSS - Construction & Repair | February 2015 | February 2015 | 05/12/2014 | Customer Care & Operations | 7 | 7 | 0 | 0 | 0 |
| Emergency Management - Mitigation | February 2015 | February 2015 | 06/27/2014 | Customer Care & Operations | 1 | 1 | 0 | 0 | 0 |
| Outsider Contractor Management - Part 2 | July 2015 | July 2015 | 07/22/2014 | IT | 2 | 2 | 0 | 0 | 0 |
| Disaster Recovery | July 2015 | July 2015 | 07/31/2014 | IT | 1 | 0 | 1 | 0 | 0 |
| IT Asset Management | July 2015 | July 2015 | 09/10/2014 | IT | 5 | 1 | 2 | 2 | 0 |
| Warehouse Operations | June 2015 | June 2015 | 09/15/2014 | Support Services | 4 | 1 | 0 | 2 | 1 |
| GIS Mapping | June 2015 | June 2015 | 06/23/2014 | DETS | 3 | 3 | 0 | 0 | 0 |
| Total | | | | | 51 | 37 | 3 | 6 | 5 |

LEGEND:

Remaining items from the audit report are Action Deferred.

DEFINITIONS:

Action Deferred - This corrective action items is still intended to be completed by management. However, completion is dependent on budgetary or resource constraints, pilot programs, or other efforts.

Pending Testing - Management has indicated that this item is closed. Closure is pending additional information from management and testing from internal audit.

**Internal Auditor Follow-Up Report on Prior Audit Findings
Summary of Audit Corrective Actions**

DC WATER INTERNAL AUDIT

July 2015

Audit Status by Department

| | DETS | Blue Plains | Customer Care & Operations | Office of the General Counsel | IT | Support Services | Finance | Office of the General Manager |
|-------------------------------------|------|-------------|----------------------------|-------------------------------|----|------------------|---------|-------------------------------|
| Closed Since Last AC Meeting | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 |
| Open Management Action Plans | 3 | 8 | 15 | 1 | 4 | 6 | 0 | 0 |
| Pending Testing | 0 | 1 | 1 | 0 | 2 | 2 | 0 | 0 |
| Action Deferred | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 3 |

Corrective Action Themes

| Category | Related Observations (#) | Total |
|--|--|-----------|
| Policy and Procedure Update / Approval | 38, 74, 97, 168, 174, 175, 178, 179, 180, 190, 214, 219, 223, 232, 238, 244, 259, 279, 280 | 19 |
| Employee Development / Training | 173, 187, 213, 237, 243, 251, 273 | 7 |
| Asset Management | 111, 113, 240, 263, 264, 266, 271, 272, 274, 279, 280 | 11 |
| Catch Basin Pilot Program | 208, 210, 240 | 3 |
| Vacant Position Dependency | 139, 168, 219 | 3 |
| Contractor / Vendor Dependency | 167-B, 178, 179, 225 | 4 |

The summary of Corrective Action Themes shown above illustrates the following:

- There are 19 open items are related to the formalization and approval of policies and procedures that are already in place. There is an Authority-wide initiative in process to have all policies and procedures documented / updated and approved by management and the Unions as soon as possible, during the current labor negotiations.
- There are 7 open items that relate to the identification/ documentation/tracking of employee training. These tie into the Authority-wide initiative to implement Cornerstone training program (among other things) that is being administered by HCM. Once complete, we will re-evaluate whether there are outlier training needs that are not inclusive of that process.
- There are 14 (with 3 already included in other areas above) open items that relate specifically to property control and asset management. The hope is that the Authority-wide initiative to integrate Maximo and Lawson, as well as shift several responsibilities to the Warehouse / Materials Management team will address and close these issues. The integration projects are ongoing, but expected to be substantially complete by the beginning of the third fiscal quarter of 2017.
- There are 3 items (with one duplicate) that are dependent on the currently in progress Catch Basin Pilot program. This program is anticipated to be completed by the end of the second fiscal quarter of 2015 (March 31).
- There are 3 open items (with 2 already included in the areas above) that require a position to be filled in order to be closed.
- There are 4 open items (with 2 already included in the areas above) that are dependent on the hiring of a contractor or vendor to conduct services for DC Water.



Internal Audit Report

Procurement – Pre-Award, Selection, and Award

May 18, 2015





EXECUTIVE SUMMARY

Background

The pre-award, selection and award phase of the procurement process at DC Water and Sewer Authority (“DC Water” or “Authority”) is managed by the Department of Procurement (DOP) and, for Construction and Architecture-Engineering Services, managed by the Department of Engineering and Technical Services (DETS).

Collectively, DETS and DOP comply with DC Water’s Procurement Regulations and the Procurement Manual to procure goods and services. The Procurement Regulation and Manual were adopted in 2009 which governs the procurement of goods and services, including construction. The Board of Directors is ultimately responsible for any updates or modifications to the Regulation. The Procurement Manual, issued by the General Manager, is a procedural guide on how to implement the Procurement Regulations.

Management’s Accomplishments

During January 2015, a Director of Procurement was hired, filling a position that was vacant since February 2013. In this role, the Director of Procurement is charged with evaluating the current structure of the Procurement Department, identifying improvements to the current procurement process and addressing prior procurement and warehouse-related internal audit findings. Thus far, the Director of Procurement has developed a Business Process Improvement Plan and has been able to close 6 prior audit findings related to asset management and the warehousing function.

Additionally, a Chief Procurement Officer (CPO) was hired in December 2014. In this role, the CPO serves as a principal contract management advisor to the General Manager. By filling this position, DC Water addressed one of the recommendations from Veolia’s “Governance Assessment on DC Water’s Procurement” report.

Objective and Scope

Our procedures were performed in accordance with the internal audit scope and approach set forth in our Procurement Memorandum, dated January 22, 2015 and was limited to those described therein.

The scope of the Procurement audit included:

- a) Review of the pre-award and selection / award phases of the procurement process for the Department of Procurement (Goods & Services) and the Department of Engineering and Technical Services (DETS);
- b) Compliance with DC Water’s Procurement Regulations and Procurement Manual; and
- c) Follow-up on the status of the existing recommendations and improvement opportunities from prior Procurement-related reports.

Fieldwork was performed from March 30, 2015 through April 30, 2015.

Ratings and Conclusions Summary

The observations and opportunities identified during our assessment are summarized on the next page. We have assigned relative risk or value factors to each observation. Ratings are not assigned to opportunities as these items represent best practices and/or recommended initiatives. Risk ratings are the evaluation of the severity of the concern and the potential impact on the operations of each item. Only observations will require management action plans with estimated completion dates that will be included in the routine follow up of internal audit observations.

We would like to thank all DC Water team members who assisted us throughout this review.



EXECUTIVE SUMMARY (CONTINUED)

Ratings and Conclusions

Following is a summary of observations and improvement opportunities noted in the areas reviewed. Definitions of the observation rating scale is included in the Appendices.

| Observations and Improvement Opportunities | |
|--|-------------|
| Observations | Rating |
| <p>1. Accuracy of Evaluation Scoring Sheets</p> <p>For 2 out of 11 proposal evaluations analyzed from the Department of Procurement (Goods & Services related contracts), we noted errors in the mathematical calculation of the individual evaluation worksheets and the totals scores populated in the Letter of Recommendation sent from the Evaluation Committee to the Director of Procurement.</p> <p>The Letter of Recommendation captures the scoring of all responses to the RFP and is used by Procurement to make the final selection for award. The Determination and Findings for Responsibility of Contract Award, which is signed by the General Manager, is developed using the justification and scoring from the Letter of Recommendation.</p> <p>We noted that mathematical errors may not be identified because a secondary review is not performed on the evaluation worksheets. The margin of error in the evaluations were minor, but if undetected, significant errors could lead to the selection of an underqualified firm.</p> | High |
| <p>2. Procurement Manual Acquisition Planning Procedures</p> <p>The Procurement Manual was issued in 2009 and revisions have been issued as needed. We utilized the manual to perform testing, and noted that some acquisition procedures are currently not in place.</p> <p>The Procurement Manual states an acquisition plan is required for all purchases. During our testing, we noted that the Department of Procurement isn't requiring departments to submit the acquisition plan, nor is DETS preparing acquisition plans for capital improvements, because the information is discussed and captured during the budgeting process.</p> <p>Inaccurate or outdated procedures could lead to inconsistent practices among employees or Departments.</p> | Low |



EXECUTIVE SUMMARY (CONTINUED)

Ratings and Conclusions (continued)

Observations and Improvement Opportunities (continued)

Improvement Opportunity

1. Public Notification of Contract Awards

Per the Procurement Manual, the notice of award or contract document may be made available to the public and unsuccessful bidders shall be notified in writing that their bids were not accepted. Per inquiry with the Procurement Manager and review of the solicitation and award archive page, awards for both Goods & Services and DETS have been posted to DC Water’s website. However, this site has not been updated since 2013.



EXECUTIVE SUMMARY (CONTINUED)

Status of prior recommendations

The following is a status report on the recommendations made through prior internal audits and consulting reports. The reported status below documents the progress made towards completion, as represented by management to internal audit. Through interviews with management and staff from the Department of Procurement and the Department of Engineering and Technical Services (DETS), progress is reported as “Complete”, “In-Progress”, or “Action Deferred”.

Many of the recommendations from Hill-Christian Consulting Group’s (HCCG) “Evaluation Report of DC Water and Sewer Authority’s Procurement” and Veolia’s “Governance Assessment of DC Water’s Procurement” are included in a business process improvement plan that has been developed and managed by the Director of Procurement. Of the items that are listed as closed, management has addressed the recommendation, determined the observation or recommendation to be inaccurate or did not have the authority to address the action. Additional detail is included in Appendix B: Status of Prior Recommendations.

| Status of Procurement-Related Recommendations | | | | |
|---|--|--------|-------------|-----------------|
| | Prior Reports | Closed | In-Progress | Action Deferred |
| Observations | Outsider Contractor Management – Part 1 and Part 2 (2014) SC&H Group, LLC | 0 | 2 | 0 |
| | Disposal of Assets (2014) SC&H Group, LLC | 0 | 1 | 0 |
| | Governance Assessment of DC Water’s Procurement (2014) Veolia | 14 | 8 | 1 |
| | Evaluation Report of DC Water and Sewer Authority’s Procurement Department (2012) Hill-Christian Consulting Group (HCCG) | 0 | 10 | 0 |

Key

Closed – The recommendation was closed due to completion or upon evaluation and discussion with management, the recommendation was not valid

In Progress – The recommendation is being addressed and management action plans have been provided.

Action Deferred – The recommendation requires additional resources or dependent upon a system change or management decision



BACKGROUND, OBJECTIVES AND APPROACH

Background

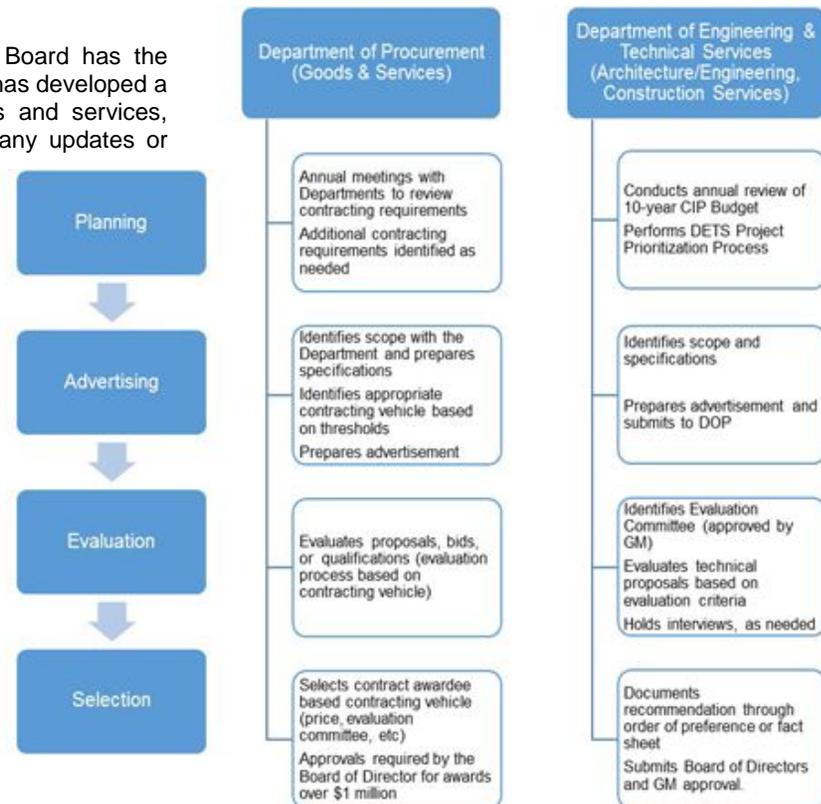
The pre-award, selection and award phase of the procurement process at DC Water and Sewer Authority (“DC Water” or “Authority”) is managed by the Department of Procurement (DOP) and, for Construction and Architecture-Engineering (A/E) Services, managed by the Department of Engineering and Technical Services (DETS). Collectively, DETS and DOP comply with DC Water’s Procurement Regulations and the Procurement Manual to procure goods and services.

Procurement Regulations

Pursuant to D.C. Code 34-2202.03 (5), (6) and 2202.05 (7), DC Water’s Board has the authority to contract for goods and services, including construction. DC Water has developed a Procurement Regulation in 2009 which governs the procurement of goods and services, including construction. The Board of Directors is ultimately responsible for any updates or modifications to the Regulation. The Procurement Manual, issued by the General Manager, was also effective as of June 2009 and is a procedural guide on how to implement the Procurement Regulations. In addition to DC Water’s regulations, Architecture-Engineering Services are subject to the Brooks Act of 1972.

Procurement Process

As indicated in the Authority’s Procurement Regulation, the General Manager (GM) is the Chief Contracting Officer for DC Water. The GM is able to delegate contracting authority to Contracting Officers within DC Water. The specific procurement procedures vary based on type of service being procurement and the contracting vehicle utilized based on the dollar threshold. However, for all types of procurements, the Department of Procurement is responsible for the advertisements of the contract. The image to the right depicts the high level roles and responsibilities of each Department with the pre-award and selection phase of the procurement process. Reference Appendix C for DOP and DETS process flows.





BACKGROUND, OBJECTIVES AND APPROACH (CONTINUED)

Background (continued)

During the audit period of October 1, 2013 through March 31, 2015, the following depicts the number and value of contracts that were awarded at DC Water and the funding source of the goods and services contracts.

| Executed Contract Type | # of Awards | Value of Award (\$) |
|------------------------|-------------|-------------------------|
| Goods and Services | 52 | \$141,259,447.85 |
| Construction | 28 | \$488,960,749.62 |
| A/E | 9 | \$96,768,444.00 |
| Total | 89 | \$726,988,641.47 |

| Goods and Services | # of Awards | Value of Award (\$) |
|--------------------|-------------|-------------------------|
| Capital | 16 | \$3,940,249.18 |
| Operational | 36 | \$137,319,198.67 |
| Total | 52 | \$141,259,447.85 |

Management's Accomplishments

During January 2015, a Director of Procurement was hired, filling a position that was vacant since February 2013. In this role, the Director of Procurement is charged with evaluating the current structure of the Procurement Department, identifying improvements to the current procurement process and addressing prior procurement and warehouse-related internal audit findings. Thus far, the Director of Procurement has developed a Business Process Improvement Plan and has been able to close 6 prior audit findings related to asset management and the warehousing function.

Additionally, a Chief Procurement Officer (CPO) was hired in December 2014. In this role, the CPO serves as a principal contract management advisor to the General Manager. By filling this position, DC Water addressed one of the recommendations from Veolia's "Governance Assessment on DC Water's Procurement" report.

In addition to filling vacant positions, the Department of Procurement, in coordination with other Departments have been involved in a few ongoing initiatives including:

- Lawson integration with Maximo
- Materials Management process updates



BACKGROUND, OBJECTIVES AND APPROACH (CONTINUED)

Objectives and Approach

Objectives

A comprehensive review of the pre-award and award phases of the procurement process had not occurred for the DOP and DETS, since fiscal year 2010 and fiscal year 2012 respectively. As noted in the “status of prior audit recommendations”, governance and overall process reviews have occurred within the last two calendar years. Further evaluation of the prior audits can be found in our “Procurement Memorandum,” which was presented during the March 26, 2015 Audit Committee meeting.

The objectives of the internal audit of procurement was to:

- Identify and assess the effectiveness of controls in detecting errors in a timely manner.
- Determine whether the records and documentation for procurement related items are sufficient to establish an audit trail for the pre-selection and award phases of procurement.
- Verify compliance with the procurement manual and regulations.
- Determine management’s agreement or disagreement with the proposed recommendations from prior procurement audit findings.

Approach

Our audit approach consisted of the following phases:

Understanding of the Process

We obtained and reviewed DC Water’s Procurement Manual and Procurement Regulations documentation. In addition, we obtained and reviewed the process maps maintained separately for the DOP and the DETS. Internal Audit conducted walkthroughs of the pre-selection, including the evaluation, and award phases of the procurement process.

Detailed Testing

The purpose of this phase was to test compliance and internal controls based on our understanding of the procurement process. This phase included the execution of applicable tests of compliance with the DC Water Procurement Manual, SOPs (for both DOP and DETS), and the DC Water Procurement Regulations including the Brooks Act of 1972, and controls around pre-selection, evaluation, and award phases of procurement. The time period covered by testing was fiscal year 2014, October 1, 2013 through September 31, 2014, and fiscal year 2015, September 31, 2014 through March 31, 2015.

Specific procedures performed included validating:

- Budgets were approved prior to solicitation
- Procurement specifications were identified in the request for proposal (RFP), invitation for bid (IFB), or Request for Qualification (RFQ).
- RFP, IFB, or RFQ was advertised publicly for a minimum of 30 days
- Proposals, bids or qualifications were received prior to due date and time and not accepted after the deadline
- Responses conformed to the requirements of the RFP, IFB, or RFQ
- Evaluation Committees were properly selected and approved
- Evaluation criteria was approved
- Evaluation worksheets accurately calculate the scoring for each respondent
- Selected vendor was properly approved by the Contracting Officer and/or the General Manager
- Awarded contract amount matched the proposal



BACKGROUND, OBJECTIVES AND APPROACH (CONTINUED)

Objectives and Approach (continued)

Reporting

At the conclusion of this audit, we summarized our observations related to procurement at DC Water. We have reviewed the results of our testing with management in DOP and DETS.



DETAILED OBSERVATIONS

| Procurement Internal Audit | | | |
|----------------------------|---|---|---|
| 1 | <u>Review and Accuracy of Bid Evaluation Scoring</u> | <u>Recommendation</u> | <u>Management’s Action Plan</u> |
| | Observation Rating: High | | |
| | <p>For 2 out of 11 proposal evaluations analyzed from the Department of Procurement (Goods & Services), we noted errors in the mathematical calculation of the individual evaluation worksheets and the totals scores populated in the Letter of Recommendation sent from the Evaluation Committee to the Director of Procurement.</p> <p>The Letter of Recommendation captures the scoring of all responses to the RFP and is used by Procurement to make the final selection for award. The Determination and Findings for Responsibility of Contract Award, which is signed by the General Manager, is developed using the justification and scoring from the Letter of Recommendation.</p> <p>We noted that mathematical errors may not be identified because a secondary review is not performed on the evaluation worksheets. The margin of error in the evaluations were minor, but if undetected, significant errors could lead to the selection of an underqualified firm.</p> | <p>We recommend that all individual evaluation worksheets and totals used to populate the Letter of Recommendation are reviewed by secondary individual. Evidence of secondary review should be documented.</p> | <p>Effective from 6/25/15, all evaluation score calculations must be done in MS Excel (not by calculator) and the Excel evaluation sheet must be included in the evaluation packet. Also all calculations, results, and recommendations must be reviewed by the Director of Procurement before the results are presented to the business owner.</p> <p>Responsible Party: Director of Procurement</p> <p>Target Date: July 2015</p> |



DETAILED OBSERVATIONS (CONTINUED)

| Procurement Internal Audit | | | |
|----------------------------|--|---|---|
| 2 | <u>Procurement Manual Acquisition Planning Procedures</u> | <u>Recommendation</u> | <u>Management’s Action Plan</u> |
| | Observation Rating: Low | | |
| | <p>The Procurement Manual was issued in 2009 and revisions have been issued as needed. We utilized the manual to perform testing, and noted that some acquisition procedures are currently not in place.</p> <p>The Procurement Manual states an acquisition plan is required for all purchases. During our testing, we noted that the Department of Procurement isn’t requiring departments to submit the acquisition plan, nor is DETS preparing acquisition plans for capital improvements, because the information is discussed and captured during the budgeting process.</p> <p>Inaccurate or outdated procedures could lead to inconsistent practices among employees or Departments.</p> | <p>The Department of Procurement is in process of developing and implementing a business process improvement plan, which could lead to modifications to the Procurement Manual. As part of this process, the Department of Procurement should review and update the “Acquisition Planning” chapter of the Manual and determine if changes should be made to the requirements given the annual budgeting procedures.</p> | <p>DC Water agrees with the auditor’s recommendation regarding updating the Acquisition Planning chapter of the manual. Plans to update the manual are underway. The Acquisition Planning chapter will be reviewed and addressed appropriately within the next 120 days with a target completion date of November 9, 2015.</p> <p>Responsible Party: Department of Procurement</p> <p>Target Date: November 9, 2015</p> |



IMPROVEMENT OPPORTUNITIES

| Procurement Internal Audit | | |
|----------------------------|---|--|
| 1 | <u>Public Notification of Contract Awards</u> | <u>Recommendation</u> |
| | Per the Procurement Manual, the notice of award or contract document may be made available to the public and unsuccessful bidders shall be notified in writing that their bids were not accepted. Per inquiry with the Procurement Manager and review of the solicitation and award archive page, awards for both Goods & Services and DETS have been posted to DC Water’s website. However, this site has not been updated since 2013. | DC Water should determine which contract awards, if any, will be posted on the website. If the decision is made to not post a notice of award, the website should be updated and the award archive should be removed, as it is outdated. |



APPENDIX A – RATING DEFINITIONS

| Observation Risk Rating Definitions | |
|-------------------------------------|--|
| Rating | Explanation |
| Low | ● Observation presents a low risk (i.e., impact on financial statements, internal control environment, or business operations) to the organization for the topic reviewed and/or is of low importance to business success/achievement of goals. Action should be taken within twelve months (if related to external financial reporting, must mitigate financial risk within two months unless otherwise agreed upon). |
| Moderate | ● Observation presents a moderate risk (i.e., impact on financial statements, internal control environment, or business operations) to the organization for the topic reviewed and/or is of moderate importance to business success/achievement of goals. Action should be taken within nine months (if related to external financial reporting, must mitigate financial risk within two months). |
| High | ● Observation presents a high risk (i.e., impact on financial statements, internal control environment, or business operations) to the organization for the topic reviewed and/or is of high importance to business success/achievement of goals. Action should be taken immediately, but in no case should implementation exceed six months (if related to external financial reporting, must mitigate financial risk within two months). |



APPENDIX B – STATUS OF PRIOR OBSERVATIONS

The following is a status report on the recommendations made through prior internal audits and consulting reports. The reported status below documents the progress made towards completion, as represented by management to internal audit. Through interviews with management and staff, reported progress is reported as “Complete”, “In-Progress”, or “Action Deferred”, or “No Planned Action”.

The Director of Procurement has developed a Business Process Improvement (BPI) plan that addresses many of the recommendations from the “Evaluation Report of DC Water and Sewer Authority’s Procurement” and the “Governance Assessment of DC Water’s Procurement”.

The closed recommendations from Veolia’s “Governance Assessment of DC Water’s Procurement” reflects items that were closed due to corrective action, disagreement with the recommendation, factual inaccuracies, or lack of authority to address the recommendation. As previously reported in the “Procurement Memorandum” submitted to the Audit Committee, many of these items previously were categorized as no planned action. The report had been tabled until the hiring of the Chief Procurement Officer. Based on our review of the recommendations and conversations with process owners, some of these items are in-process due to on-going efforts outlined in the BPI plan as many of the items listed as “In-Process” for the Veolia report overlap with recommendations in HCCG’s “Evaluation Report of DC Water and Sewer Authority’s Procurement Department”.

| Status of Procurement-Related Recommendations | | | | |
|---|--|--------|-------------|-----------------|
| | Prior Reports | Closed | In-Progress | Action Deferred |
| Observations | Outsider Contractor Management – Part 1 and Part 2 (2014) SC&H Group, LLC | 0 | 2 | 0 |
| | Disposal of Assets (2014) SC&H Group, LLC | 0 | 1 | 0 |
| | Governance Assessment of DC Water’s Procurement (2014) Veolia | 14 | 8 | 1 |
| | Evaluation Report of DC Water and Sewer Authority’s Procurement Department (2012) Hill-Christian Consulting Group (HCCG) | 0 | 10 | 0 |

Key

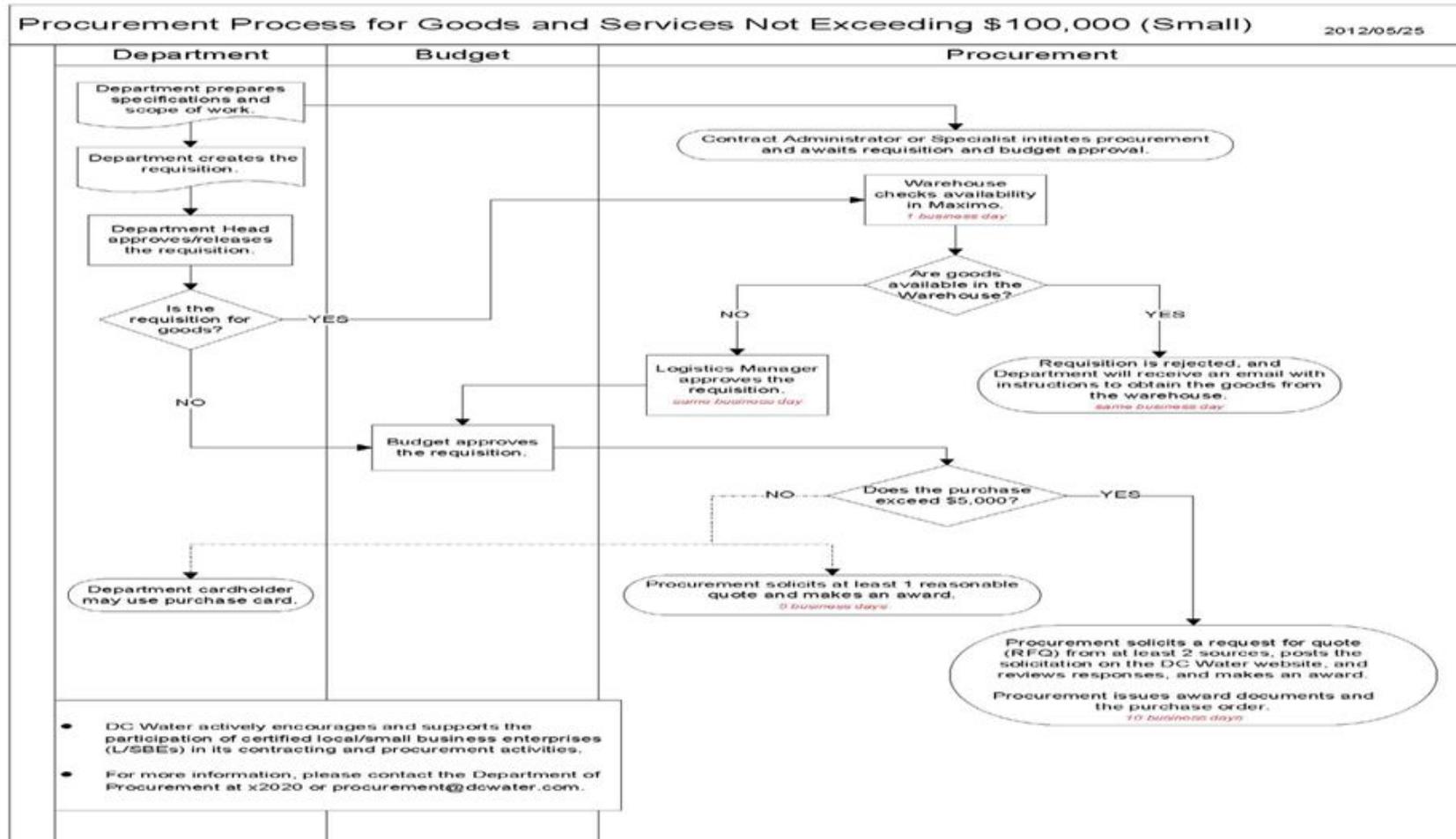
Closed – The recommendation was closed due to completion or upon evaluation and discussion with management, the recommendation was not valid

In Progress – The recommendation is being addressed and management action plans have been provided.

Action Deferred – The recommendation requires additional resources or dependent upon a system change or management decision

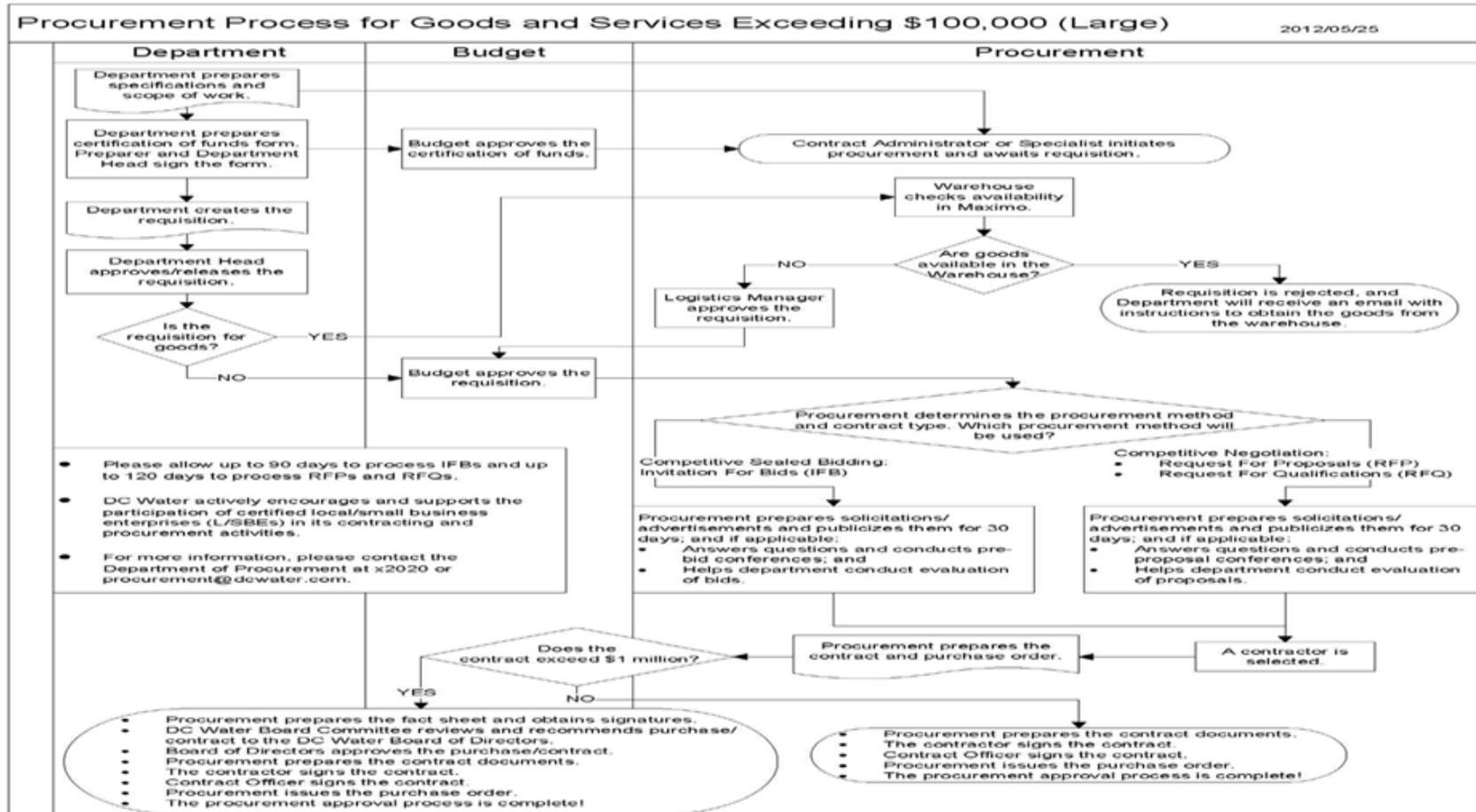


APPENDIX C – FLOWCHARTS



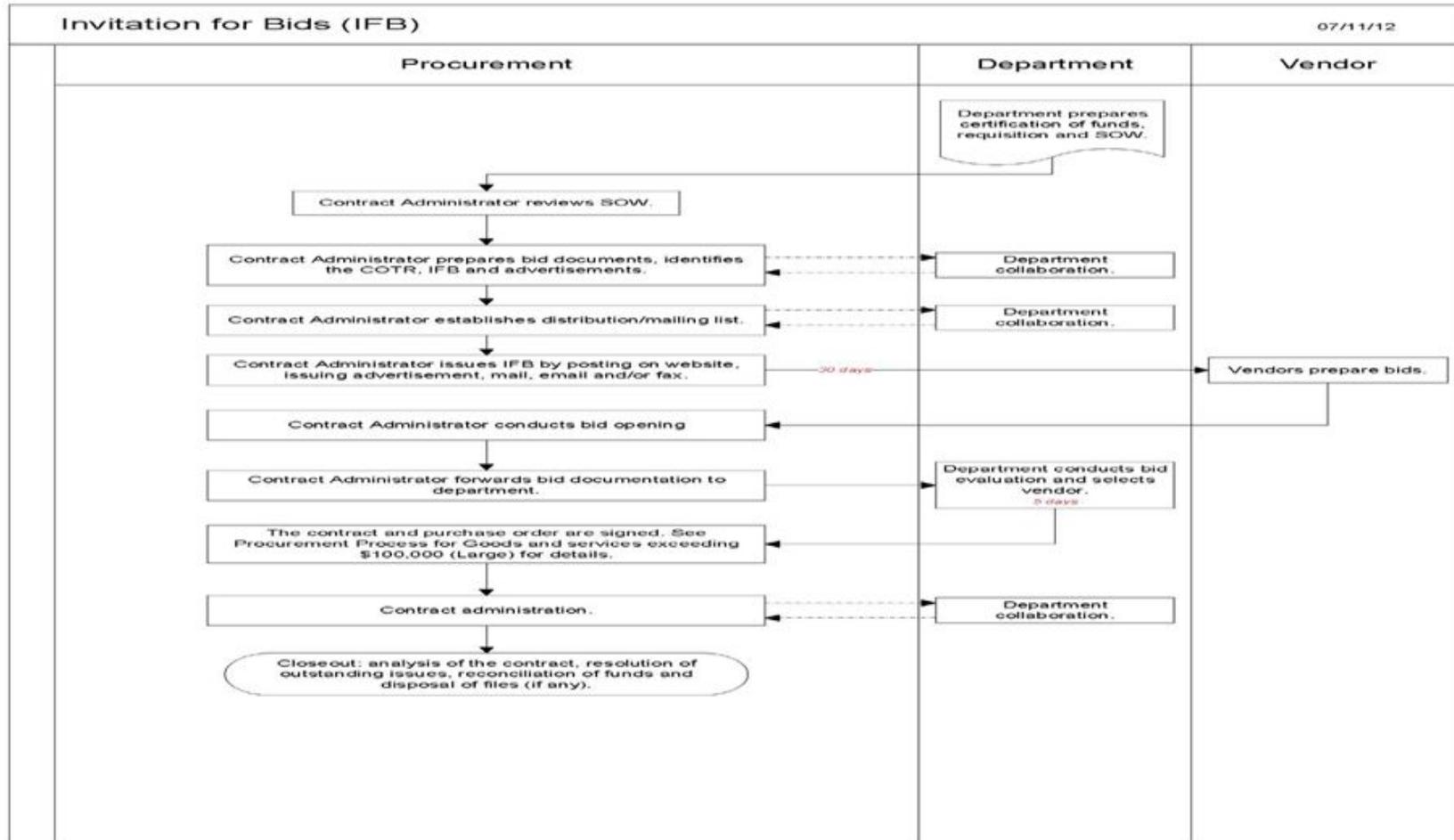


APPENDIX C – FLOWCHARTS (CONTINUED)



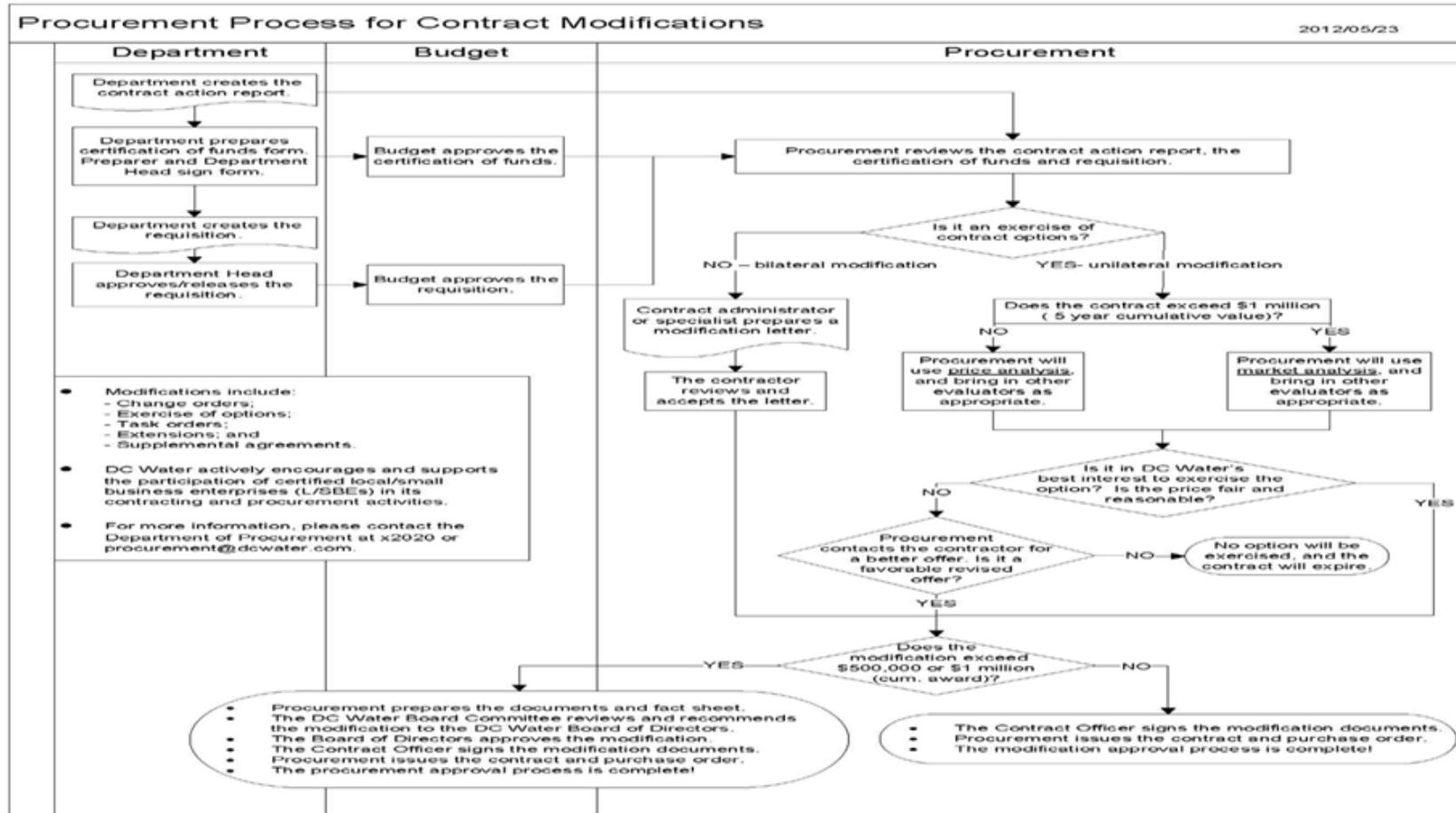


APPENDIX C – FLOWCHARTS (CONTINUED)



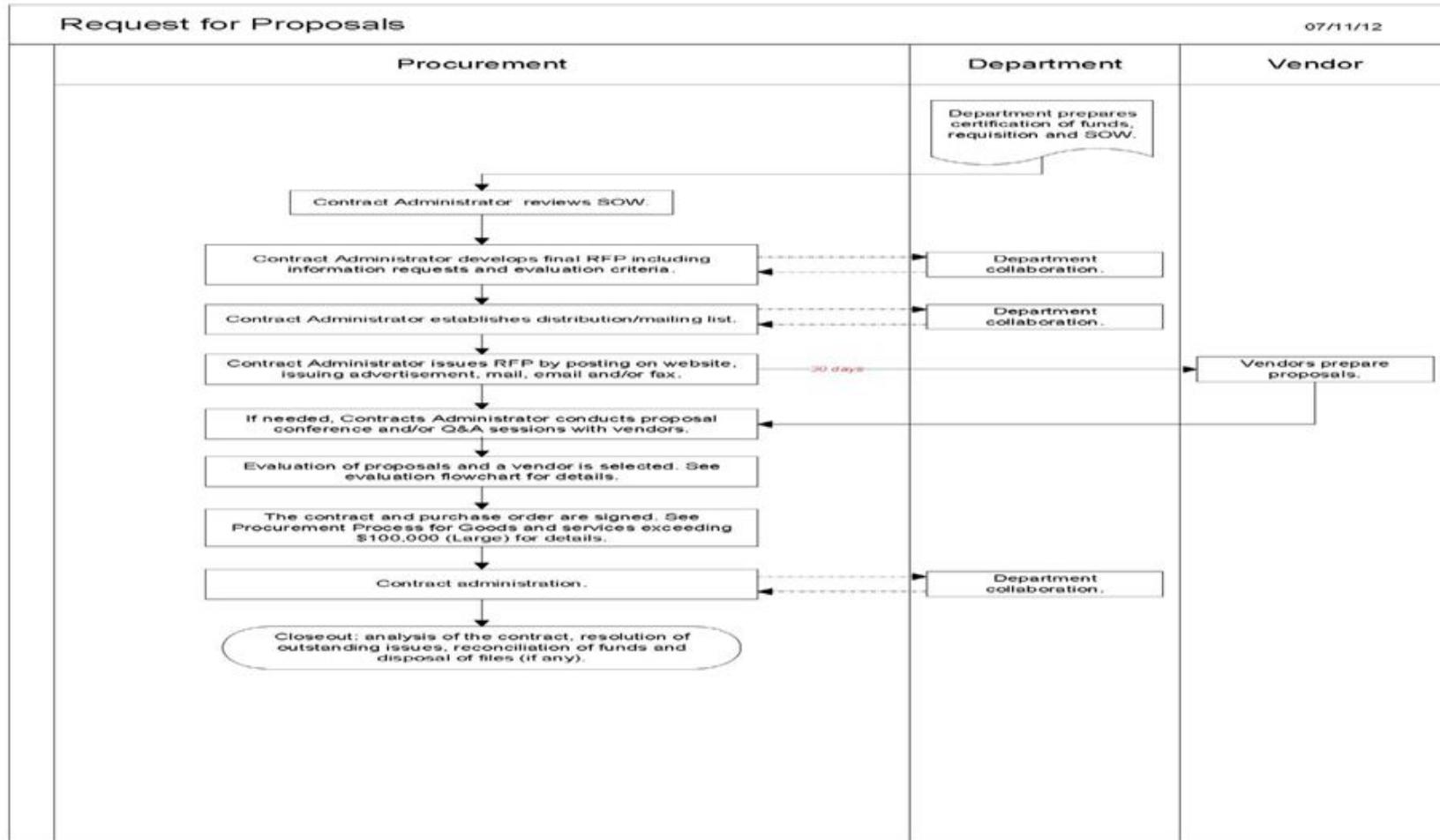


APPENDIX C – FLOWCHARTS (CONTINUED)



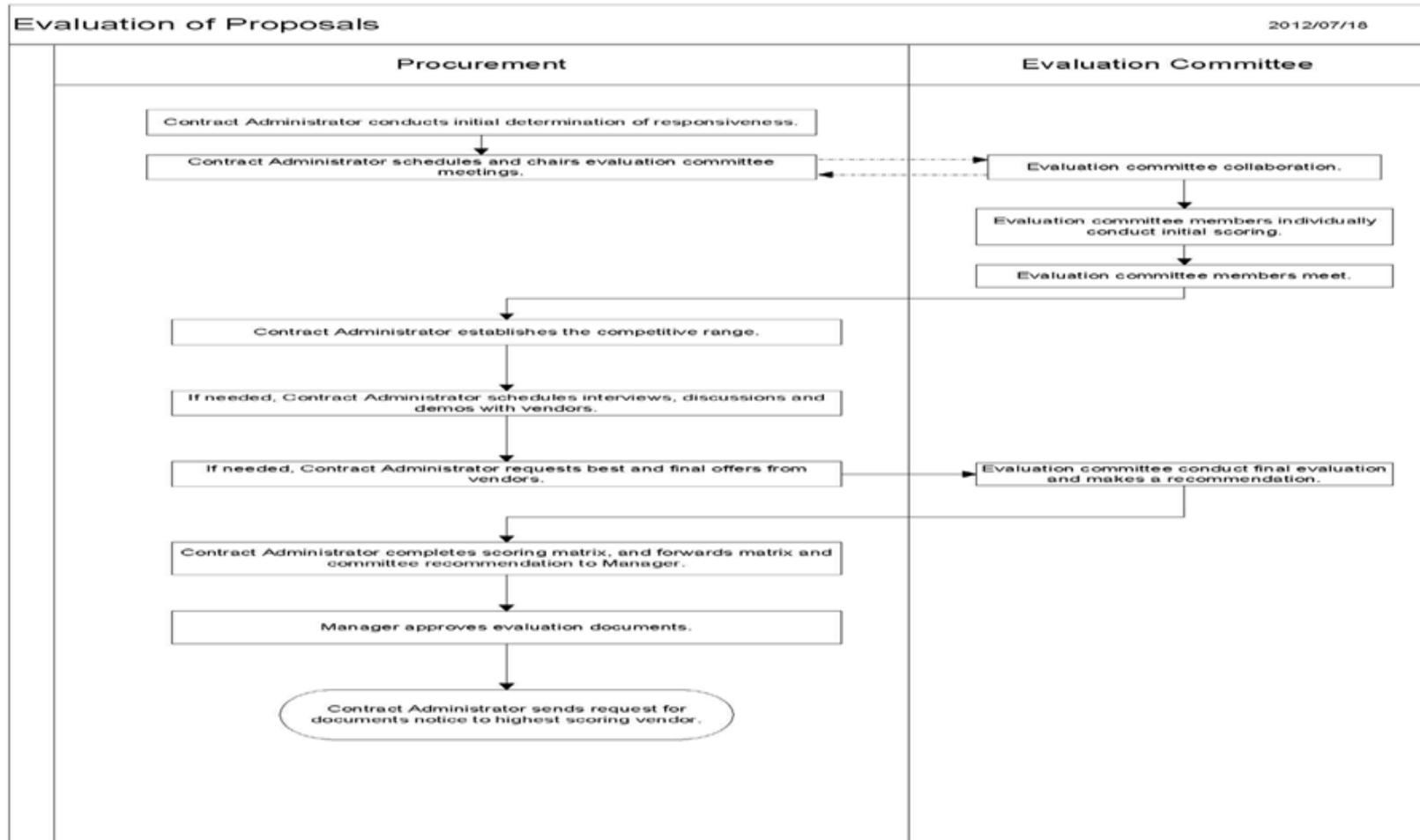


APPENDIX C – FLOWCHARTS (CONTINUED)



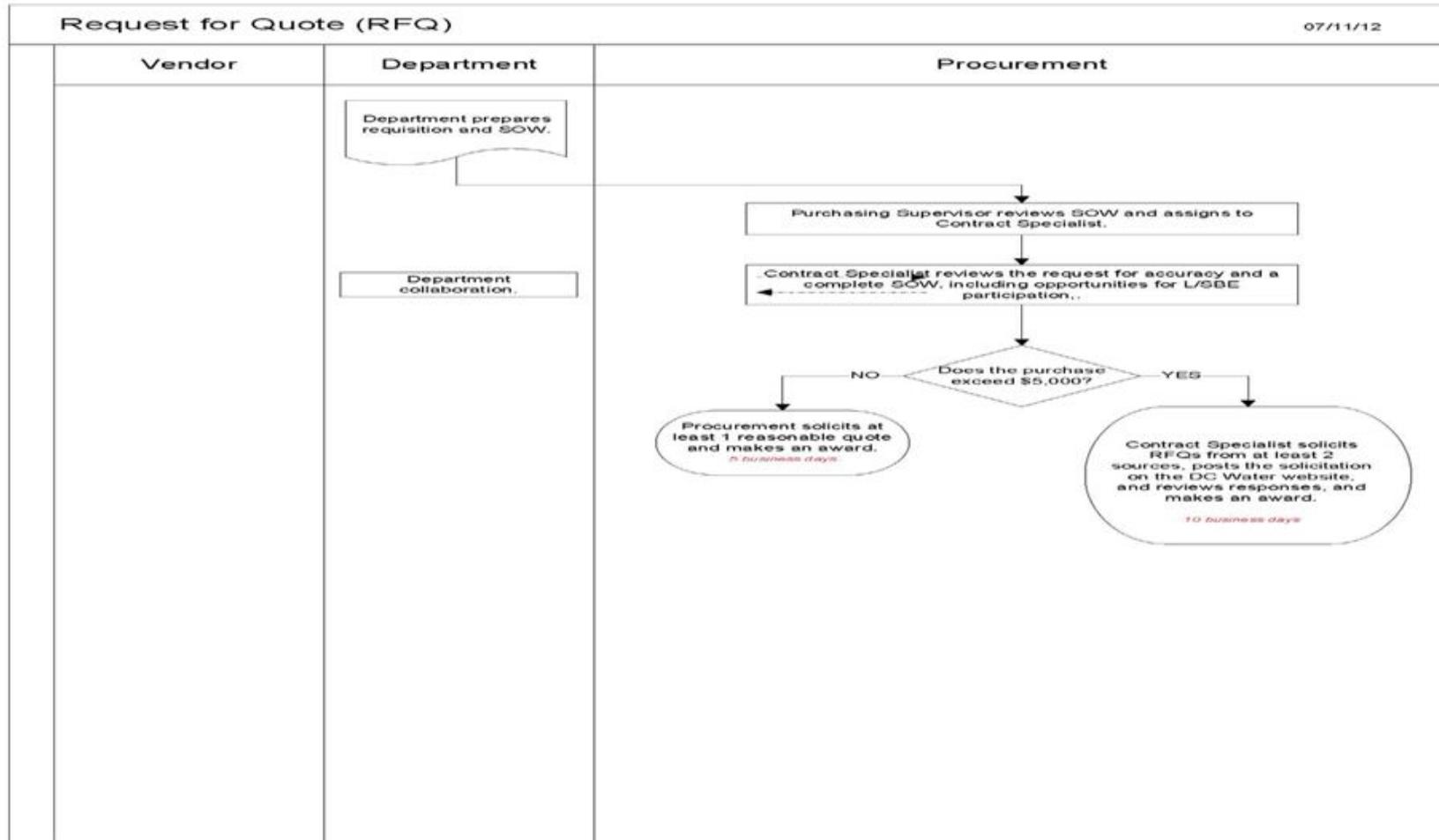


APPENDIX C – FLOWCHARTS (CONTINUED)



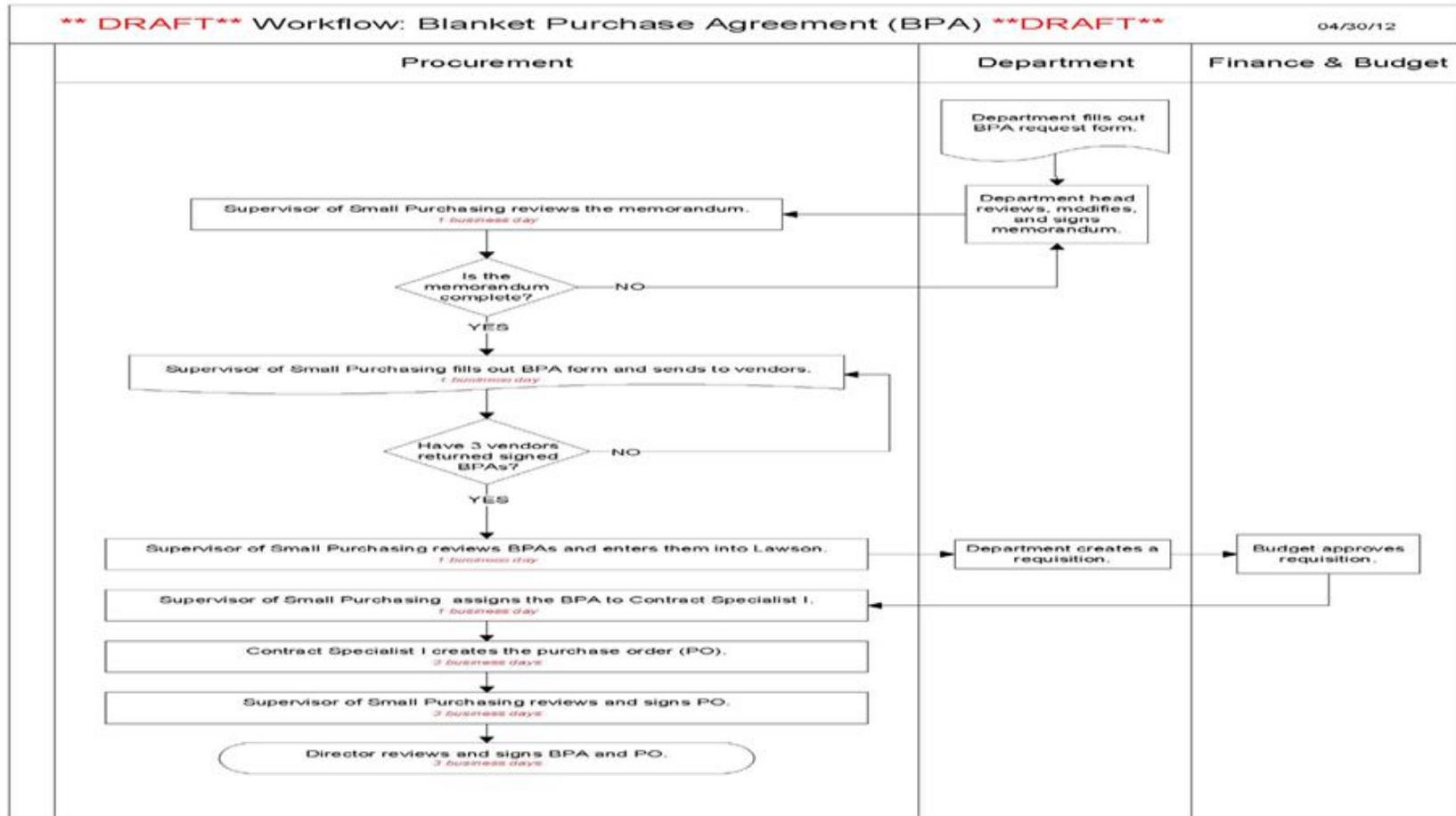


APPENDIX C – FLOWCHARTS (CONTINUED)



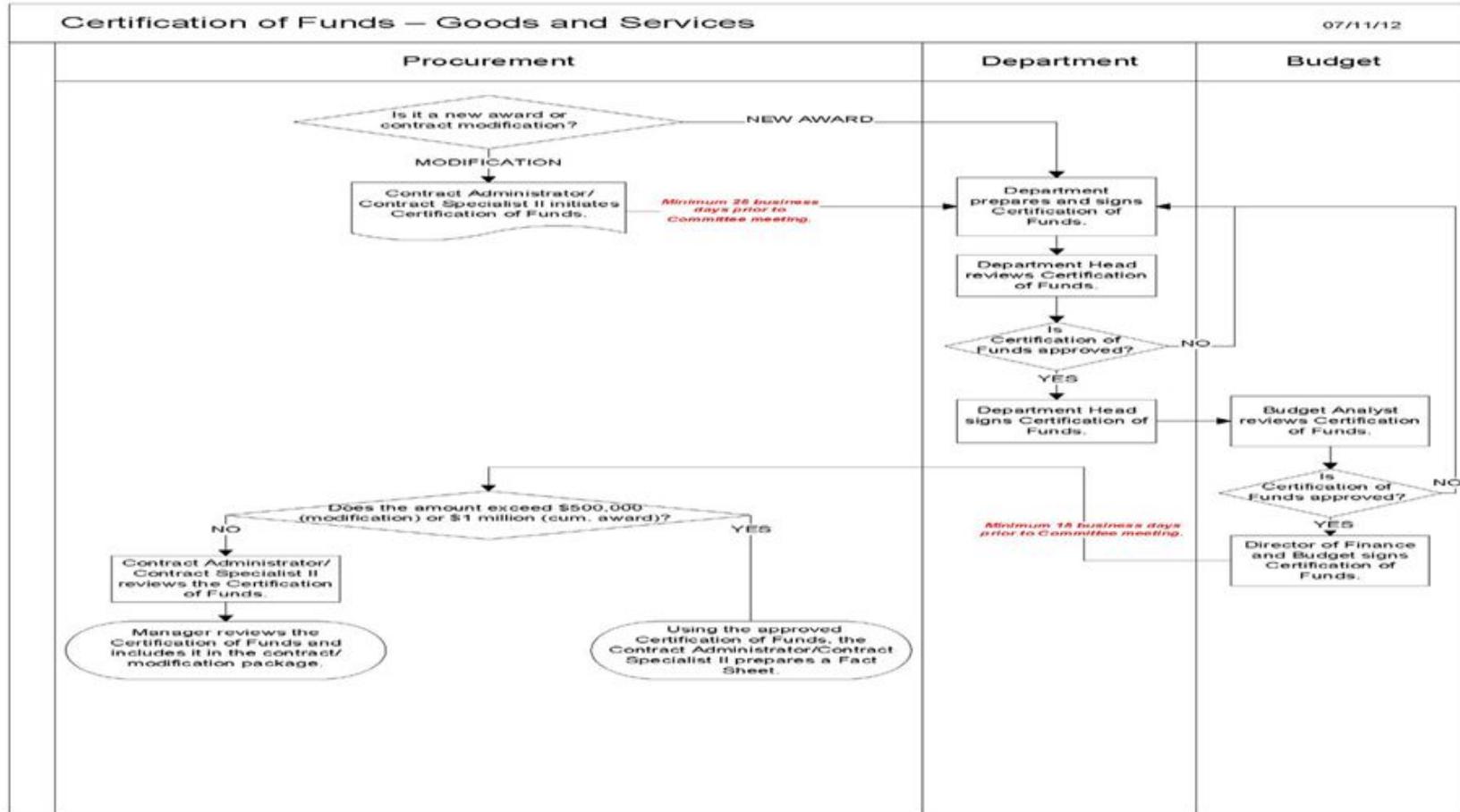


APPENDIX C – FLOWCHARTS (CONTINUED)



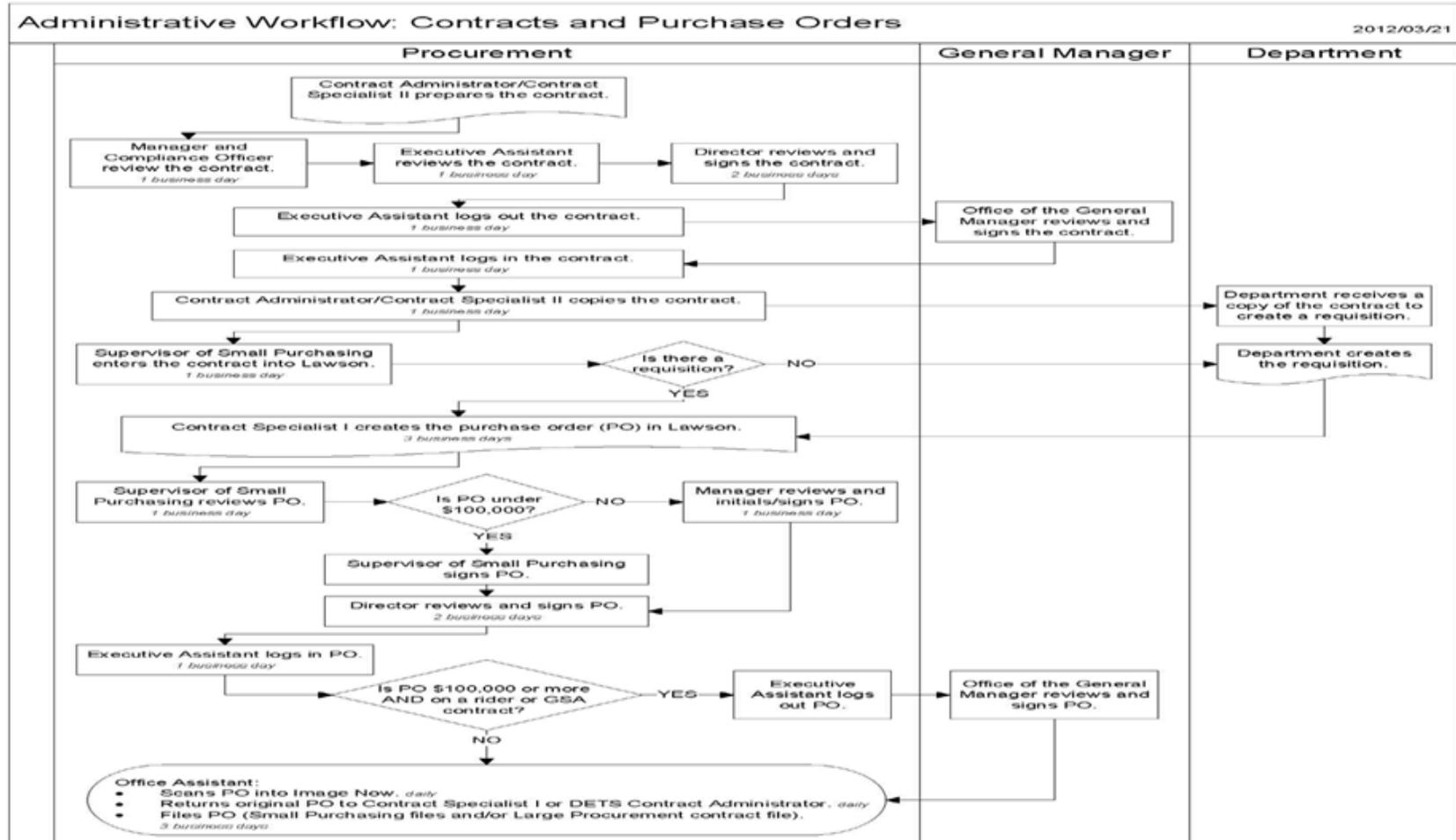


APPENDIX C – FLOWCHARTS (CONTINUED)



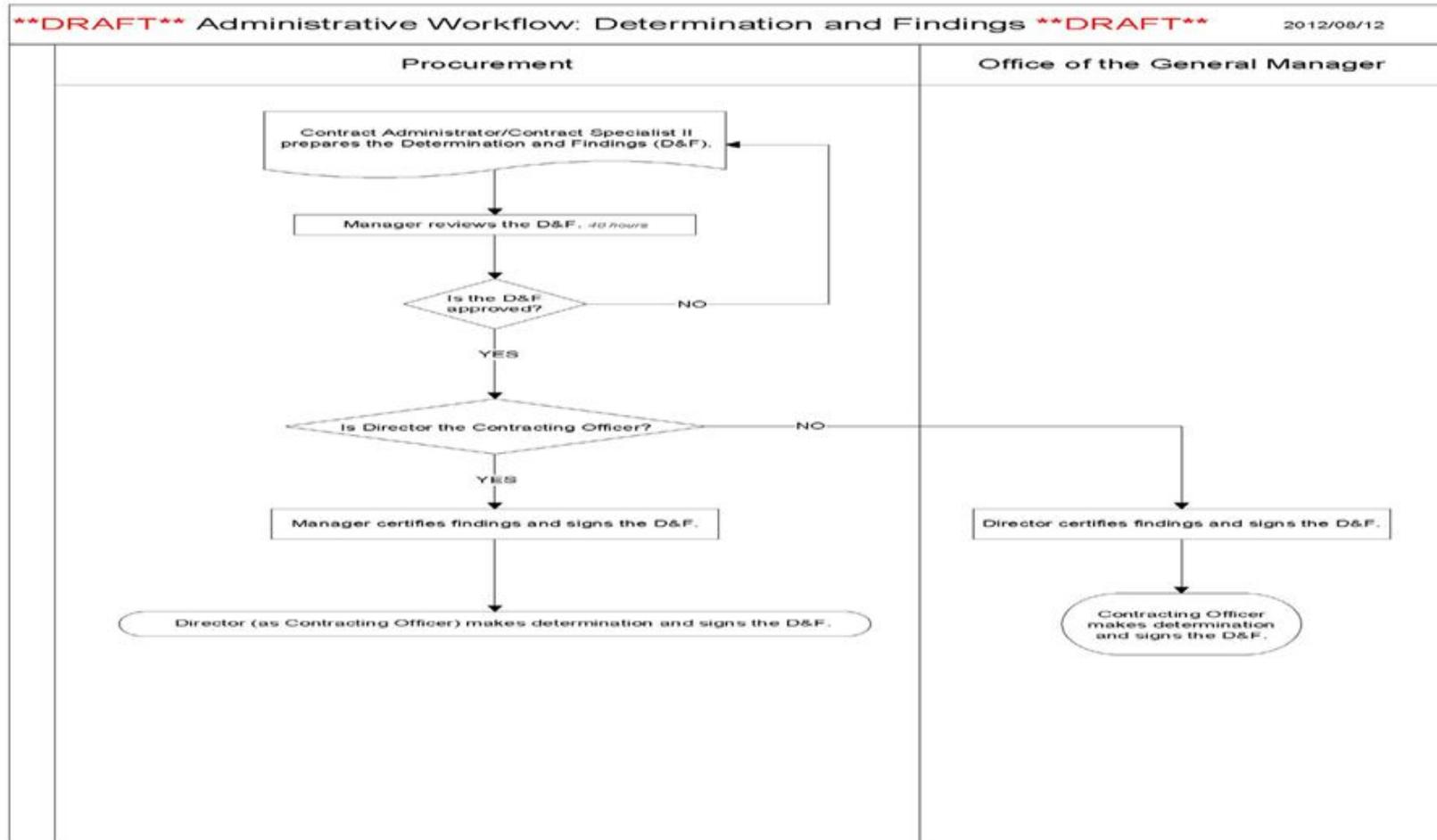


APPENDIX C – FLOWCHARTS (CONTINUED)



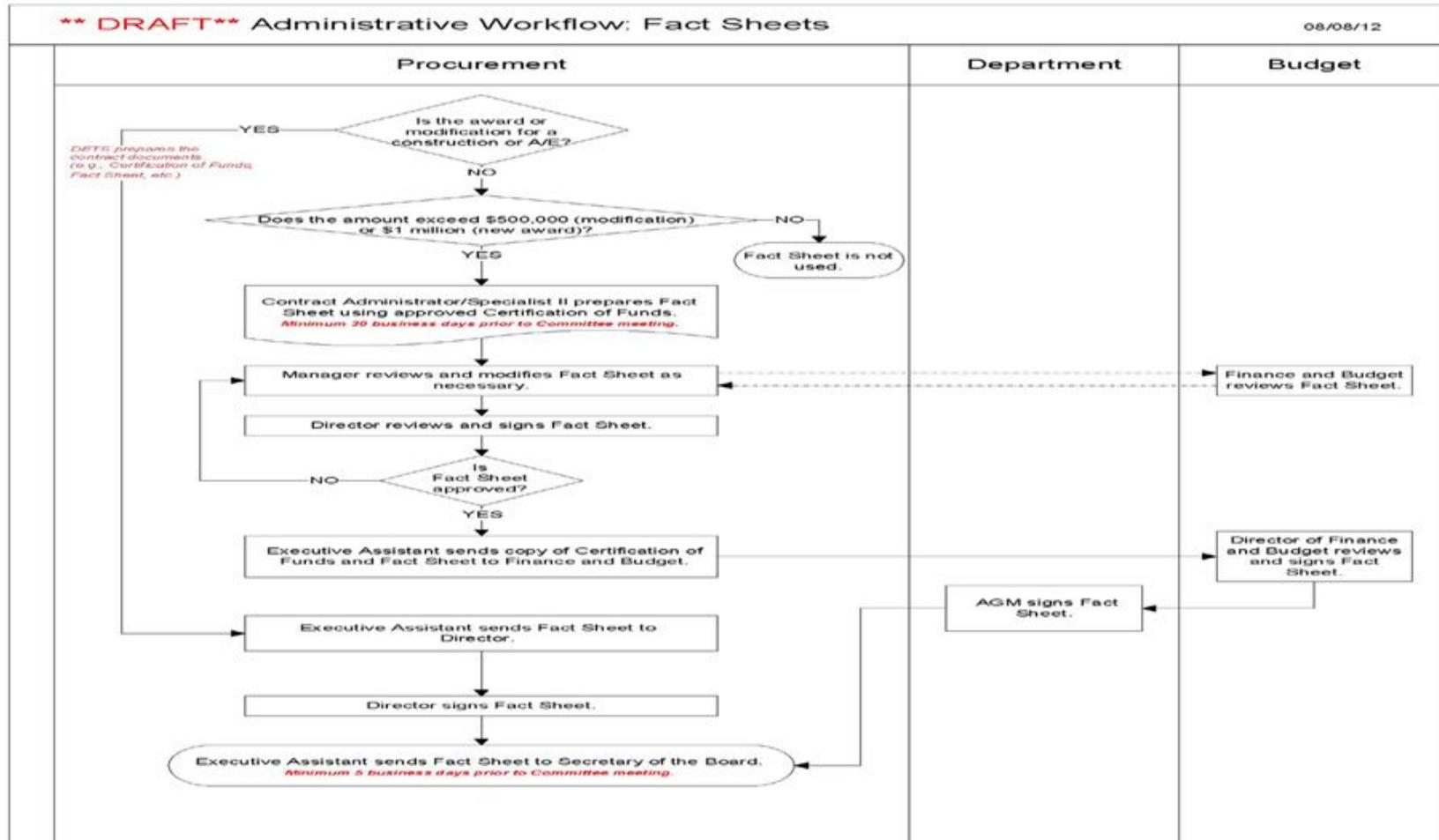


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APPENDIX C – FLOWCHARTS (CONTINUED)

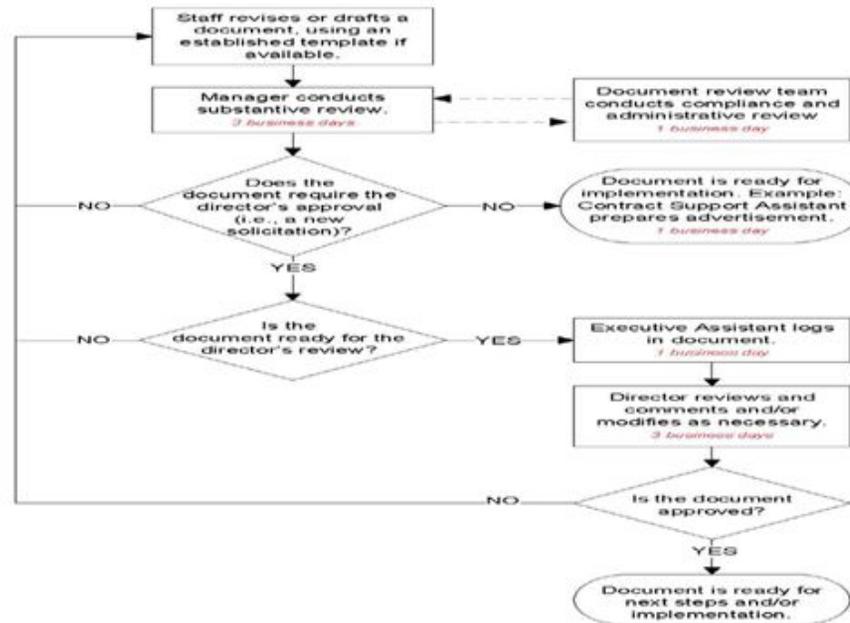




APPENDIX C – FLOWCHARTS (CONTINUED)

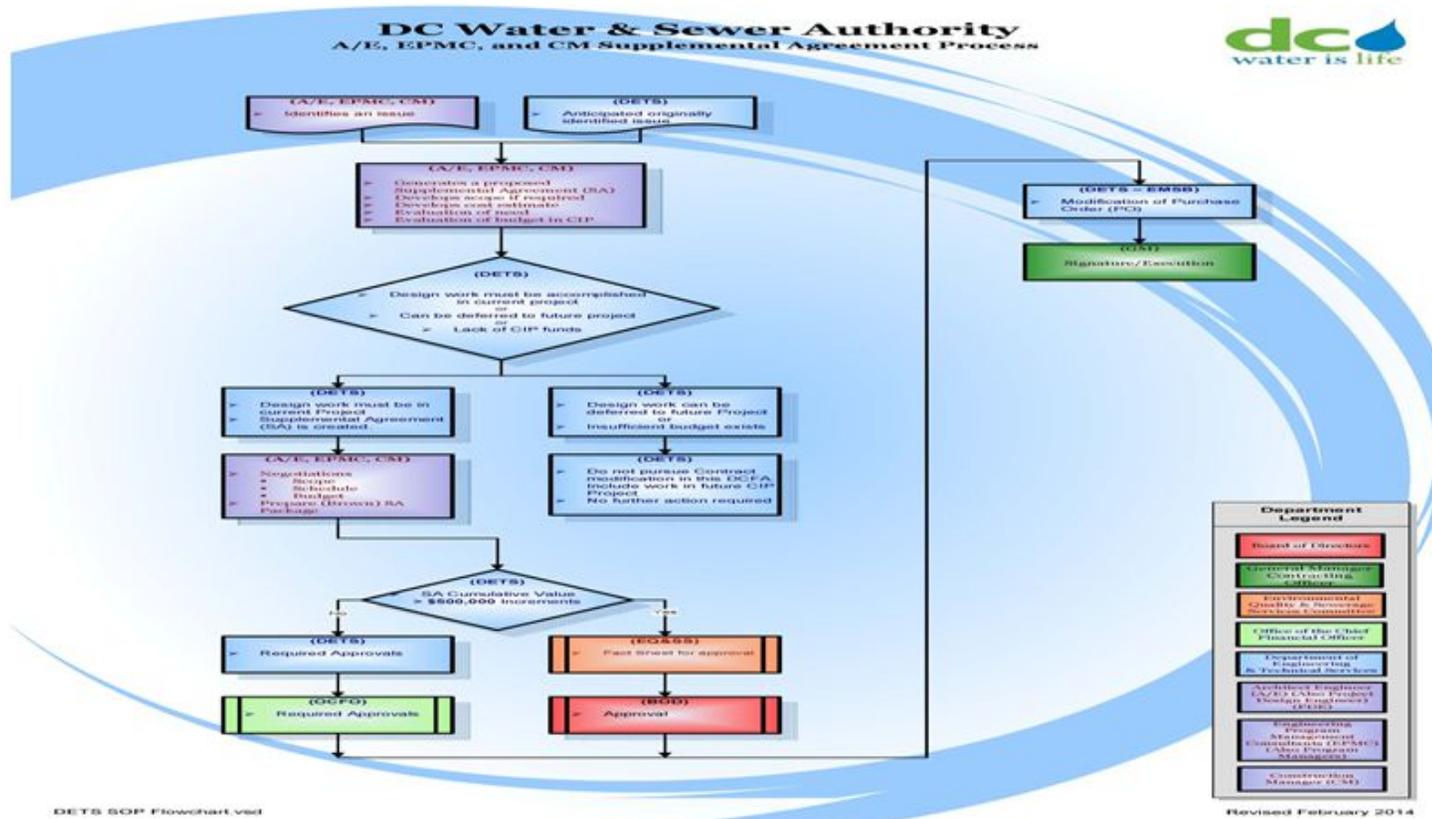
** DRAFT ** Administrative Workflow: Document Review **DRAFT**

2012/05/15



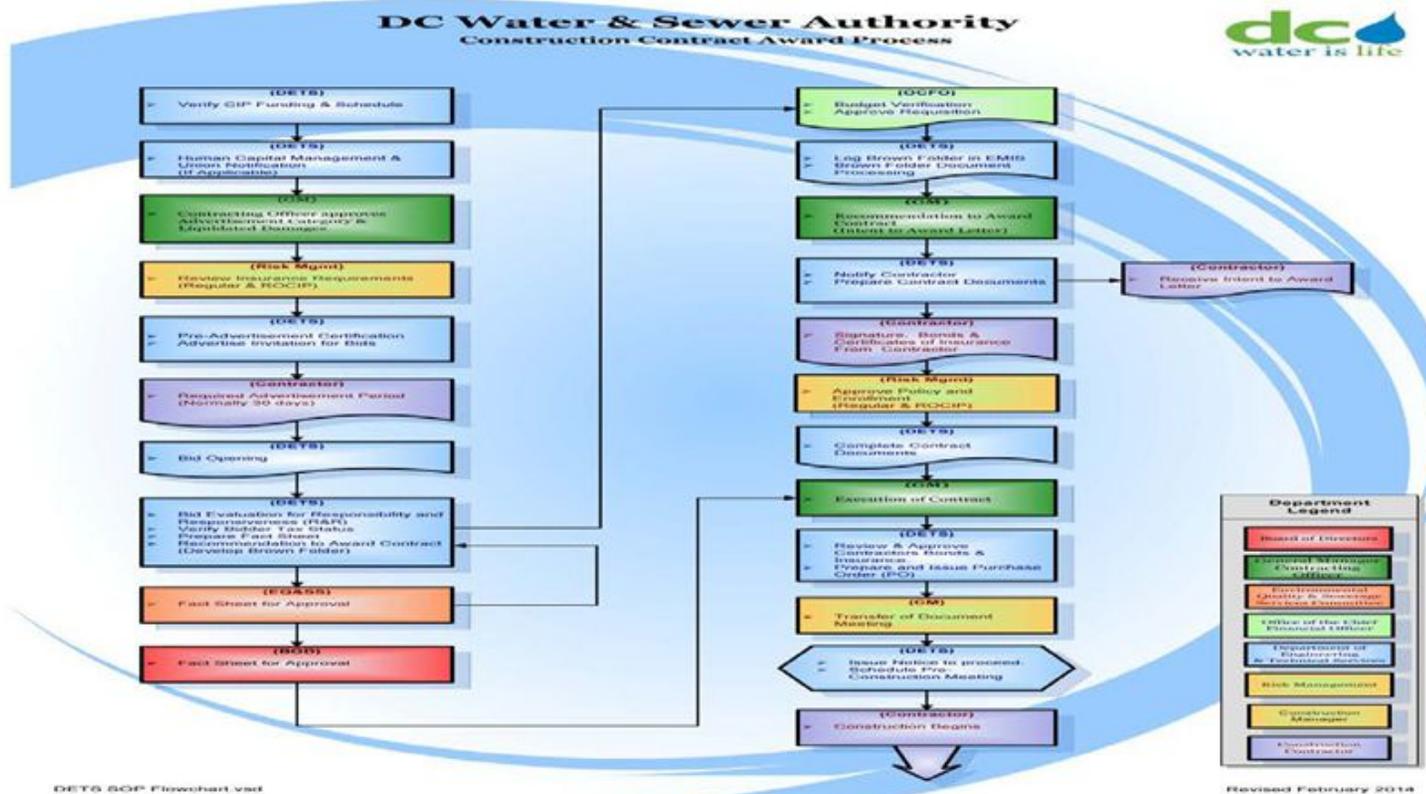


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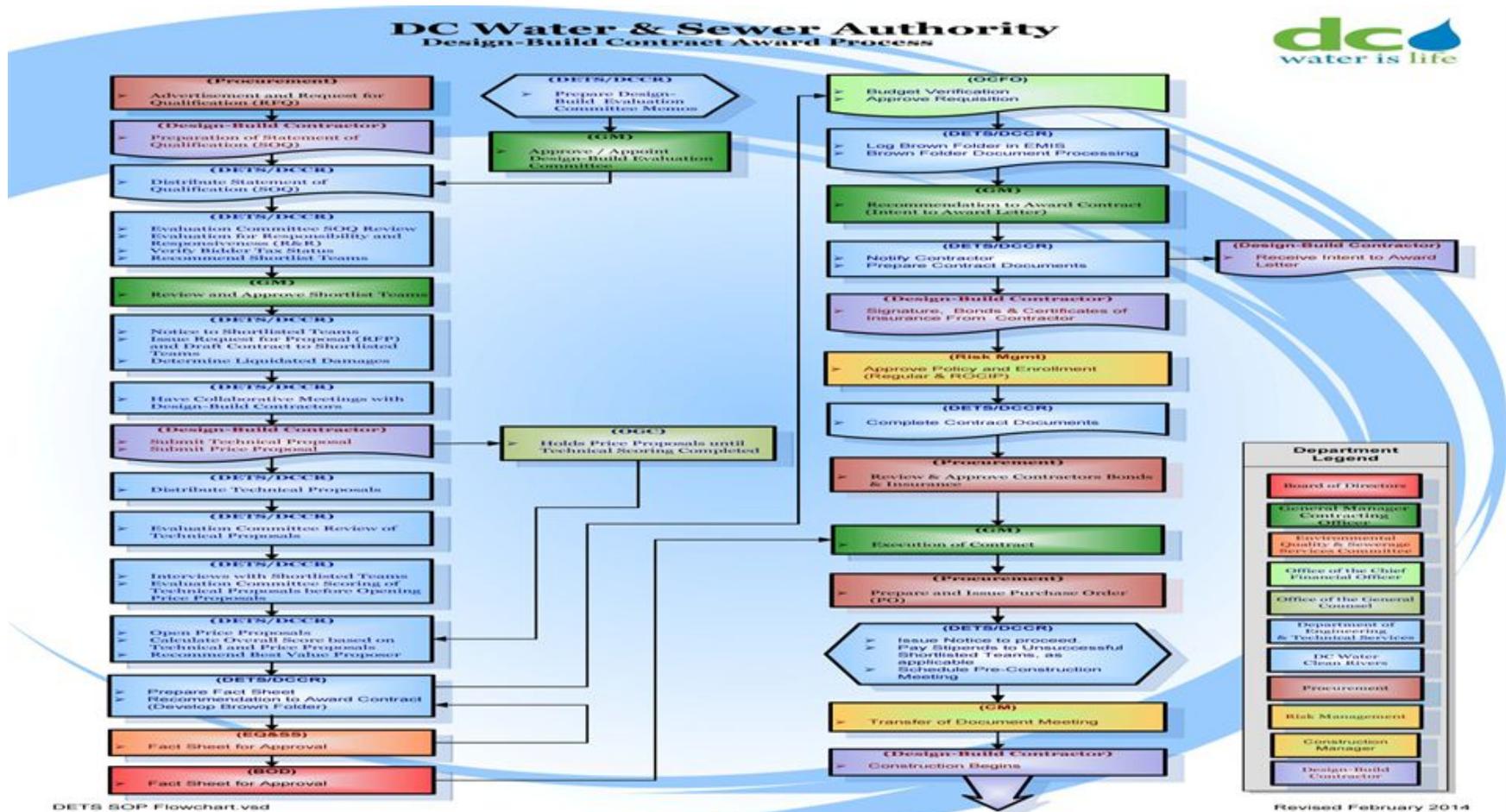


APPENDIX C – FLOWCHARTS (CONTINUED)



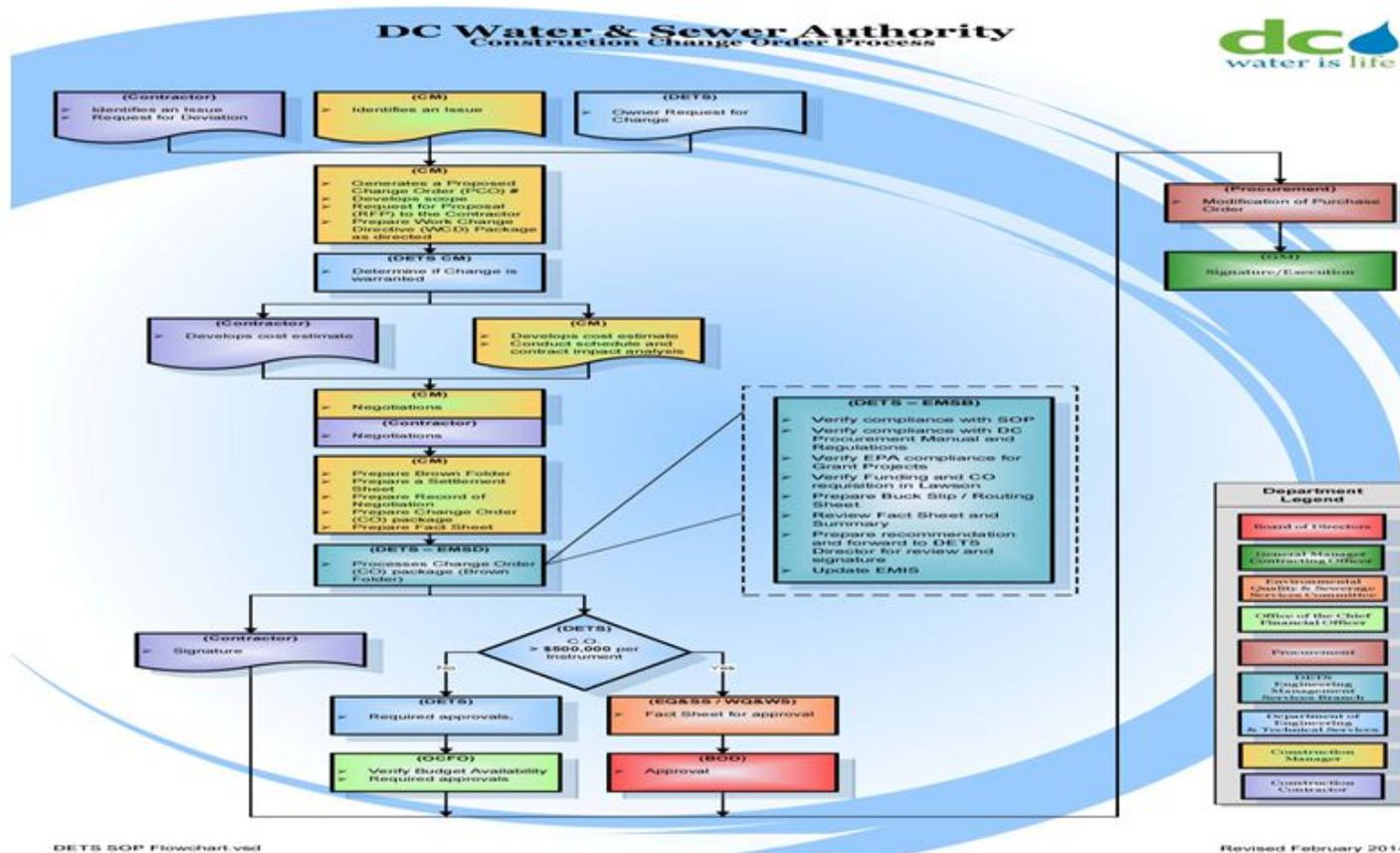


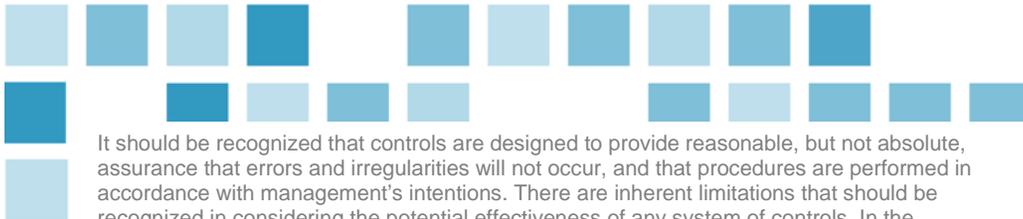
APPENDIX C – FLOWCHARTS (CONTINUED)





APPENDIX C – FLOWCHARTS (CONTINUED)





It should be recognized that controls are designed to provide reasonable, but not absolute, assurance that errors and irregularities will not occur, and that procedures are performed in accordance with management's intentions. There are inherent limitations that should be recognized in considering the potential effectiveness of any system of controls. In the performance of most control procedures, errors can result from misunderstanding of instructions, mistakes in judgment, carelessness, or other personal factors. Control procedures can be circumvented intentionally by management with respect to the execution of transactions, or with respect to the estimates and judgments required in the processing of data.

Further, the projection of any evaluation of control to future periods is subject to the risk that the procedures may become inadequate because of changes in conditions, and that the degree of compliance with procedures may deteriorate.



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Internal Audit Report Engineering - Contractor Management

July 9, 2015





EXECUTIVE SUMMARY

Background

Department of Engineering and Technical Services (DETS) and the DC Clean Rivers Project (DCCR) both utilize a team of external consultants and contractors to assist with the delivery of the Authority's ten-year \$3.8 billion Capital Improvement Plan. These third party agreements include specialties in the following major areas:

- Program Management
- Tunnel and Geotechnical Consultation
- Design, Architecture, and Engineering
- Construction Management Consulting
- Design Builders
- Construction Contractors

DETS currently monitors twenty-nine (29) contracts in these specialty areas, while DCCR is responsible for monitoring thirty-five (35) contracts.

Monitoring efforts consist of ensuring general compliance with each agreement, including but not limited to; change management, invoicing / payment protocols, insurance requirements, and periodic, regular project status and progress reporting.

In addition to general compliance with the terms and conditions of their respective agreements, contractors are responsible for adhering to and reporting on the status of their compliance with the Authority's workforce related goals, including the Davis Bacon Act, Minority and Women Owned Business Enterprise participation, DC Resident Hiring Goals, and the DC Living Wage Act. To monitor compliance with these requirements the Authority utilizes their Program Management and Consultant Construction Management agreements noted above to execute a robust monitoring program, with ongoing reporting to key members of the Authority's management team. These monitoring efforts include random inspections, review of source documents (payroll records, etc.), and the review regular compliance reporting from contractors and subcontractors.

Objective and Scope

This internal audit of the Authority's vendor / contractor management function represents the first phase of a three phased audit plan encompassing the Authority's engineering and construction function. The primary objectives of the internal audit included the following:

- To obtain an understanding of the processes and controls in-place at DETS and DCCR for administering a construction project utilizing 3rd party vendor / contractor agreements
- To identify and assess the design of monitoring controls in-place over high risk outsourced program management, design or construction management functions
- To develop recommendations for improvements to vendor / contractor monitoring controls, outsourcing structures, contract language, process flow, etc.

The scope of this Contractor Management internal audit included the review of active vendor / contractor agreements being administered under the supervision of DETS and / or DCCR, as well as the key monitoring controls in-place for ensuring contractual compliance with high risk processes governed by these outsourced agreements.

Fieldwork was performed from May 6, 2015 through June 25, 2015.

Ratings & Conclusions Summary

The observations and opportunities identified during our assessment are summarized on the next page. We have assigned relative risk or value factors to each observation. Ratings are not assigned to opportunities as these items represent best practices and/or recommended initiatives. Risk ratings are the evaluation of the severity of the concern and the potential impact on the operations of each item. Only observations will require management action plans with estimated completion dates that will be included in the routine follow up of internal audit observations.

We would like to thank all DC Water team members who assisted us throughout this review.



EXECUTIVE SUMMARY (CONTINUED)

Ratings and Conclusions

Following is a summary of potential improvement opportunities noted in the areas reviewed.

Observations and Improvement Opportunities

Improvement Opportunities

1. Design Build Contract Delivery Methodology

Through discussions with Authority personnel, including Management from both the Department of Engineering and Technical Services, and DC Clean Rivers Project, we noted that the Authority has historically executed its Design Build agreements as a lump-sum price, with certain cost reimbursable allowances.

We noted that the Authority's selection process includes an in-depth review of qualifications from multiple firms to ensure the most qualified and experienced Design Builder is awarded. In addition, we understand that a competitive cost negotiation of shortlisted firms is performed to ensure cost considerations are addressed. However, given the extremely complex and long-term nature of many of the Authority's projects, the use of lump sum agreements may expose the Authority to the risk of inflated original estimates, as contractors may attempt to hedge against materials or labor cost increases, unforeseen conditions, or other unpredictable circumstances.

In McGladrey's experience, utilization of a cost reimbursable or cost-plus-fee (with a guaranteed maximum price) contract structure can afford construction project Owner's a high level of assurance that amounts billed by the Design Builder were in-fact for costs that were actually incurred, and do not contain additional markups or profit centers. In addition, a cost-plus-fee contract delivery methodology gives project Owner's contractual visibility into subcontractor agreements, subcontractor pay applications, and other important information that under the Authority's current methodology is not being obtained or reviewed.



EXECUTIVE SUMMARY (CONTINUED)

Ratings and Conclusions (continued)

Observations and Improvement Opportunities (continued)

Improvement Opportunities (continued)

2. Building Information Modeling

Through our review of architectural / engineering and design build agreements, as well as through our discussions with Authority personnel, we noted that these agreements do not currently include detailed requirements addressing the use of Building Information Modeling (BIM) including but not limited to; the required use of BIM, specific data sets to be included in the model, or as-built / output formats for model use subsequent to design or construction.

BIM's ability to streamline project timelines and reduce the likelihood of change orders through clash detection and better subcontractor coordination are just a few of the reasons why industry leading architectural / engineering firms and progressive commercial contractors utilize modeling on construction projects, even when the model is not contractually required. In addition, it is our understanding that use of a maintenance work order system that integrates with BIM can allow Owner's to more efficiently coordinate repair and maintenance work at newly constructed facilities, significantly reduce work request investigation time, and can provide maintenance technicians real-time access in the field to As-Built documents through tablets and / or smart-phones.

It is our understanding that the Authority utilizes IBM's Maximo for the execution of its maintenance work order processes. Maximo is one of the few work order systems on the market today that can provide the capability to efficiently integrate the new asset data and view the model through a 3D viewer.

By not stipulating BIM and facility data specifications in your current construction related agreements, the Authority may forgo the capabilities noted herein should Maximo integration occur in the future.

Management's Accomplishments

Throughout our discussions with Authority personnel along with review of related documentation, we noted that the Authority has developed and actively manages a robust monitoring program to help ensure contractor compliance with the wide assortment of contractual, legislative, and/or regulatory requirements. This monitoring program includes the following leading practices:

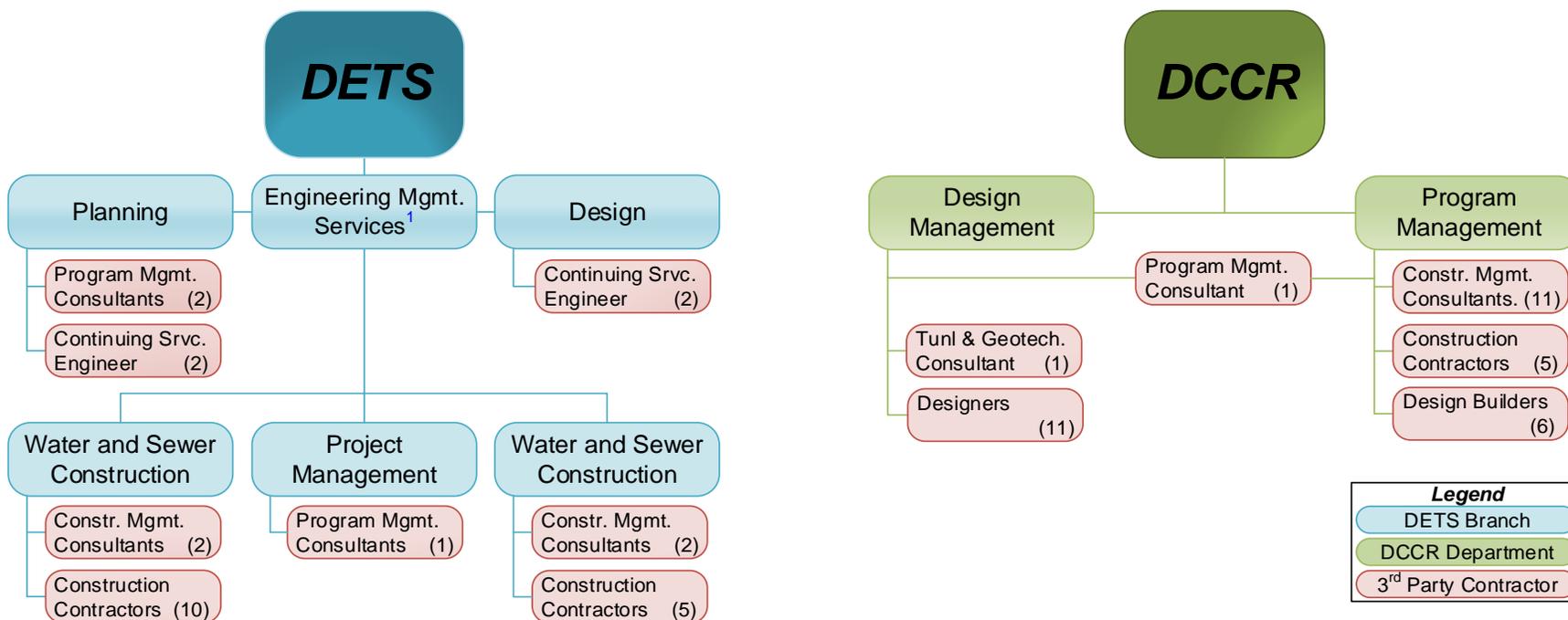
- Multiple levels of technical and financial review of contractor invoices and change orders, in conjunction with the detailed review of, and reconciliation to monthly reports provided by contractors
- Regular and ongoing collection of source documentation related to Minority and Women Owned Business Enterprise participation, prevailing wage requirements, and hiring goals, which includes compilation of reports for the regular review of the Authority's management team



BACKGROUND, OBJECTIVES AND APPROACH

Background

To help effectively deliver its vision to *Provide world-class water and wastewater services as a leading steward of the environment*, The DC Water and Sewer Authority (“DC Water” or “The Authority”) actively utilizes a multitude of external consultants and contractors to assist with executing a number of ongoing construction and renovation projects. These entities are an integral part in delivering the Authority’s ten-year \$3.8 billion Capital Improvement Plan. The following depicts in general, the functional reporting relationships between these contractors and various management branches and departments within the DETS and DCCR.

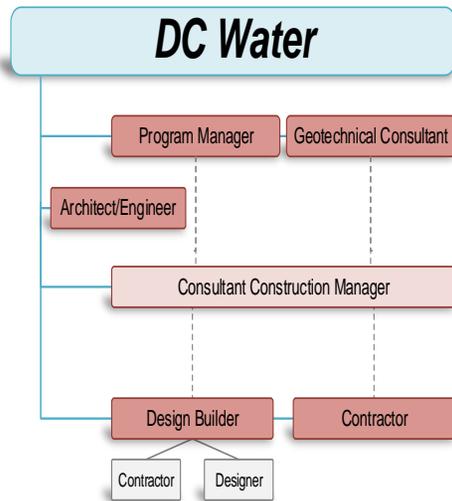


¹The Engineering Management Services Branch assists with the review of contractor invoices and change orders, administers the Capital Improvement Plan, applicable project budgets, specifications, and is heavily involved in the procurement of Construction contracts and AE Agreements, including MBE/WBE participation.



BACKGROUND, OBJECTIVES AND APPROACH (CONTINUED)

Background (continued)



Program Managers

Program Management Consultants assist the Authority in the planning, procurement, management and administration of individual design, construction management and construction contracts that the Authority has executed with other parties. This may include preparation of unified and coordinated designs, criteria, guidance and instructions as well as together with technical and quality review of the work provided by other parties. Program Managers are also responsible for performing needs and risk assessments, ongoing monitoring, and reporting to the Authority. Their responsibilities also include the collection of data and the related monitoring and reporting of contractors’ compliance with the Authority’s workforce related goals described below.

Tunnel and Geotechnical Consultant

Much like a Program Manager, DCCR’s Tunnel and Geotechnical Consultant is responsible for assisting the Authority in the planning, procurement, management and administration of individual design, construction management and construction contracts that the Authority has executed with other parties. This consultant is also responsible for coordinating with the DCCR Program Manager to form the Program Consultants Organization to assist with the management and execution of the Authority’s Long Term Control Plan.

Designers, Architects, and Engineers

Designers, Architects and Engineers provide services for the preparation of contract documents to be used for bidding and procurement of construction contracts. They may also be responsible for preparing construction cost estimates and schedules. During the bidding process, these consultants may assist with responses to inquiries, conducting the pre-bid conference, and reviewing bids to provide the Authority with recommendations regarding the responsiveness and responsibility of bidders. During construction, these consultants are responsible for

responding to requests for information, preparing contract change requests, and advising the Authority on discovered ambiguities, omissions, or inconsistencies in the contract documents.

Consultant Construction Managers

Consultant Construction Managers are responsible for general construction management, review of shop drawings and other contractor submittals, preparation and negotiation of Change Orders, resident engineering and inspection services, quality assurance, coordination of materials testing, claims avoidance, and claims analysis and management throughout the construction project. Their responsibilities also include assisting the Program Manager with the collection of data and related monitoring and reporting of contractors’ compliance with the Authority’s workforce related goals described below.

Design Builders

Design Builders are responsible for the design and execution of work as outlined in their contract documents. This may include engineering, construction, testing, training, placement, and startup of items specified within the contract documents.

Construction Contractors

Construction contractors are responsible for completing all work as specified or indicated in the contract documents prepared by Designers, Architects, and/or Engineers. This may include construction, testing, training, placement, and startup of items specified within the contract documents.



BACKGROUND, OBJECTIVES AND APPROACH (CONTINUED)

Background (continued)

In addition to, or in concert with the specific technical requirements enumerated within their agreements, all contracted parties are also responsible for adhering to and reporting on the status of the contractor's compliance with the Authority's workforce related goals, including but not limited to the Davis Bacon Act, Minority and Women Owned Business Enterprise participation, DC Resident Hiring Goals, and the DC Living Wage Act. To monitor compliance with these requirements the Authority utilizes their Program Management and Consultant Construction Management agreements noted above to execute a robust monitoring program, with ongoing reporting to key members of the Authority's management team. These monitoring efforts include random inspections, review of source documents (payroll records, etc.), and the review regular compliance reporting from contractors and subcontractors. Examples of certain requirements subject to the Authority's monitoring program are included below:



The Davis Bacon Act establishes minimum wage rates and fringe benefits based on geographical location for mechanics and laborers utilized under federally funded or assisted contractor and subcontractor agreements in excess of \$2,000. Contractors not in compliance with the payment requirements are subject to penalties, restitution to underpaid employees, and additional future monitoring.

For projects funded in part by the EPA, the Authority has established its Fair Share Objective for Minority and Women Business Enterprises (MWBE), and requires all contractors under such projects to also comply with the agreed-upon objectives. These include 28% participation of Minority Business Enterprises and 4% participation of Women Business Enterprises for professional services agreements, and 32% and 6%, respectively for construction services agreements.



The DC Living Wage Act also establishes an overall minimum wage for DC Government contractors and recipients of government assistance of greater than \$100,000. Although currently independent of the District Government, the Authority has adopted this act and applied to many of its contracts.

The DC Mayor's Order 93-138 establishes minimum resident hiring requirements for new hires and apprenticeships. Although currently independent of the District Government, the Authority has adopted this act and applied to many of its contracts. For future contracts, the Agency is also in the process of developing a more comprehensive goal that will also include areas serviced outside the geographical limits of the District.



BACKGROUND, OBJECTIVES AND APPROACH (CONTINUED)

Objectives and Approach

The internal audit of the Authority's vendor / contractor management function is the first phase of a three phased audit plan encompassing the Authority's engineering and construction function.

Objectives

The objectives of the internal audit of the Authority's vendor / engineering contractor management included the following:

- To obtain an understanding of DETS and DCCR, their outsourced design and construction management contractual arrangements, KPIs, organizational structure, etc.
- To obtain an understanding of the processes and controls in-place at DETS and DCCR for administering a construction project utilizing 3rd party vendor / contractor agreements
- To identify monitoring controls in-place over high-risk outsourced program management, design or construction management functions
- To assess the design of monitoring controls identified in-place over high-risk outsourced program management, design or construction management functions
- To develop recommendations for improvements to vendor / contractor monitoring controls, outsourcing structures, contract language, process flow, etc.

Approach

Our audit approach consisted of the following phases:

Understanding of the Process

In order to establish a foundational understanding of DETS and the DCCR, McGladrey conducted facilitative sessions and individual interviews with key members of the DETS and DCCR teams. Major worksteps performed as a part of this phase included the following:

- Kickoff meeting / facilitative session with management within each division
- Twenty (20) individual interviews with key members of management and process owners including but not limited to, DCCR, EMS, Blue Plains, and Water & Sewer Construction
- Obtain and review key design and construction management contracts (program management, owners rep, construction, etc.)
- Obtain and review internal policies and procedures as it relates to vendor management / monitoring

Design Assessment

Leveraging the information obtained in first phase, we worked with management to identify potential improvements to the design of processes and controls as they related to vendor / contractor monitoring efforts. Major worksteps performed as a part of this phase included the following:

- Identify risks inherent in process of monitoring outsourced functions
- Identify key monitoring controls in-place at DC Water over the major outsourced processes and subprocesses
- Review applicable flow charts provided by management of relevant processes and subprocesses related to vendor / contractor monitoring
- Identify control gaps, opportunities for process improvement, and efficiency gains

Reporting

At the conclusion of this audit, we summarized our observations related to contractor management at DC Water. We have reviewed the results of our assessment with management in the Department of Engineering and Technical Services and the DC Clean Rivers Project.



IMPROVEMENT OPPORTUNITIES

| 1 | <u>Design Build Contract Delivery Methodology</u> | <u>Recommendation</u> |
|---|---|--|
| | <p>Through discussions with Authority personnel, including Management from both the Department of Engineering and Technical Services, and DC Clean Rivers Project, we noted that the Authority has historically executed its Design Build agreements as a lump-sum price, with certain cost reimbursable allowances.</p> <p>We noted that the Authority’s selection process includes an in-depth review of qualifications from multiple firms to ensure the most qualified and experienced Design Builder is awarded. In addition, we understand that a competitive cost negotiation of shortlisted firms is performed to ensure cost considerations are addressed. However, given the extremely complex and long-term nature of many of the Authority’s projects, the use of lump sum agreements may expose the Authority to the risk of inflated original estimates, as contractors may attempt to hedge against materials or labor cost increases or other unpredictable circumstances.</p> <p>In McGladrey’s experience, utilization of a cost reimbursable or cost-plus-fee (with a guaranteed maximum price) contract structure can afford construction project Owner’s a high level of assurance that amounts billed by the Design Builder were in-fact for costs that were actually incurred, and do not contain additional markups or profit centers. In addition, a cost-plus-fee contract delivery methodology gives project Owner’s contractual visibility into subcontractor agreements, subcontractor pay applications, and other important information that under the Authority’s current methodology is not being obtained or reviewed.</p> <p>We understand that the members of the Authority refer to this methodology as “Progressive Design Build” and that a select few projects being executed by the Authority currently utilize this contractual structure.</p> | <p>We recommend the Authority consider the more widespread execution of cost-plus-fee with a guaranteed maximum price contracts for future projects.</p> <p>Considering the strong internal and 3rd party support structure that exists at the Authority for executing major construction projects (DETS Engineering Management Services, consultant program managers, consultant construction managers, etc.), the administrative burden commonly associated with cost-plus-fee delivery models can be shared by all parties. It is our experience that if executed properly, a shift to this type of delivery method could potentially result in cost savings to the Authority, while providing greater visibility into subcontractor agreements, further mitigating construction project risk.</p> |



IMPROVEMENT OPPORTUNITIES (CONTINUED)

| 2 | <u>Building Information Modeling</u> | <u>Recommendation</u> |
|---|--|---|
| | <p>Through our review of architectural / engineering and design build agreements, as well as through our discussions with Authority personnel, we noted that these agreements do not currently include detailed requirements addressing the use of Building Information Modeling (BIM) including but not limited to; the required use of BIM, specific data sets to be included in the model, or as-built / output formats for model use subsequent to design or construction.</p> <p>BIM's ability to streamline project timelines and reduce the likelihood of change orders through clash detection and better subcontractor coordination are just a few of the reasons why industry leading architectural / engineering firms and progressive commercial contractors utilize modeling on construction projects, even when the model is not contractually required. In addition, it is our understanding that use of a maintenance work order system that integrates with BIM can allow Owners to more efficiently coordinate repair and maintenance work at newly constructed facilities, significantly reduce work request investigation time, and can provide maintenance technicians real-time access in the field to As-Built documents through tablets and / or smart-phones.</p> <p>It is our understanding that the Authority utilizes IBM's Maximo for the execution of its maintenance work order processes. Maximo is one of the few work order systems on the market today that can provide the capability to efficiently integrate the new asset data and view the model through a 3D viewer.</p> <p>By not stipulating BIM and facility data specifications in your current construction related agreements, the Authority may forgo the capabilities noted herein should Maximo integration occur in the future.</p> | <p>In keeping with your innovative and progressive culture, we recommend the Authority consider the incorporation of BIM and facility data specification into future construction related agreements. The specification development process should be conducted in close communication with the Authority's facilities maintenance department, as well as your work order system provider to ensure the proper data requirements and formats are considered for incorporation.</p> <p>Effective implementation of a BIM integrated work order system into Authority operations is a complex initiative that will require long-term investment on behalf of multiple departments within your organization. This type of organizational change should be supported by an entity-wide, comprehensive BIM strategy, developed and adopted by all relevant stakeholders. However, ensuring that the Authority's construction related agreements provide clear direction as to the specifications and requirements for this valuable asset can serve as the first step in this process.</p> |



It should be recognized that controls are designed to provide reasonable, but not absolute, assurance that errors and irregularities will not occur, and that procedures are performed in accordance with management's intentions. There are inherent limitations that should be recognized in considering the potential effectiveness of any system of controls. In the performance of most control procedures, errors can result from misunderstanding of instructions, mistakes in judgment, carelessness, or other personal factors. Control procedures can be circumvented intentionally by management with respect to the execution of transactions, or with respect to the estimates and judgments required in the processing of data.

Further, the projection of any evaluation of control to future periods is subject to the risk that the procedures may become inadequate because of changes in conditions, and that the degree of compliance with procedures may deteriorate.



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