



**DISTRICT OF COLUMBIA  
WATER AND SEWER AUTHORITY**

**Board of Directors**

*Audit Committee*

*Thursday, April 27, 2017*

9:30 a.m.

- 1. **Call to Order**.....Nicholas A. Majett, Chairperson
- 2. **Internal Audit Update**..... Dan Whelan, RSM, Auditor General
  - A. **Internal Audit Plan Status Update**
  - B. **Status Update on Prior Audit Findings**
  - C. **Annual Budgeting and Planning Internal Audit**
  - D. **Automated Meter Reading Implementation Progress Report**
  - E. **Department of Maintenance Services Work Order Management Internal Audit (Blue Plains)**
  - F. **Purchasing Card (P-Card) Internal Audit**
  - G. **Hotline Update**
- 3. **Executive Session\*** ..... Nicholas A. Majett, Chairperson
- 4. **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.

# DC WATER

## Audit Committee Meeting



April 27, 2017

# Agenda

- Internal Audit Plan Status Update
- Status Update on Prior Audit Findings
  - COR/COTR Training Update
- Annual Budgeting and Planning Internal Audit
- Automated Meter Reading Implementation Progress Report
- Department of Maintenance Services Work Order Management Internal Audit (Blue Plains)
- Purchasing Card (P-Card) Internal Audit
- Hotline Update
- Executive Session

# FY 2016 Internal Audit Status Update

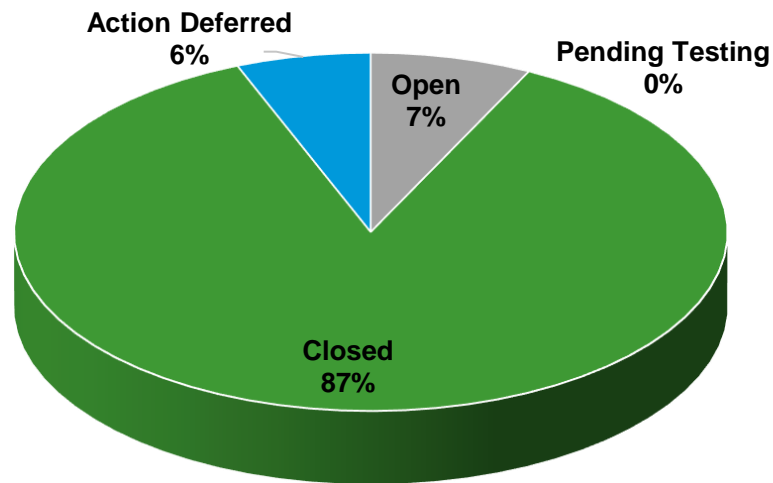
Audit	Status
FY 2016	
Retail Rates Implementation Progress Report	Report Issued
Overtime Audit and Analysis	Report Issued
Contract Monitoring and Compliance Audit (Part 1 and Part 2)	Reports Issued
Training, Licensing and Certification Internal Audit	Report Issued
ROCIP Savings Analysis	Report Issued
Enterprise Project Governance Maturity Assessment	Report Issued (executive session)
<b>Annual Budgeting &amp; Planning</b>	<b>Report Complete</b>
Engineering – Contractor Management Phase II	Report Issued
Blue Horizon 2020 Strategic Plan Monitoring	Report Issued
Incident Management and Response Review	Report Issued (executive session)
Business Development Plan	Report Issued
Customer Billing and Collections	Report Issued
Remediation Follow Up Procedures	On-going
Hotline Management	On-going

# FY 2017 Internal Audit Status Update

Audit	Status
FY 2017	
<b>Automated Meter Reading Implementation</b>	<b>Progress Report Complete</b>
<b>Department of Maintenance Services Work Order Management (Blue Plains)</b>	<b>Report Complete</b>
<b>Human Resource / Employee Privacy Review</b>	<b>Report Complete (executive session)</b>
<b>Purchasing Card (P-Card)</b>	<b>Report Complete</b>
Entity Level Assessment	Reporting In-Process
Inter-municipal Agreement	Planning In-Process
Employee Recruitment and On-Boarding	Planning In-Process
Contract Monitoring & Compliance Review	Planning In-Process
Platform Technical Audit (Windows/UNIX)	Planning In-Process
Materials Management – Operations and Inventory	Not Started
Engineering - Contractor Management Phase III	Not Started
IT Risk Management & Compliance	Not Started
Vulnerability Management Review	Not Started
Remediation Follow Up Procedures	On-going
Hotline Management	On-going

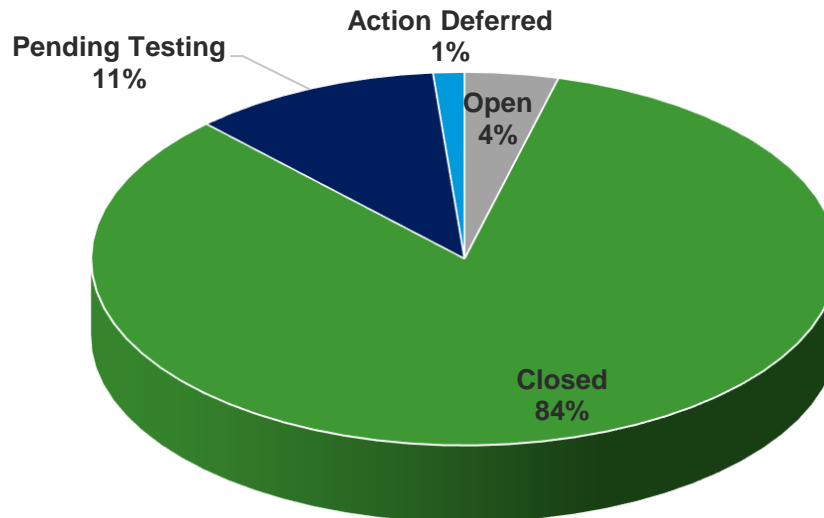
# Status Update on Prior Audit Findings

Audit Report/Subject	Report Issue Date	Corrective Actions				
		Total	Open	Closed	Pending Testing	Action Deferred*
<b>Prior to FY 2015 Audit Findings</b>						
Organizational Policies & Procedures	02/23/2010	1	0	0	0	1
Safety Program Training & Compliance	10/07/2010	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
Fleet Management	04/17/2013	1	0	0	0	1
Water Services - Distribution Maintenance Branch	10/28/2013	1	1	0	0	0
OSHA	02/18/2014	1	0	1	0	0
Disposal of Assets	02/18/2014	1	0	0	0	1
Warehouse Operations	09/15/2014	1	1	0	0	0
GIS Mapping	06/23/2014	2	2	0	0	0
	<b>Total</b>	<b>12</b>	<b>6</b>	<b>1</b>	<b>0</b>	<b>5</b>



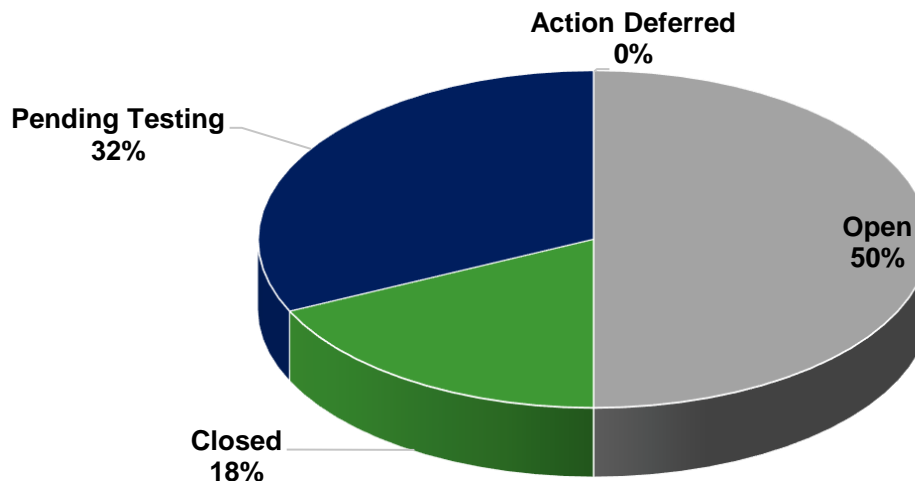
# Status Update on Prior Audit Findings (continued)

Audit Report/Subject	Report Issue Date	Corrective Actions				
		Total	Open	Closed	Pending Testing	Action Deferred*
<b>FY 2015 Audit Findings</b>						
Intellectual Property Program Assessment	01/08/2015	5	0	3	1	1
IT Policy and Procedure	01/21/2015	10	1	9	0	0
Timekeeping Audit	04/08/2015	4	0	4	0	0
Network Security Assessment	04/16/2015	26	1	25	0	0
Procurement – Pre-Award, Selection and Award	05/18/2015	2	0	2	0	0
SCADA / PCS Review	08/28/2015	21	1	17	3	0
IT Vendor Management	12/21/2015	6	0	2	4	0
	<b>Total</b>	<b>74</b>	<b>3</b>	<b>62</b>	<b>8</b>	<b>1</b>



# Status Update on Prior Audit Findings (continued)

Audit Report/Subject	Report Issue Date	Corrective Actions				
		Total	Open	Closed	Pending Testing	Action Deferred*
<b>FY 2016 Audit Findings</b>						
Overtime Audit and Analysis	01/21/2016	3	3	0	0	0
Contract Compliance and Monitoring Part I	04/28/2016	4	0	3	1	0
Contract Compliance and Monitoring Part II	07/28/2016	11	5	5	1	0
ROCIP Savings Analysis	07/28/2016	4	3	0	1	0
Training, Licensing & Certification	07/28/2016	7	6	1	0	0
Blue Horizon 2020 Strategic Plan Monitoring	11/18/2016	3	3	0	0	0
Incident Management and Response Review	11/18/2016	3	3	0	0	0
Engineering – Contractor Management Phase II	2/14/2017	4	0	0	4	0
Billing & Collection	2/14/2017	1	1	0	0	0
Business Development Plan	2/14/2017	10	1	0	9	0
	<b>Total</b>	<b>50</b>	<b>25</b>	<b>9</b>	<b>16</b>	<b>0</b>





# COTR Training Update

- Internal Audit presented to Audit Committee on 7/28/16 the findings from Contract Monitoring & Compliance Audit Part II.
- One of the high risk findings was a lack of COR/COTR training. Audit Committee requested a periodic update on the management action plan.

Authority-Wide Observations	Risk Rating
<p><b>1. COR/COTR Training</b></p>	<p><b>High</b></p>
<p>Management Action Plan: Department of Procurement will implement several steps to COR/COTR training and compliance monitoring:</p> <p><b><u>Phase I:</u></b> Procurement jointly with each COR/COTR for all active contracts will review and develop a contract compliance monitoring checklist for each of 160 active Goods and Services contracts. The items in the checklist will consist of key deliverables, milestones, key vendor performance, and key contractual obligations that should be actively monitored. Then COR/COTR will be responsible for monitoring the items in the checklist and submit a report to Procurement at the beginning of each quarter.</p> <p><b><u>Phase II:</u></b> Procurement along with the Office of Chief Operating Officer (OCCO), Learning and Development (L&amp;D), and Information Technologies (IT) will implement Vendor Performance Management Training programs for COR/COTR.</p> <p><b><u>Phase III:</u></b> Procurement will source and implement a Vendor Performance Management application (an added module to the eSourcing application that Procurement will source and implement in early FY2017) to automate the contract compliance and vendor performance monitoring and reporting.</p>	

# COTR Training Plan

ID	Task Name	% Comple	Start	Finish	Jul 3, '16	Aug 28, '16	Oct 23, '16	Dec 18, '16	Feb 12, '17	Apr 9, '17	Jun 4, '17	Jul 30, '17	Sep 24, '17	Nov 19, '17					
					W	S	T	M	F	T	S	W	S	T	M	F	T	S	W
1	<b>Phase I (COTR Update)</b>	93%	Mon 8/1/16	Fri 4/7/17															
2	COTR List - 160 active contracts	100%	Mon 8/1/16	Fri 8/12/16															
3	COTR Designation Letter Update	100%	Mon 8/15/16	Fri 9/9/16															
4	Checklist	100%	Mon 9/12/16	Fri 9/23/16															
5	1st COTR Vendor Report	90%	Mon 9/26/16	Fri 12/30/16															
6	COTRs start updating Vendor Reports quarterly	90%	Wed 3/1/17	Fri 3/31/17															
7																			
8	<b>Phase II (COTR Training)</b>	72%	Mon 8/15/16	Fri 3/31/17															
9	Market Research	100%	Mon 8/15/16	Wed 11/30/16															
10	Source and select a training program	100%	Mon 1/16/17	Fri 2/17/17															
11	Develop Trainign Materials	50%	Mon 2/20/17	Fri 4/28/17															
12	Provide COTR Training	0%	Mon 5/15/17	Fri 6/16/17															
13																			
14	<b>Phase III (System Implementation)</b>	32%	Mon 9/5/16	Thu 11/30/17															
15	Funding Approval for Vendor Performance Management Tool	100%	Mon 9/5/16	Fri 9/30/16															
16	Source and select the tool	65%	Mon 10/3/16	Fri 3/31/17															
17	Implement the tool	0%	Mon 4/3/17	Fri 9/29/17															
18	User Training (COTR)	0%	Mon 10/2/17	Tue 10/31/17															
19	Deploy (COTRs start providing vendor reports via new tool)	0%	Wed 11/1/17	Thu 11/30/17															

<b>Phase I</b>	COTR Update for all active contracts. Implement initial COTR Vendor Report.	<ul style="list-style-type: none"> <li>Completed updating COTR list and issued new COTR Designation Letters for all 160 active contracts.</li> <li>90% complete on 1<sup>st</sup> COTR Vendor Report.</li> </ul>
<b>Phase II</b>	Provide COTR Training.	<ul style="list-style-type: none"> <li>Decided to provide in-house developed COTR Training program.</li> <li>COTR training materials are planned to be finalized by 4/28/17 and training is planned to start from mid-May.</li> </ul>
<b>Phase III</b>	Implement automated Vendor Performance Management and Reporting application.	<ul style="list-style-type: none"> <li>Selected vendor performance management application on 3/31/17.</li> <li>Implementation to begin in April with a target completion by end of September.</li> <li>Training COTR in the use of new application is planned in October 2017.</li> </ul>

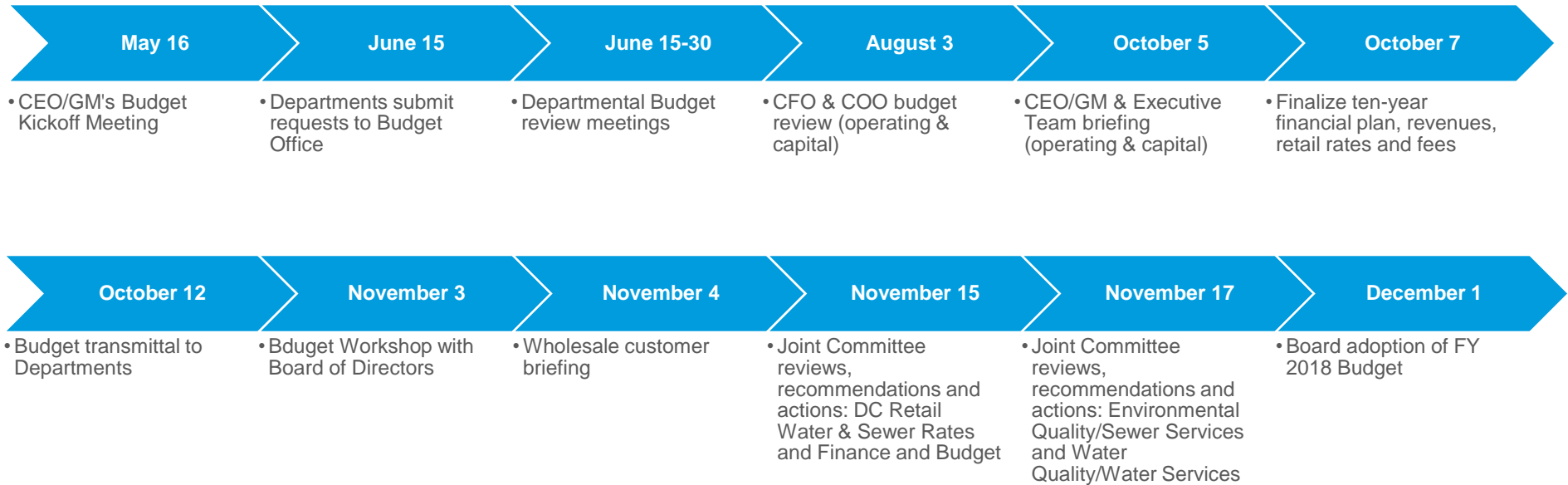
# Annual Budgeting and Planning Internal Audit

The scope of the Annual Budgeting and Planning Internal Audit included the following:

- Understand the method under which the budget process is conducted;
- Assess whether resources are adequately allocated and made available based on the Authority's strategic priorities;
- Analyze budget trends for departments;
- Attend and observe budget development meetings between March 2016 and December 2016, and;
- Evaluate the effectiveness of budget monitoring techniques.

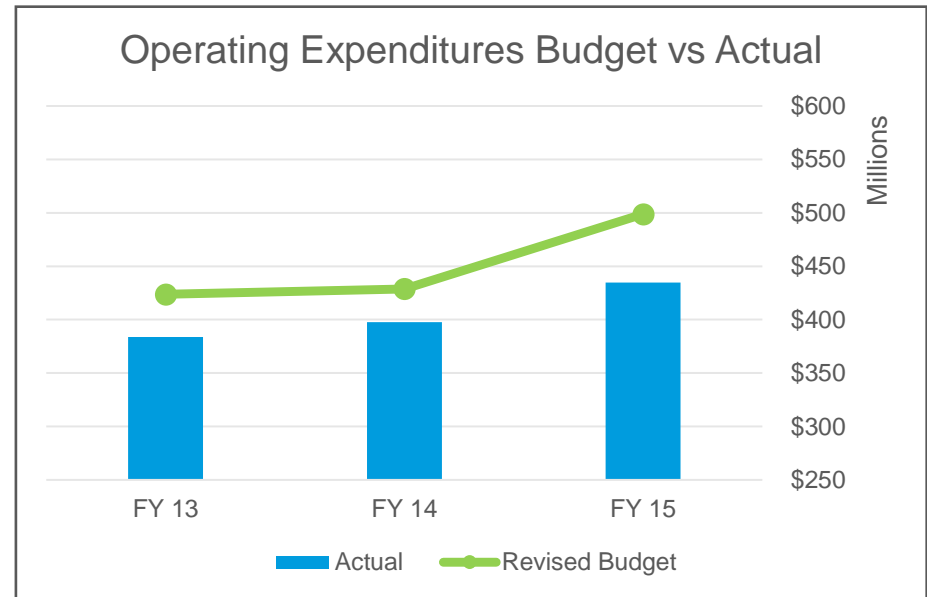
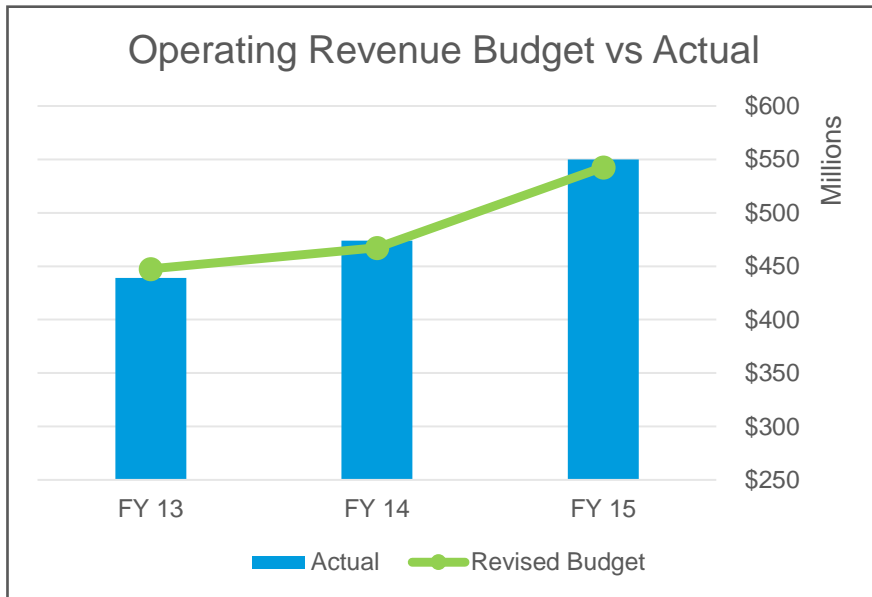
# Annual Budgeting and Planning Internal Audit (continued)

**FY 2018 Budget Timeline** *(dates are in 2016 calendar year):*



# Annual Budgeting and Planning Internal Audit (continued)

Over the past three fiscal years, operating revenue actuals have remained within 2% of the revised budget figure, while operating expenditures have had greater variances. Actual operating expenditures have been between 7-13% lower than budgeted since FY 2013. Operating expenditures in FY 2015 was lower due to underspending in contractual services and chemicals, mainly attributed to the new digester project which became operational in FY 2015.



# Annual Budgeting and Planning Internal Audit (continued)

Observations	Risk Rating
1. Budget Tool	Moderate
<p><b>Management Action Plan:</b> In FY 2016, Management began the initial assessments of its current financial system (Lawson/Infor) for future upgrade and/or procurement of an Enterprise Resource Planning (ERP) system. Management continues to document the current state of DC Water’s accounting, procurement, capital project planning, budgeting and budgetary controls and other business processes to identify the future state for technological requirements. We anticipate that the future upgrade and/or replacement of the ERP will provide the functionalities for the automation of the budget planning and development workflow process.</p>	

*Please refer to the Annual Budgeting and Planning Internal Audit Report for additional process improvement opportunities.*

# Automated Meter Reading Implementation Progress Report

## Objectives

The purpose of this review is to gain an understanding of the business process transformation and evaluate the Automated Meter Reading (AMR) project implementation.

## Approach

In our approach we focused on obtaining an understanding of the AMR project through performing detailed walkthroughs with key members of Customer Service, Information Technology, M&S Parts Materials, including contracted personnel involved in the replacement and field operations of the project.

The audit scope is based on the objectives defined in the two-phase approach below:

- Phase I: Project initiation and business process review
- Phase II: IT Design and implementation review

**This progress report is for Phase I of our AMR implementation review.**

# Automated Meter Reading Implementation Progress Report (continued)

## **Phase 1: Project initiation and business process review**

- Evaluate the meter program implementation plan and meter installation process, including the monitoring and reporting on the status of the implementation;
- Assess the inventory management process and controls implemented by the installation vendor, including:
  - Compliance with the contract requirements;
  - Confirm installation vendor is performing physical inventory counts to verify inventory balances and validate bi-weekly reports provided by the installer of inventory balances;
  - Confirm security of warehouse in which inventory is stored;
  - Confirm that meters are installed in the correct locations and that all meters are tested appropriately (i.e. Within guidelines established by the manufacturer for new meters and/or DC Water for legacy meters);
- Assess the meter disposal process and controls, including:
  - Physical security of the meters and hazardous materials;
  - Determine compliance with DC Water’s Disposal of Scrap and Excess Property Policy;
- Review billing adjustments for customers with new meters (if applicable); and
- Provide timely recommendations regarding overall project risk management.



# Automated Meter Reading Implementation Progress Report (continued)

## AMR Implementation Oversight

- In order to manage the replacement of over 85,000 meters and MTUs, DC Water established an Executive Oversight Committee and a Project Management Office (PMO).
- The PMO is comprised of individuals from various Departments throughout the Authority, including CIS/Billing, IT, Inventory Management, Public Communications, and Procurement.

### Key Activities of PMO

- Establish Team Charter to document roles and responsibilities, including a RACI chart
- Draft a project schedule, including identification of key performance indicators
- Develop a project risk register, which is reviewed monthly by the Executive Oversight Committee
- Hold weekly meetings with project team and with installation contractor to discuss the progress of the project, including tracking of planned and actual meter replacements

Week	Total Planned Installs	Total Completed	Remaining Installs
12	9,500	6,725	83,861

*As of April 15, 2017*

# Automated Meter Reading Implementation Progress Report (continued)

DC Water Meter Replacement Program Organizational Chart

**Members:** GM, COO, CFO, CIO, AGM CCO, CE, CEA, CPO & GC  
**Committee Chair – COO**



# Automated Meter Reading Implementation Progress Report (continued)

## DC Water Accomplishments

- Conducted RFP process then subsequently issued purchase orders for all identified AMR Project requirements.
- Established sampling and quality control process for monthly production of water meters to minimize field installation issues.
- Developed schedule to review monthly requirements of meters and lid with suppliers and SGS to minimize supply interruptions and minimize storage required at SGS warehouse.
- Developed and deployed the disposal process for legacy meters removed from service to minimize storage and material handling requirements.
- Completed 6 out of 7 ANC meetings for Wards 1 and 4.
- Weekly team progress meetings have been held, which are beneficial for sharing information.
- Weekly meetings with SGS remain intact for project management purposes.
- No customer issues reported within the first 90 days.
- The interactive webpage has been launched to support customer engagement.

# Automated Meter Reading Implementation Progress Report (continued)

## **Next Steps**

Internal Audit will continue to monitor the progress of the AMR project by performing the following actions:

- Complete the Phase I of our objectives and approach, including:
  - Review billing adjustments made for customers with new meter and verify proper management of accounts that have billing exceptions and/or customer disputes;
  - Review a sample of disposal reconciliations;
  - Verify SGS is providing the appropriate reporting in accordance with their contract, and;
  - Confirm that meters are installed in the correct locations and that all meters are tested appropriately (i.e. Within guidelines established by the manufacturer for new meters and/or DC Water for legacy meters).
  
- Perform Phase II of our objectives and approach.

## Department of Maintenance Services Work Order Management Internal Audit (Blue Plains)

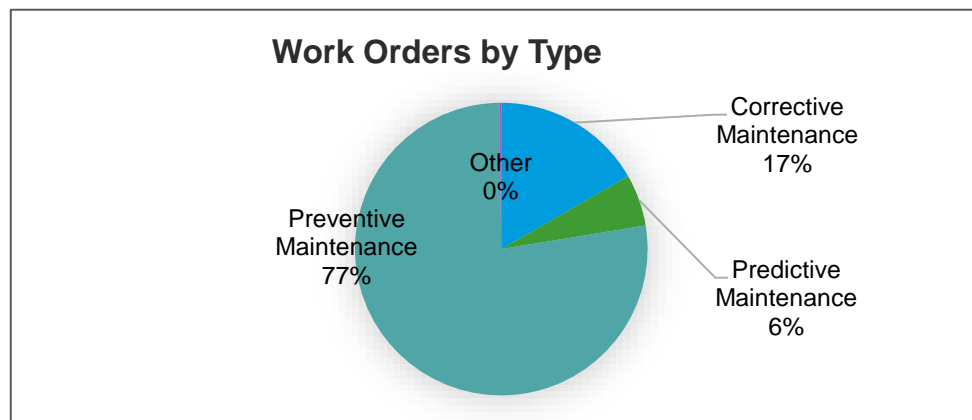
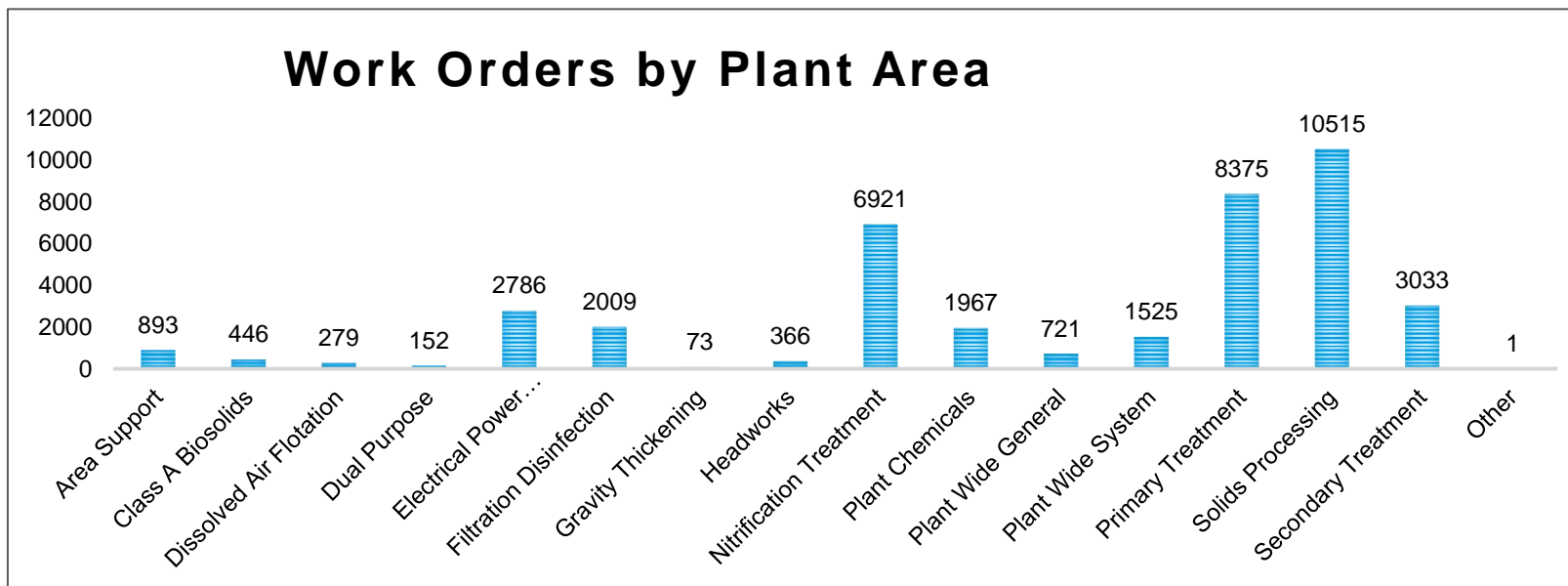
The scope of the Department of Maintenance Services Work Order Management Internal Audit (Blue Plains) included the following:

- Obtain an understanding of the Work Order Management process, including the policies and procedure and controls in place;
- Determine the design effectiveness of those controls identified by testing a sample of closed work orders, and;
- Evaluate the use of the Maximo Computerized Maintenance Management System (CMMS).

A Work Order Management (WOM) internal audit of the Department of Water Services, Sewer Services and Distribution and Conveyance Systems (DDCS) is scheduled for FY 2018.

# Department of Maintenance Services Work Order Management Internal Audit (continued)

The following chart was derived directly from the work order data provided by management, and summarizes the breakout of work orders by plant area for the in-scope period of December 1, 2015 to November 30, 2016.



# Department of Maintenance Services Work Order Management Internal Audit (continued)

Observations	Risk Rating
1. Documented Supervisory Review of Work Orders within Maximo	High
<p><b>Management Action Plan:</b> DMS will work with the Asset Management team to redesign the process to ensure that all completed work orders are reviewed and approved by Foreman.</p>	

*Please refer to the Department of Maintenance Services Work Order Management Internal Audit Report for additional moderate and low risk observations.*

## Purchasing Card (P-Card) Internal Audit

Purchasing Cards (P-Cards) are the preferred method for micro-purchases that do not have an existing purchase order or for which the vendor cannot accept a check or ACH. P-Cards are not considered a primary method of payment at DC Water.

P-Cards accounted for approximately \$1.8 million in spending during FY2016, which is less than 1% of the Authority's overall operating expenses of \$388.4 million for the same period. P-Cards are also used for emergency purchases during weekends, holidays or after-hours, as needed by service crews.

As of January 2017, there are 75 P-Card holders at DC Water, which are obtained through the Citibank Government Purchase Card Program via the GSA Master Contract.



## Purchasing Card (P-Card) Internal Audit (continued)

The purpose of this review was to obtain an understanding of how the Authority monitors the P-Card and Travel Card programs and evaluate the adequacy and effectiveness of the controls in place. The audit scope was based on the following objectives:

- Review and assess the design of the Authority's policies and procedures to determine the adequacy of internal controls over P-Cards and Travel Cards;
- Evaluate the adequacy of program administration and oversight, including internal controls to safeguard the Authority from fraud, waste and abuse;
- Evaluate the appropriateness of P-Card purchases;
- Perform analytical procedures on the FY 2016 P-Card spending to identify trends and high risk activity or transactions;
- Determine whether the P-Card and Travel Card programs are adequate and appropriate for promoting and encouraging the achievement of management's objectives for an effective process; and
- Identify process improvement opportunities and recommend internal control enhancements to improve the overall P-Card and Travel Card programs.

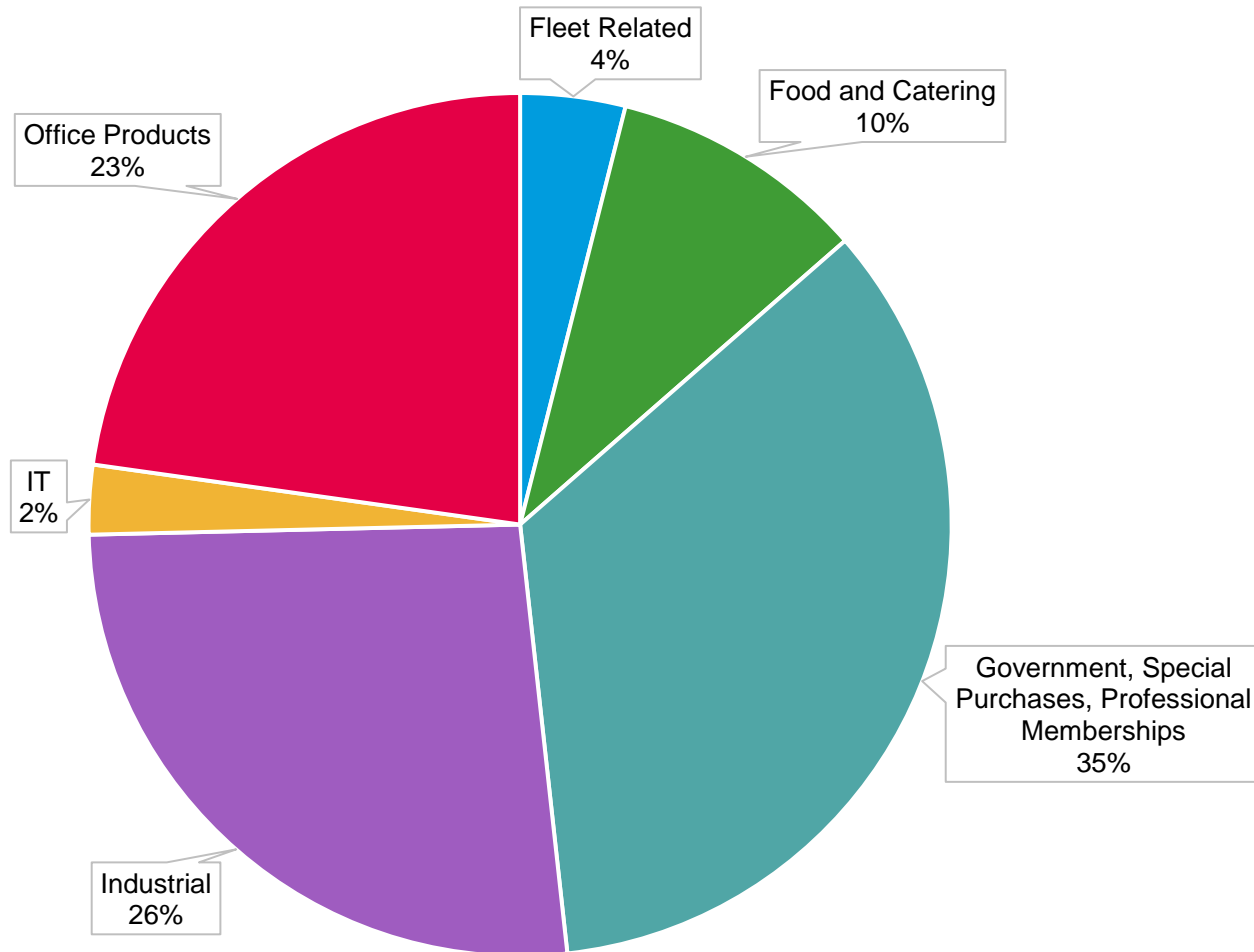
# Purchasing Card (P-Card) Internal Audit (continued)

Below is a listing of the Top 25 P-Card vendors by dollars spent and # of transactions. 14 of these vendors repeat on both lists.

Top 25 Vendors by Dollars Spent		Top 25 Vendors by Number of Transactions *	
Vendor Name	Dollars Spent	Vendor Name	Number of Transactions
DCGOV DDOT PERMITS	\$423,368.22	DCGOV DDOT PERMITS	4454
AMAZON	\$53,011.08	HOME DEPOT	681
AOP BUSINESS SERVICES	\$50,220.15	AMAZON	652
U.S. OFFICE SOLUTIONS	\$47,614.82	STAPLES	538
APPLIED IND TECH 2621	\$41,492.34	APPLIED IND TECH 2621	152
HOME DEPOT	\$29,891.59	AOP BUSINESS SERVICES	130
FERGUSON ENTERPRISES	\$28,762.28	FERGUSON ENTERPRISES	104
ECO PROMOTIONAL PRODUCTS	\$25,175.31	LOWES	91
FASTENERS RX, INC	\$25,173.83	PANERA BREAD	88
STANDARD OFFICE SUPPLY	\$24,918.69	TARGET	87
STAPLES	\$22,481.50	GRAINGER	86
NEAL R. GROSS & CO.	\$18,821.10	STANDARD OFFICE SUPPLY	82
NBA OFFICE PRODUCTS	\$17,992.96	FASTENAL COMPANY01	76
D.W. CARY HAULING	\$17,981.00	U.S. OFFICE SOLUTIONS	74
FULL MOON RISING	\$17,852.65	CATERING AUBONPAIN 970	67
PANERA BREAD	\$17,389.35	THE WEBSTRAURANT STORE	64
DEJANA TRUCK	\$17,207.90	GRAYBAR ELECTRIC COMPANY	57
CATERING AUBONPAIN 970	\$15,999.61	NBA OFFICE PRODUCTS	57
WEF BK	\$15,541.00	MSC	54
HOMELAND INDUSTRIAL	\$15,347.19	DC WATER CAFE INC	52
WINDOWS CATERING COMPANY	\$14,802.14	HOWARD UNIVERSITY	51
CORNER BAKERY	\$14,786.72	CORNER BAKERY	49
OEMSUPPLIES	\$12,311.67	FULL MOON RISING	46
IN HOMELAND INDUSTRIAL	\$12,163.39	WINDOWS CATERING COMPANY	44

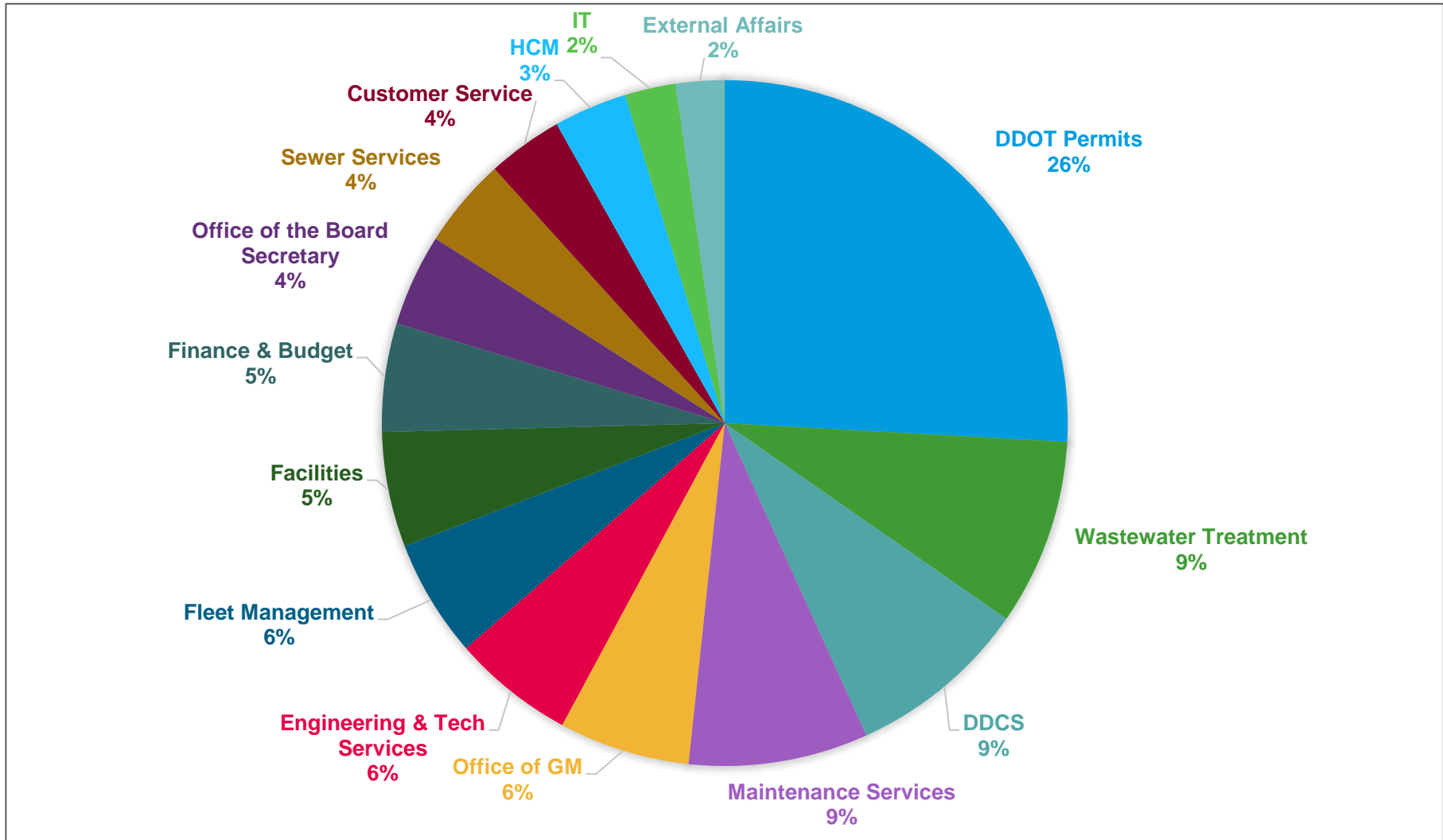
# Purchasing Card (P-Card) Internal Audit (continued)

The chart below illustrates overall P-Card spending percentages by high-level spend category for FY 2016.



# Purchasing Card (P-Card) Internal Audit (continued)

The chart below illustrates overall P-Card spending percentages by Cardholder department for FY 2016.



# Purchasing Card (P-Card) Internal Audit (continued)

Observations	Risk Rating
1. Monthly Reconciliations and Support	High
<p><b>Management Action Plan:</b></p> <p><u>Missing Reconciliations:</u> A communication will be issued to all p-card holders requiring that reconciliation documentation be placed in adobe format (i.e., .pdf) and sent electronically to the AP mailbox. Original source documents will still be required to be sent to AP. AP will then store the electronic images in DCW imaging system (perceptive software) for future reference.</p> <p><u>Late Submission:</u> All p-card holders will be informed of the escalation penalty. The Internal Review Committee will review the submission dates recorded by AP and will enforce escalation penalty as recommended. The list of those who were late with their submission and the escalation action taken will be sent to the Program Director.</p>	
2. Travel Card Oversight and Monitoring	High
<p><b>Management Action Plan:</b> The travel policy will be updated and placed on DCW pipeline. A travel authorization is the initiating authorization point for use of the travel card. That is, a travel authorization form is completed by a departmental employee and/or administrative staff and the manager’s and department head’s signature is required. Subsequently, the travel card may be used to reserve/purchase transportation and lodging. Internal Review Committee will communicate to all travel card holders that travel card reconciliations must be accompanied by the travel authorizations for which the travel card was used. These will be reviewed by the Internal Review Committee and follow the escalation procedure noted in Notice of Finding and Recommendation #1 for late submission</p>	

*Please refer to the Purchasing Card (P-Card) Internal Audit Report for additional moderate and low risk observations and process improvement opportunities.*

# Hotline Update

Last Audit Committee meeting we reported that 9 cases were open. Since the February 2017 Audit Committee meeting:

Hotline Calls	
Calls Received	14
Fraud Claims	4
Other	10
Cases Currently Open	11

# QUESTIONS AND ANSWERS?

## RSM US LLP

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 <b>DC Water &amp; Sewer Authority</b> Proposed Internal Audit Plan WORKING DRAFT - as of April 2017							
Legend		Last Audit	2014	2015	2016	Proposed 2017	Preliminary 2018
X	Required Internal Audit Activity						
X	Proposed Future Audit						
X	Audit In Progress						
X	Audit Issued						
X	Follow Up In Progress						
X	Audit Closed						
<b>Audit Universe</b>							
<b>Overall Internal Audit Management</b>							
	Risk Assessment for Audit Plan Development			X			
	Update Risk Assessment and Audit Plan Development				X	X	X
	Quality Control - Board Meetings, Status Reporting			X	X	X	X
	Hotline Management			X	X	X	X
<b>Follow-up and Cycle Audits</b>							
	Open Action Items - Remediation and Follow-up Procedures			X	X	X	X
	Blue Horizons - Strategic Plan Monitoring				X		X
	Contract Monitoring & Compliance Reviews	2014	X		X	X	X
<b>Audits by Department and/or Division</b>							
<b>Office of the General Manager</b>							
	Entity-Level Assessment					X	
	Intellectual Property	2015		X			
	Organization Policies & Procedures	2010					
<b>Blue Plains (Wastewater Treatment)</b>							
<b>Maintenance Services</b>							
	Maintenance Services - Operations	2012					
	Maintenance Services - Work Order Management					X	
<b>Wastewater Treatment - Operations</b>							
	Chemical Purchasing	2013					
	Process Control System (PCS)	2013		X			
<b>Chief Procurement Office</b>							
<b>Procurement</b>							
	Materials Management - Disposal of Assets	2014	X				
	Materials Management - Operations and Inventory	2014	X				X
	Procurement Operations	2010					
	Business Development Plan				X		
	Procurement Pre-Award Selection Process	2015		X			
	Purchasing Cards (P-Card Program)	2013				X	
<b>Customer Services</b>							
<b>Customer Services</b>							
	Automatic Meter Reading (AMR) Implementation (Integrated with MTU)					X	
	Customer Billing & Collections	2011			X		
	Retail Rates Pre- and Post-Implementation Monitoring	2016		X	X		
<b>Distribution and Conveyance Systems</b>							
	Integrated Work Order Management (Sewer Services & Water Services)						X
<b>Emergency Management</b>							
	Emergency Management - Mitigation & Response	2014	X				
	Emergency Management - Recovery	2014	X				
	Vulnerability Assessment						X
<b>Sewer Services</b>							
	Integrated Work Order Management (Sewer Services & Water Services)	2014	X				X
	Sewer Services - Construction & Repair	2014	X				
	Sewer Services - Emergency Maintenance	2013					
<b>Utility Services - Drinking Water</b>							
	Integrated Work Order Management (Sewer Services & Water Services)						X
	Pumping & Storage Water Leakage Review	2011					
	Utility Services - Water Distribution	2013					
	Utility Services - Water Maintenance	2013					
<b>Human Capital Management and Labor Relations</b>							
<b>Human Capital Management</b>							
	Employee Benefit Plans	2014	X				
	Employee Recruitment and On-Boarding					X	
	Human Capital Management - Operations	2011					
	Training, Certification and Licensing				X		
<b>Support Services</b>							
<b>Fleet</b>							
	Fleet - Operations	2013					
	Fleet - Intergovernmental Support (Ambulance Services)						
<b>Occupational Safety and Health</b>							
	OSHA	2014	X				
	Safety Programs, Training & Compliance	2010					X
<b>Department of Engineering &amp; Technical Services</b>							
<b>Long-Term Control Plan</b>							
	Clean Rivers Project Management	2014	X				
	Clean Rivers - Vendor / Contractor Monitoring & Project Administration			X			
<b>Engineering and Technical Services</b>							
	Engineering - Vendor / Contractor Monitoring & Project Administration	2015		X			
	Engineering - Construction Management Phase II				X		
	Engineering - Construction Management Phase III	2013				X	
<b>Finance</b>							
<b>Financial Accounting and Reporting</b>							
	Payroll - General Operations	2012					
	Timekeeping	2015		X			
	Overtime				X		
<b>Budget, Planning and Analysis</b>							
	Annual Budgeting & Planning				X		
	Intermunicipal Agreement (IMA)					X	
<b>Treasury, Debt and Risk Management</b>							
	Affordability Programs						X
	Cash Receipts	2013					
	Investments and Cash Management	2013					
	Rolling Owner Controlled Insurance Program (ROCIIP)				X		
<b>Information Technology</b>							
<b>Governance: Planning and Organization:</b>							
	Information Technology - Remediation and Follow-Up			X	X	X	X
	Vendor Risk Management / Compliance and Monitoring (Shadow IT)	2015		X			
	Information Security Policy Review	2015		X			
	IT Risk Management & Compliance				X		
	Incident Management & Response Review				X		
	Human Resource/Employee Privacy Review					X	
	Enterprise SDLC Review	2013					X
	Enterprise Project Governance Maturity Assessment	2012			X		
	Records Management						X
	Crisis Management / Business Continuity Program	2014	X				X
	Vulnerability Management Review					X	
<b>Technical &amp; Operations: Information Security and Application Support:</b>							
	Operational Applications ITGC - SCADA	2015		X			
	Network Penetration Testing (Corp/SCADA/Wifi)	2015		X			
	DB/OS Privileged User	2010					X
	Software and Asset Management	2014	X				
	Help Desk Operations	2012					
	Business & Operating Applications	2012					
	GIS System	2014	X				
	Internal Network & Telecommunications	2013					
	Platform Technical Audit (Windows/UNIX)					X	
	Wifi Security Review						X
	Mobile Platform Assessment						X
	MTU Implementation Review (Integrated with AMR)					X	
<b>General Counsel</b>							
	Legal Operations - Case Management	2014	X				X
	Regulatory Compliance Monitoring	2013					
<b>Contingency and Requested Audits and Projects</b>							
	Financial System Pre-Implementation Review					X	X
	CIS Pre-Implementation Review					X	X



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# Internal Audit Report Annual Budgeting and Planning

March 2017

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**Annual Budgeting and Planning**  
 Internal Audit Report  
 Issued: March 2017



## TRANSMITTAL LETTER

March 2017

The Audit Committee of DC Water  
 5000 Overlook Avenue, SW  
 Washington, DC 20032

Pursuant to the approved 2016 internal audit plan for the District of Columbia Water and Sewer Authority (“DC Water” or the “Authority”), we hereby present our assessment of DC Water’s budgeting and planning process. We will be presenting this report to the Audit Committee of DC Water at the next scheduled audit committee meeting. Our report is organized in the following sections:

<b>Executive Summary</b>	This provides a summary of the observations related to our internal audit of the annual budgeting and planning process.
<b>Background</b>	This provides an overview of the annual budgeting and planning process.
<b>Objectives and Approach</b>	The internal audit objectives and focus are expanded upon in this section, as well as a review of the various phases of our approach.
<b>Detailed Observations</b>	This section gives a description of the observations noted during our work and recommended actions as well as management’s response, responsible party, and estimated completion date.

We would like to thank the staff and all those involved in assisting the Internal Auditors in connection with this review.

Respectfully Submitted,

**Internal Auditors**





## EXECUTIVE SUMMARY

### Background and Operational Analysis

DC Water's budget cycle is composed of planning, implementation, and monitoring. The budget process ensures that DC Water activities are consistent with the strategic objectives of the Board of Directors (BOD), CEO & General Manager, and Senior Leadership Team. The Budget Department focuses on the goal of promoting financial sustainability, integrity and responsible resource allocation.

As part of the budget planning process, each department must complete the budget template for their department's budget request two fiscal years in advance in order to meet the District Government's submission requirement for Congressional authorization. Typically, each July, the final water and sewer rates are determined for the Authority's following fiscal year. These service rates drive the budget ceiling and projections.

The staff of the Budget department conduct monthly outreach to Department Heads and Managers on their spending and progress of major operational and capital programs. On a quarterly basis, the Budget Department provides all Department Heads a fiscal year budget versus year-to-date actual report. The report indicates the percentage of the budget that has been expended to-date by department for regular pay, overtime, benefits, non-personnel services, capital projects, and capital equipment. Additionally, the Budget Department prepares monthly reports and preliminary mid-year projections for the Finance and Budget Committee to closely monitor the Authority's adherence to the current fiscal year's budget.

Management has worked to streamline the annual budget and financial planning development process to ease the burden on departments throughout the year. The Budget Department, in partnership with the Office of the Chief Operating Officer, aims to drive strategic performance targets, achieve world class excellence, and promote sustainability and affordability during the budget process.

### Objective and Scope

Our procedures were performed in accordance with the internal audit scope and approach set forth in our audit notification letter, dated 3/28/2016, and were limited to those procedures described therein.

Our scope included the following:

- Understand the method under which the budget process is conducted;
- Assess whether resources are adequately allocated and made available based on the Authority's strategic priorities;
- Analyze budget trends for departments;
- Attend and observe budget development meetings between March 2016 and December 2016.
- Evaluate the effectiveness of budget monitoring techniques;

Fieldwork was performed March 2016 through December 2016.

### Overall Summary / Highlights

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.

#### Overall Rating (See Appendix A for definitions)

	Number of Observations by Risk Rating		
	High	Moderate	Low
Annual Budgeting & Planning	0	1	0

***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 high risk observations noted in the areas reviewed. Definitions of the rating scales are included in the Appendices. All process improvement opportunities can be found in the Detailed Observations section of this report.

Observations and Improvement Opportunities	
Observations	Rating
<p><b>1. BUDGET TOOL</b></p> <p>The Authority does not currently have a budgeting tool to automate forecasting, budget monitoring, and reporting capabilities. The current manual process leaves room for human error in the calculations around expense/cost forecasting and budget monitoring. Automating these processes would lead to new efficiencies in the process.</p>	<p><b>Moderate</b></p>
Improvement Opportunities	
<p><b>1. BOARD OF DIRECTORS REPORTING</b></p> <p>The Board of Directors are not provided with the total dollar amount each department initially requested for the fiscal year. There is room for additional transparency in how the Authority revises the initial departmental requests to determine the final budget.</p>	
<p><b>2. REQUIRED DOCUMENTS AND DEADLINES</b></p> <p>There are various documentation submission requirements for departments during the budgeting process. Departments must submit spreadsheets, business cases, follow-up to questions from the COO, and more. With the high volume of documentation required by each department, there is the risk that departments fail to submit documentation in a timely manner due to competing demands of day-to-day operations.</p>	
<p><b>3. MATRIX ITEMS AND BUSINESS CASES</b></p> <p>The Authority has a matrix to establish costs for IT, Facilities, Safety, Procurement and Fleet for centrally-managed budget items that affect multiple departments. Many departments or "customers" of the budget process need additional understanding of how matrix costs are established. Additionally, departments lack clarity over what happens once business cases are submitted, how they are documented, and communication of rejection versus approval.</p>	
<p><b>4. BUDGETING FOR STRATEGIC PLAN</b></p> <p>There are inconsistencies on how tasks within the Strategic Plan are budgeted. This creates challenges if specific items in the strategic plan require expenditures, but they were not properly budgeted.</p>	





## BACKGROUND, OBJECTIVES AND APPROACH

### Background

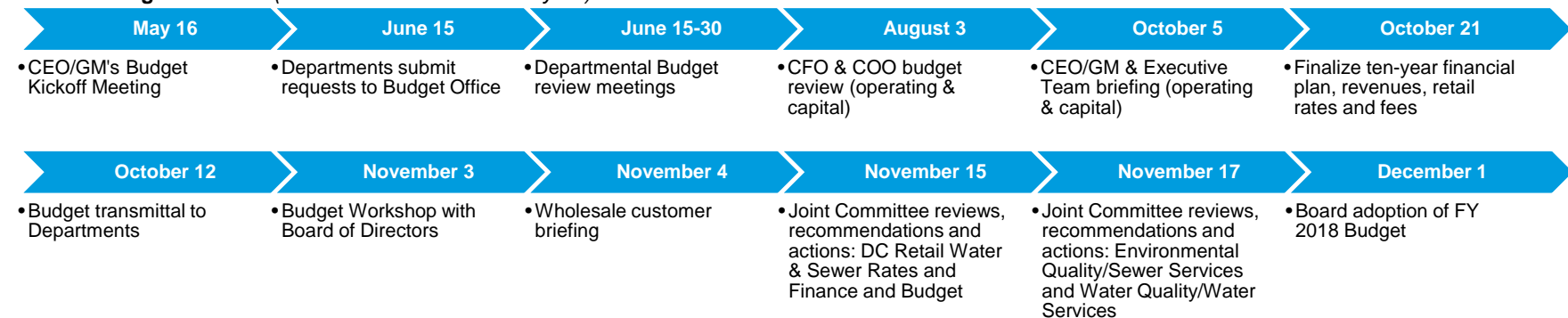
DC Water has over 1,000 employees located at five main facilities throughout the District of Columbia. A large percentage of employees are mobile and service the 1,350 miles of water pipes and 1,900 miles of sanitary and combined sewers. Approximately 64% of DC Water's workforce is governed by of the collective bargaining agreement for its five Unions. DC Water's service area is approximately 725 square miles, and provides water, sewer and wastewater treatment services to more than 640,000 residents, 17.8 million annual visitors, and 700,000 people who are employed in DC. The Authority's spending is restricted by US Code Title 31, the "Anti-Deficiency Act". This act specifies that DC Water's budget must be approved at the Congressional level, giving a specific total dollar amount and specific fiscal year. Once approved, the budget cannot be adjusted.

### Budgeting Timeline

DC Water's budget cycle is composed of planning, implementation, and routine monitoring. The process ensures that DC Water activities are consistent with the strategic objectives of the Board of Directors and CEO & General Manager and Senior Leadership Team. The Budget Department focuses on the goal of promoting financial sustainability, integrity and responsible resource allocation. The operating budget and capital programs budget are developed separately.

As part of the budget planning process, each department must complete the budget template for their department's budget request two fiscal years in advance. In the past, the final water and sewer rates were determined for the Authority's following fiscal year each July. Rates would drive the budget ceiling and budget projections. During FY 2016, the Board of Directors adopted two-year rate proposals for the FY17 and FY18 water and wastewater retail rates. With this new rate proposal process, the Authority has a two year look-ahead on rates every other year. Since DC Water budgets two years in advance, this means that every other year new rates will be approved, and there will be an updated baseline for revenues forecasts. Below is the timeline for the FY 18 budget development and approval process.

### FY 2018 Budget Timeline (dates are in 2016 calendar year):





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## BACKGROUND, OBJECTIVES AND APPROACH (CONTINUED)

### Background (continued)

#### ***Centrally-Managed Items***

The Authority has a matrix to establish costs for IT, Facilities, Safety, Procurement and Fleet (considered "managing departments") for centrally-managed budget items that affect multiple departments. Such items include cell phone costs, uniform costs, vehicle costs, and safety equipment costs. Matrix allocation is determined by each managing department internally in conjunction with the Budget Department based on Full Time Employees (FTEs), phone lines, and other departmental needs. Annually, a true-up of these items is performed, and matrix cost actuals are distributed to their respective departments.

#### ***Business Cases***

Business cases are submitted by the department head and appropriate AGM for all major new budget requests and significant changes to existing programs. Business cases are required during the budget preparation process, and for any subsequent requests following Board approval of the budget. The Reorganization Review Committee (RRC) reviews all headcount-related business cases. Business case requests for additional operational funding will be aligned with Budget Department and Executive Team or COO review. The COO's role in the business case decision making process was newly implemented during the FY 2018 budget cycle.

#### ***Budget Reprogramming***

The CEO & General Manager has the authority to approve budget reprogramming between departments, personnel services and non-personnel services within departments, and capital projects. Budget reprogramming is the process of reallocating budget originally approved for one department or category to another. The CFO has the authority to approve budget reprogramming within AGM cluster groups for operating, capital equipment, and capital projects.

#### ***Budget Monitoring***

On a quarterly basis, the Budget Department provides all department heads and AGMs a fiscal year budget versus year-to-date actual report for personnel expenditures. The report indicates the percentage of the budget that has been expended to-date by department for regular pay, overtime, benefits, non-personnel, capital projects, and capital equipment. Additionally, the Budget Department prepares monthly reports for the Finance and Budget Committee to closely monitor the Authority's adherence to the current fiscal year's budget. The Budget Department works with each department on a case-by-case basis upon request to determine how to utilize reserves if a budget planned two fiscal years in advance can no longer cover the anticipated costs of the current fiscal year due to unforeseen changes. Utilizing reserves to cover unplanned budget items must be approved by the CEO & General Manager.

#### ***Mid-Year Projections***

Mid-year projections preparation kicks-off in February of each year. Budget Analysts perform on-call, overtime, benefits, non-personnel, capital projects, and capital equipment trend analyses based on historical trends and departmental activities. The Analysts look at reprogramming analysis for any transfer of funds between departments, and DETS provides the Budget Department with capital project projections. Budget Managers, Budget Director, CFO, and COO all review the mid-year projections prior to presentation to the Finance and Budget Committee in April or May. These projections are used to determine the budget ceilings for the next two fiscal years in advance for each department.





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## BACKGROUND, OBJECTIVES AND APPROACH (CONTINUED)

### Background (continued)

#### ***Management's Accomplishments***

Beginning with the FY 18 budget process, management has worked to streamline the annual budget and financial planning development process to ease the burden on departments throughout the year. The Budget Department aims to drive strategic performance targets, achieve world class excellence, and promote sustainability and affordability during the budget process. In recent years, the Budget Department has reviewed budget policies and processes. They have also:

- Revised the capitalization policy;
- Worked closely with the COO for directives and budget recommendations to AGMs and departments;
- Improved the budget reprogramming form, and;
- Revised the budget manual with a focus on deliverables.

There has also been a continuation of a tighter budget each year. The Authority has worked to develop targets/ceilings in advance of the planning process and budget kick-off, and has sought strategic guidance by the Executive Team.



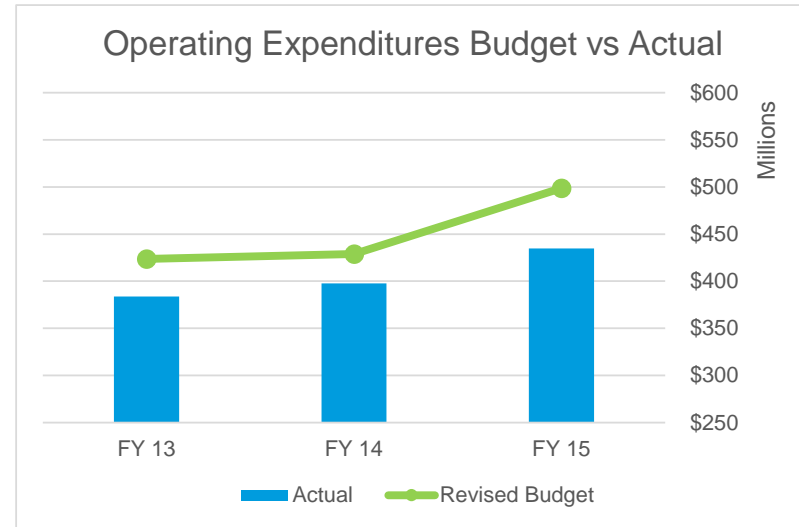
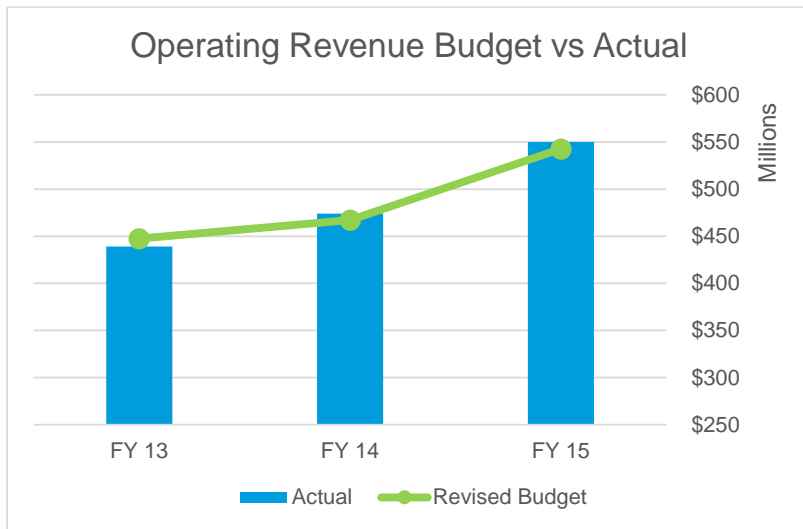
## BACKGROUND, OBJECTIVES AND APPROACH (CONTINUED)

### Background (continued)

#### Statistics and Financial Information

In FY 2015, actual operating revenue was \$549.9 million, which is 1% greater than the operating revenue set forth in the FY 2015 revised budget. Actual operating expenditures were \$434.6 million, which is 13% less than budgeted.

Over the past three fiscal years, operating revenue actuals have remained within 2% of the revised budget figure, while operating expenditures have had greater variances. Actual operating expenditures have been between 7-13% lower than budgeted since FY 2013. Operating expenditures in FY 2015 was lower due to underspending in contractual services and chemicals, mainly attributed to the new digester project which became operational in FY 2015.



*Operating revenue actuals were obtained from the respective fiscal years' CAFRs. Revised budget figures were obtained from respective fiscal years' approved budget documents published on the Authority's website. Operating expenditure actuals were also obtained from the respective fiscal years' approved budget document. This is for consistency in operating expenditure calculation for comparative purposes, as the budget document includes debt services and excludes depreciation and amortization from their operating expenditures calculations, while the CAFR excludes debt services and includes depreciation and amortization.*



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## BACKGROUND, OBJECTIVES AND APPROACH (CONTINUED)

### Objectives and Approach

#### **Objectives**

*The objectives of the internal audit of budgeting and planning were to:*

- Understand the method and guidelines under which the budgeting process is being conducted;
- Assess whether resources are adequately allocated and made available based on the Authority's strategic priorities;
- Analyze budget trends for departments including comparison of budget to actual, trend analysis and investigation of significant variances;
- Evaluate the effectiveness of budget monitoring techniques in place across the Authority to support timely decision-making on reallocation and corrective actions;
- Review the process in place to request additional budget, and
- Identify, during the course of the procedures designed to meet the stated objectives, process improvement opportunities and recommend internal control enhancements to improve the overall budgeting process.

#### **Approach**

Our audit approach consisted of the following phases:

##### Understanding of the Process

During the first phase of our approach, we conducted interviews with key personnel within the Budget Department. We also analyzed operating and capital budgets from the past three fiscal years to determine trends in DC Water's budgeting. We attended the following meetings during the budget process:

- Executive budget review meeting
- DC Water budget staff meetings
- Budget review meetings with COO for various departments (Department of Engineering and Technical Services, Human Capital Management, Information Technology, Permit Operations, Procurement, Wastewater Treatment, Fleet, Headquarters, Maintenance Services)
- FY 2018 budget approval during Finance and Budget Committee meeting

We obtained and reviewed the budget manual, department-specific budget submissions, and Budget Department monitoring tools.



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## BACKGROUND, OBJECTIVES AND APPROACH

### Objectives and Approach (continued)

#### Documented Walkthroughs

The purpose of this phase was to gain an understanding of department-level budgeting policies, procedures, and controls. This phase included process walkthroughs with management and inquiry of documentation.

Specific procedures performed include:

- Obtained DC Water's budgets for the past three fiscal years (FY 2013 – FY 2015)
- Inquiry and documentation of the budget planning process with the Budget Department
- Inquiry of budget monitoring tools and techniques utilized by the Budget Department
- Inquiry of department-level budget planning and submission process
- Review of department budget submissions to the Budget Department
- Analysis of budget trends at the Authority

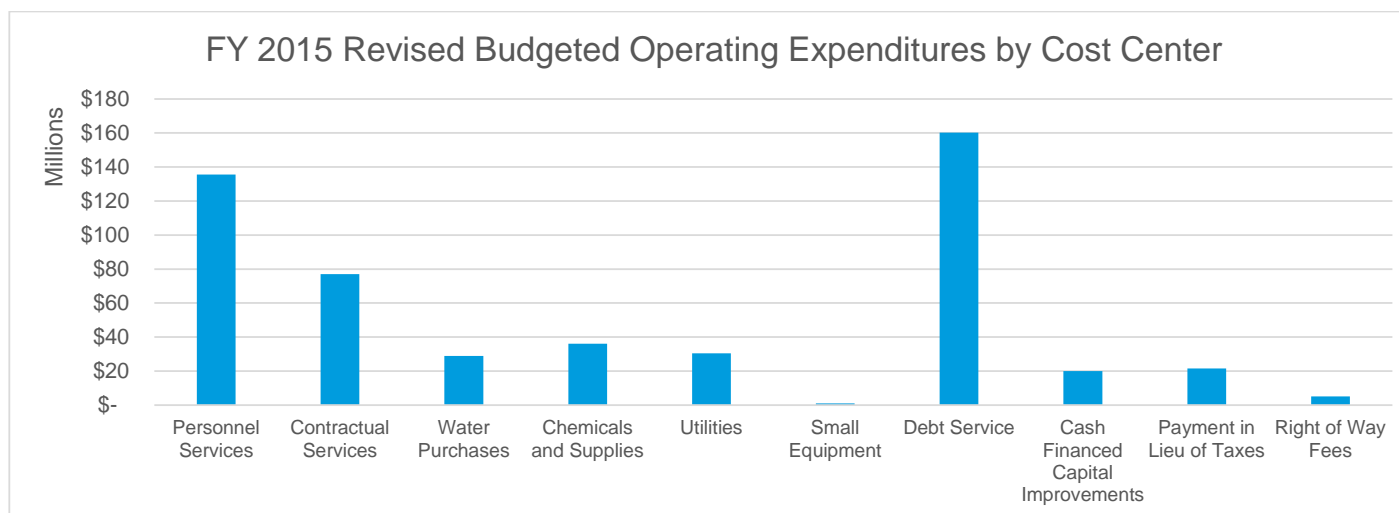
#### Reporting

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



## OPERATIONAL ANALYSIS

The following chart illustrates the FY 2015 revised operating expenditures budget by cost center. Debt services continues to be the fastest growing expenditure in the ten-year financial plan due to the Authority's \$3.8 billion capital improvement program, growing at an average annual rate of 6.5%. All other operating expenditures are projected to grow at an average annual rate of 3.2%.



*Budget figures were obtained from the revised FY 2015 approved budget document published on the Authority's website.*

The chart on the following page illustrates the variance between approved and revised budgets over the past three fiscal years by department. Unlike cost center breakdown, which was not revised, departments did experience budget expenditure revisions in FY 2015. Note that some of the larger variances are due to the restructuring of departments. In FY 2015, the pumping division was transferred from Water Services to Distribution & Conveyance Systems, hence the variances of (\$33,181,000) and \$40,391,000 respectively. Security also separated from Facilities Management to become its own department during FY 2015. Risk Management was combined with Finance, Accounting and Budget during the fiscal year as well.

After taking departmental changes into account, Sewer Services has displayed the highest variances between approved and revised budget over time, with the average variance of the three fiscal years considered at -17% (-12% in FY 2013, -8% in FY 2014, and -30% in FY 2015). Clean Rivers, Permit Operations, General Manager, and Occupational Safety and Health also displayed an average variance of over 5% across the three fiscal years.



## OPERATIONAL ANALYSIS (CONTINUED)

Budgeted Operating Expenditures by Department (\$000s)										
	Department	FY 2013			FY 2014			FY 2015		
		Approved	Revised	Variance	Approved	Revised	Variance	Approved	Revised	Variance
Operations	Wastewater Treatment – Operations	\$87,735	\$83,305	-4,430	\$84,900	\$77,692	-7,208	\$82,505	\$82,415	-90
	Wastewater Treatment - Process Engineering	0	3,317	3,317	7,816	7,398	-418	8,882	8,471	-411
	Maintenance Services	21,217	21,062	-155	19,312	18,749	-563	21,822	21,971	149
	Water Services	61,207	59,331	-1,876	57,603	52,647	-4,956	55,140	21,959	-33,181
	Sewer Services	21,213	18,743	-2,470	21,160	19,461	-1,699	21,264	14,856	-6,408
	Customer Service	16,602	16,574	-28	15,994	15,396	-598	17,197	16,925	-272
	Distribution & Conveyance System	4,691	4,843	152	5,136	5,493	357	6,085	46,476	40,391
	Engineering and Technical Services	19,829	19,501	-328	19,566	20,244	678	22,811	23,087	276
	Clean Rivers	1,394	1,431	37	1,645	1,833	188	2,480	2,720	240
	Permit Operations	1,522	1,909	387	2,015	2,078	63	2,251	2,167	-84
Administration	General Manager	3,985	3,691	-294	3,979	2,669	-1,310	2,758	3,043	285
	Office of the Board Secretary	598	611	13	619	620	1	635	610	-25
	Internal Audit	840	840	0	830	830	0	859	859	0
	General Counsel	7,033	6,941	-92	7,316	6,308	-1,008	6,024	6,011	-13
	External Affairs	2,213	2,233	20	2,202	2,234	32	2,131	2,204	73
	Information Technology	10,261	9,969	-292	10,229	9,849	-380	10,300	10,471	171
	Finance, Accounting and Budget	8,184	8,381	197	8,819	8,925	106	9,853	14,306	4,453
	Risk Management	6,194	5,918	-276	6,033	5,034	-999	4,899	0	-4,899
	Assistant General Manager - Support Services	330	332	2	340	341	1	364	356	-8
	Human Capital Management	4,470	4,536	66	4,630	5,016	386	5,362	5,548	186
	Facilities Management	12,990	13,048	58	12,879	12,618	-261	13,132	7,604	-5,528
	Security	0	0	0	0	0	0	0	5,376	5,376
	Procurement	4,362	4,105	-257	4,140	4,134	-6	4,865	4,603	-262
Occupational Safety and Health	1,733	1,760	27	1,894	1,924	30	1,964	1,563	-401	
Fleet Management	4,466	4,625	159	4,918	4,924	6	5,365	5,350	-15	
<b>Total</b>		<b>303,069</b>	<b>297,006</b>	<b>-6,063</b>	<b>303,975</b>	<b>286,417</b>	<b>-17,558</b>	<b>308,948</b>	<b>308,951</b>	<b>3</b>

Budget figures were obtained from respective fiscal years' approved budget documents published on the Authority's website.





## OPERATIONAL ANALYSIS (CONTINUED)

### Local Municipality Budget Processes

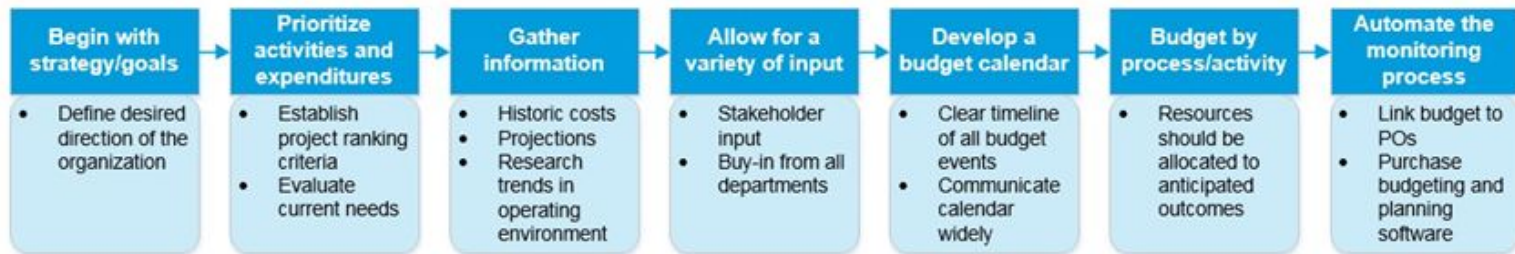
Organizations of all types and sizes recognize the value of comparing themselves to other like organizations. The process of such comparison yields valuable information to leaders and decision makers. However, no other agency is the perfect comparison to DC Water. It is important to acknowledge that DC Water's spending is restricted by US Code Title 31, the "Anti-Deficiency Act". This act specifies that DC Water's budget must be approved at the Congressional level, giving a specific total dollar amount and specific fiscal year. DC Water's budget must be submitted two fiscal years in advance, which makes the Authority's budget process unique in comparison to many like organizations.

While examining other local municipalities' budget processes, we found that six of ten\* surrounding municipalities utilize a one-year look-ahead for the budget as opposed to DC Water's two-year look-ahead. Two other municipalities examined besides DC Water are also using a two-year look-ahead. Richmond currently uses a biennial budget process, in which each budget encompasses a two-year period, with the first year being the even-numbered year. The vast majority of other municipalities examined used a 6 year Capital Improvements Program (CIP), which appears to be standard across governmental capital budgeting processes. DC Water currently uses a 10 year CIP.

Although not all local municipalities publish detailed narratives of their budget processes, some provide detail as to how the budget is defined each year. One notable technique practiced at multiple municipalities is outcome-based (or results-based) budgeting. Montgomery County uses results-based budgeting, in which the County starts with the end desired in terms of program outcomes described using quantifiable results, and works backwards towards the means or resources required to achieve the results. Any increases or decreases in budgeted resources must be justified by projected changes in measurable outcomes and consistent with pre-defined objectives. Prince William County builds an expenditure projection from the adopted budget, one-time reductions, efficiencies and compensation savings due to attrition that are identified. Staff then "scrub" the base budget, recalculating compensation and making additional one-time adjustments to specific agencies in order to cut down. Prince William monitors through outcome budgeting, measuring whether an agency achieved its target rather than focusing on individual line item spending. This allows decision makers to budget based on desired community outcomes contained in their Strategic Plan. Richmond uses outcome-based budgeting as well, aiming to increase service value delivered with the resources that are available.

Virginia Beach has five-year forecasts which drive the basis of budgeted revenue and expenditures. If the coming fiscal year's budget is not sustainable for the next five years, the budget will need to be reworked. Howard County finalizes their entire budget and then sets tax rates needed to generate enough revenue to balance the budget.

**Best Practices:**



\*Municipalities examined include the following: DC Water, Arlington County, Montgomery County, Virginia Beach, Baltimore City, Charles County, Prince William County, Richmond, Howard County and Fairfax County.





## OPERATIONAL ANALYSIS (CONTINUED)

### Comparable Entities and Budget Process

The following graphs compare DC Water's budget performance from FY 2015 to the following local water and wastewater authorities:

- Washington Suburban Sanitary Commission (WSSC)
- City of Baltimore (Baltimore)
- Fairfax Water
- Virginia Beach Public Utilities (Virginia Beach)
- Arlington County Utilities (Arlington County)
- Howard County Bureau of Utilities (Howard County)

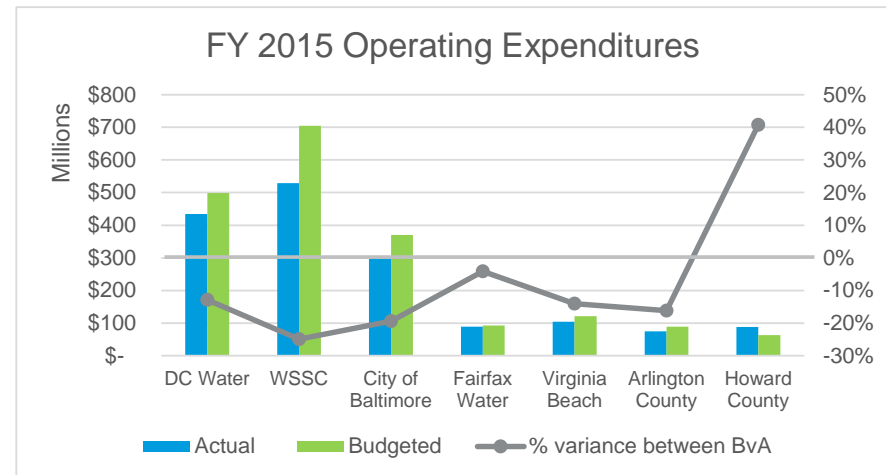
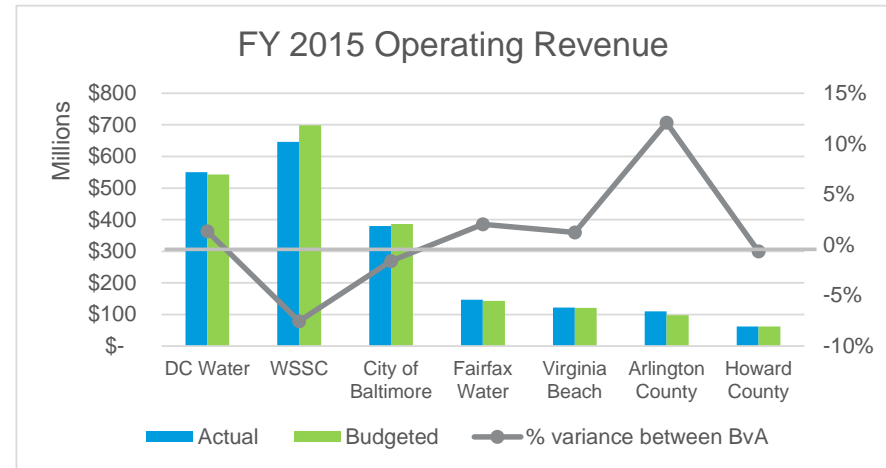
The process of benchmarking yields valuable information to leaders and decision makers. There are, however, some dangers inherent in the benchmarking, since no authority is the perfect comparison to DC Water.

Some of the differences between authorities include:

- Union versus non-unionized staff;
- Not all authorities treat wastewater, some only treat part of their service area's wastewater;
- Different technology is being used and implemented;
- Age of infrastructure;
- Vacancy rates, and
- Response time to emergencies.

Reference the table on page 15 for more details on the specific authorities that were analyzed.

As evidenced by the following graphs, DC Water's budget versus actual performance for operating revenue and operating expenditures in FY 2015 was roughly consistent with other local authorities when compared with the percent variances. DC Water's actual operating revenue was 1% higher than budgeted and actual operating expenditures were 13% lower than budgeted in FY 2015.



*DC Water operating revenue actuals were obtained from the respective fiscal years' CAFRs. Revised budget figures were obtained from respective fiscal years' approved budget documents published on the Authority's website. Operating expenditure actuals were also obtained from the respective fiscal years' approved budget document. This is for consistency in operating expenditure calculation for comparative purposes, as the budget document includes debt services and excludes depreciation and amortization from their operating expenditures calculations, while the CAFR excludes debt services and includes depreciation and amortization.*







## OPERATIONAL ANALYSIS (CONTINUED)

The following chart includes budget versus actual figures for FY 2015 operating revenue and expenditures for DC Water and other local water and wastewater authorities:

FY 2015 Budget vs Actual Benchmarking						
	FY 15 Operating Revenue			FY 15 Operating Expenditures		
	Actual	Budgeted	% variance	Actual	Budgeted	% variance
DC Water	\$549,915,000	\$ 542,643,000	1%	\$ 434,595,000	\$ 498,693,000	-13%
WSSC	645,644,000	698,323,000	-8%	529,163,000	704,890,000	-25%
City of Baltimore	379,859,000	385,937,982	-2%	298,141,000	369,986,958	-19%
Fairfax Water	146,378,000	143,458,000	2%	88,810,000	92,680,000	-4%
Virginia Beach	122,182,915	120,699,897	1%	103,689,950	120,699,897	-14%
Arlington County	110,141,975	98,253,024	12%	74,500,829	88,934,867	-16%
Howard County	61,952,924	62,344,500	-1%	88,122,070	62,591,926	41%

The following chart includes the key performance indicators, based on the information above. On average, budgeted operating revenue tends to exceed budgeted operating expenditures by 8.0% among local water authorities, while actual operating revenue tends to exceed actual operating expenditures by 15.0%.

FY 2015		
Local Entities	% difference between budgeted Operating Revenue and Operating Expenditures	% difference between actual Operating Revenue and Operating Expenditures
<b>DC Water</b>	8.1%	21.0%
WSSC	-0.9%	18.0%
City of Baltimore	4.1%	21.5%
Fairfax Water	35.4%	39.3%
Virginia Beach	0.0%	15.1%
Arlington County	9.5%	32.4%
Howard County	-0.4%	-42.2%
<b>Benchmark<sup>1</sup></b>	<b>8.0%</b>	<b>15.0%</b>

<sup>1</sup>Benchmark based on the aggregate of DC Water and Sewer Authority, City of Baltimore, Washington Suburban Sanitary Commission, Fairfax County Water Authority, Virginia Beach Public Utilities, Arlington County and Howard County Bureau of Utilities.

DC Water operating revenue actuals were obtained from the respective fiscal years' CAFRs. Revised budget figures were obtained from respective fiscal years' approved budget documents published on the Authority's website. Operating expenditure actuals were also obtained from the respective fiscal years' approved budget document. This is for consistency in operating expenditure calculation for comparative purposes, as the budget document includes debt services and excludes depreciation and amortization from their operating expenditures calculations, while the CAFR excludes debt services and includes depreciation and amortization.

Other local water and wastewater authority data was obtained from their respective websites.



## DETAILED OBSERVATIONS

Annual Budgeting & Planning Internal Audit - Observations			
1.	<u>Budget Tool</u>	<u>Recommendation</u>	<u>Management's Action Plan</u>
	<b>Observation Rating: Moderate</b>		
	<p>The Authority does not currently have a budgeting tool to automate forecasting, budget monitoring, and reporting capabilities. The current manual budget process could lead to human error in the calculations around expense/cost forecasting and budget monitoring, as much of the planning tools are excel spreadsheets. Automating these processes would lead to new efficiencies in the process, making way for more robust capabilities such as "what if" scenarios, organization of various departmental submissions, customized calculations and drivers, extensive reporting capabilities, and version control. Monitoring could be completed continuously, and could reduce the workload of the Budget Analysts.</p> <p>During FY 2016, the Board of Directors adopted two-year rate proposals for the FY17 and FY18 water and wastewater retail rates. With this new rate proposal process, the Authority has a two year look-ahead on rates every other year. Since DC Water budgets two years in advance, this means that every other year rates will be approved, and there will be a better baseline for revenues forecasts. A budget tool can develop a wider range of revenue forecasting outcomes based on the ability to easily adjust inputs in the "off years" for which rates are not yet approved.</p>	<p>We recommend that the Authority procure a budget tool in conjunction with the ERP system selection currently underway. This tool should have the capability to pull reports based on financial system data.</p> <p>Particular capabilities we recommend DC Water consider, include:</p> <ul style="list-style-type: none"> <li>• "What-if" analysis</li> <li>• Customizable calculations and drivers</li> <li>• Continuous reporting and monitoring capabilities</li> <li>• Consolidation/roll-up capabilities</li> <li>• Multi-departmental capabilities</li> <li>• Upload portal/import capabilities for departmental submissions</li> <li>• Notification settings to automate follow-up with departments</li> <li>• Workflow for approval processes</li> <li>• Version control</li> </ul>	<p><b>Response:</b></p> <p>The high level review of DC Water's annual budgeting and planning process undertaken by RSM focused mainly on the operating and capital budgets during the Authority's FY 2018 budget process. A comprehensive review of the process was not considered for the financial planning, retail rates, and capital projects budget processes. DC Water is currently implementing a new eCIS system which will incorporate enhanced capabilities and scenarios for the revenue forecasting. The Department of Engineering &amp; Technical Services (DETS) uses the Primavera P6 Professional Project Management System for preparation of the proposed capital projects budget, which is vetted with the CEO and members of the Executive Team prior to finalization with the Budget Department.</p>



**DETAILED OBSERVATIONS (CONTINUED)**

Annual Budgeting & Planning Internal Audit - Observations			
1.	<u>Budget Tool (continued)</u>	<u>Recommendation</u>	<u>Management's Action Plan</u>
	<b>Observation Rating: Moderate</b>		
			<p>DC Water uses full capacity of the Lawson Software (implemented in 2000) and Infor Corporate Performance Management (CPM) tool for the analytical review, scenarios, and budget recommendations and monitoring of the operating cost trends. This tool was implemented in 2013 and provides a very high level of accuracy in the underlying assumptions for the development, implementation and monitoring of the Authority's operating budget.</p> <p>DC Water has received nineteen (19) consecutive awards for Excellence in Financial Reporting and sixteen (16) awards for Distinguished Budget preparation and presentation by the Government Finance Officers' Association (GFOA). Our budget process has been studied and mirrored by other water utilities. DC Water's budget documents reflect collaborative efforts by all departments and have been well received by external entities including IMA partners, international visitors, investors and credit rating agencies.</p>



**DETAILED OBSERVATIONS (CONTINUED)**

Annual Budgeting & Planning Internal Audit - Observations			
1.	<u>Budget Tool (continued)</u>	<u>Recommendation</u>	<u>Management's Action Plan</u>
	<b>Observation Rating: Moderate</b>		
			<p>In FY 2016, Management began the initial assessments of its current financial system (Lawson/Infor) for future upgrade and/or procurement of an Enterprise Resource Planning (ERP) system. Management continues to document the current state of DC Water's accounting, procurement, capital project planning, budgeting and budgetary controls and other business processes to identify the future state for technological requirements. We anticipate that the future upgrade and/or replacement of the ERP will provide the functionalities for the automation of the budget planning and development workflow process.</p> <p>All of the internal auditors' recommendations have been employed by the DC Water's Budget Department since its inception. We will continue to seek technology improvements and enhancements to the process.</p> <p><b>Responsible Party:</b> COO, new CFO and Executive Team's buy-in on changes to major business processes</p> <p><b>Target Date:</b> 10/1/2019 (contingent upon new ERP solution)</p>



## DETAILED OBSERVATIONS (CONTINUED)

Annual Budgeting & Planning Internal Audit – Process Improvements	
1. <u>Opportunity</u>	<u>Recommendation</u>
<p><b>Board of Directors Reporting:</b> The Board of Directors are not provided with the total dollar amount each department initially requested for the fiscal year. The Budget Department presents budget allocated to each department, as well as operational risks and unfunded capital projects to the Board. There is room for additional transparency in how the Authority revises the initial departmental requests to determine the final budget. The differences between original requests and final budgets can uncover some gaps in funding that the Board may have further questions about which the Budget Department, COO, Executive Team, and all decision-making members of the budget process can best explain.</p>	<p>When presenting to the Board of Directors, we recommend that the Budget Department present a high-level dashboard with aggregate totals and a listing of the highest dollar value requests or themes across the Authority that were not in the final approved budgets. We also recommend the Budget Department present key performance indicators surrounding the use of DC Water's central reserve by department each year and change order or PO modification rates to understand if projects are being budgeted appropriately upon procurement. We would also recommend that the Budget team present the total number of business cases submitted Authority-wide versus number of business cases approved for funding.</p>
2. <u>Opportunity</u>	<u>Recommendation</u>
<p><b>Required Documents and Deadlines:</b> There are various documentation submission requirements for departments during the budgeting process. Departments must submit spreadsheets, business cases, follow-up to questions from the COO, and more. The budget templates are updated each year. There is varying level of detail based on the complexity of the department. With the high volume of documentation required by each department, there is the risk that departments fail to submit documentation in a timely manner due to competing demands of day-to-day operations. For the FY 2018 budget, templates with ceilings for budget submissions went out in May to the departments, and review meetings started the next month in June. The departments were not given a large window of time between receipt of templates and presentation of requests. During the FY 2018 budget cycle, the CIP budget deadlines were not met. The Department of Engineering and Technical Services did not submit their CIP budget until August. Receiving documentation late hinders the Budget Department's ability to properly review and follow-up on requests.</p>	<p>Departments perceive that they do not have enough time to complete budget documents after receiving their ceilings. We understand that the timing of ceiling distribution is based on finalization of mid-year projections. The Budget Department should consider sending budget templates without ceilings to departments in February or March to encourage the budget development process to commence earlier in the year. The templates can then be finalized when departments receive their official ceiling figures in May. The Budget Department should also ensure that all document requests are centralized. If a budget tool is procured, departments can access the templates from the tool and have a central submission point to track progress, with automated notifications as deadlines approach.</p>



**DETAILED OBSERVATIONS (CONTINUED)**

**Annual Budgeting & Planning Internal Audit – Process Improvements (continued)**

3. <u>Opportunity</u>	<u>Recommendation</u>
<p><b>Matrix Items and Business Cases:</b> The Authority has a matrix to establish costs for IT, Facilities, Safety, Procurement and Fleet (considered "managing departments") for centrally-managed budget items that affect multiple departments. Such items include cell phone costs, uniform costs, and safety equipment costs. Matrix allocation is determined by each managing department internally, in conjunction with the Budget Department based on FTEs, phone lines, etc. Many departments or "customers" of the budget process need additional understanding of how matrix costs are established. There is limited insight throughout the year on budget vs actual of matrix costs, yet these ultimately impact the departments and their allowable spend. Departments have the option to look up matrix costs by GL code at any time, but most are not utilizing this capability.</p> <p>Additionally, Personnel Services were not discussed during the departments' budget proposal meetings unless additional individuals were requested. However, almost no positions were approved after business cases were submitted, although the Budget Department encouraged departments to repurpose existing vacancies. Departments lack clarity over what happens once business cases are submitted, how they are documented, and communication of rejection versus approval. Different business cases are reviewed by different groups within the Authority. The Reorganization Review Committee (RRC) reviews all headcount-related business cases, while requests for additional funding will be aligned with Budget Department and COO review.</p>	<p>We recommend that the Managing departments in concert with the Budget Department monitor the matrix costs affecting each department and send a matrix cost update along with the budget versus actuals that are sent out quarterly to keep departments informed of allowable spend.</p> <p>Additionally, we recommend that the Budget Department increase transparency in the business case process. In order to increase transparency, we recommend that the Budget Department define the procedures of who reviews and approves the business cases, how this documentation is maintained, and how approval or rejection of business cases are communicated.</p>



## DETAILED OBSERVATIONS (CONTINUED)

### Annual Budgeting & Planning Internal Audit – Process Improvements (continued)

4. <u>Opportunity</u>	<u>Recommendation</u>
<p><b>Budgeting for Strategic Plan:</b> There are inconsistencies on how tasks within the Strategic Plan are budgeted. Some tasks highlighted a specific dollar figure, while some did not present anything. This creates challenges if specific items in the strategic plan require expenditures, but they were not properly budgeted. In FY16, Customer Service did not properly budget for a customer satisfaction survey, but the survey had to be completed based on strategic plan deadlines. This poses a risk of Strategic Plan tasks not being completed on time and within a department's approved budget for the fiscal year.</p>	<p>In coordination with the Strategic Planning Officer, we recommend that the Budget team and strategic plan Goal Champions compare timelines/due dates of specific tasks and evaluate how these may impact future budgets.</p>



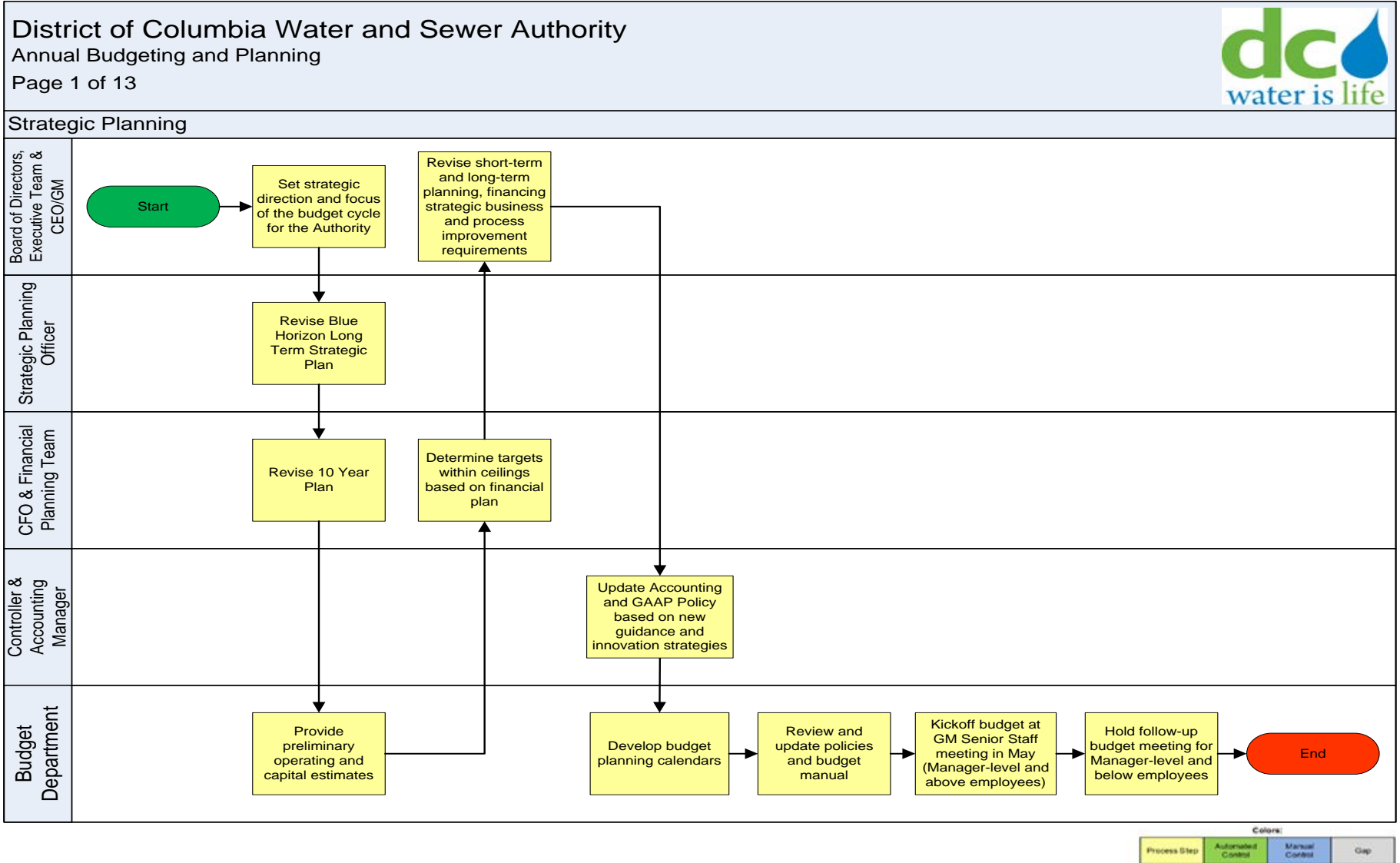
## APPENDIX A – RATING DEFINITIONS

Observation Risk Rating Definitions	
Rating	Definition
<b>Low</b>	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 12 months (if related to external financial reporting, must mitigate financial risk within two months unless otherwise agreed upon).
<b>Moderate</b>	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).
<b>High</b>	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).



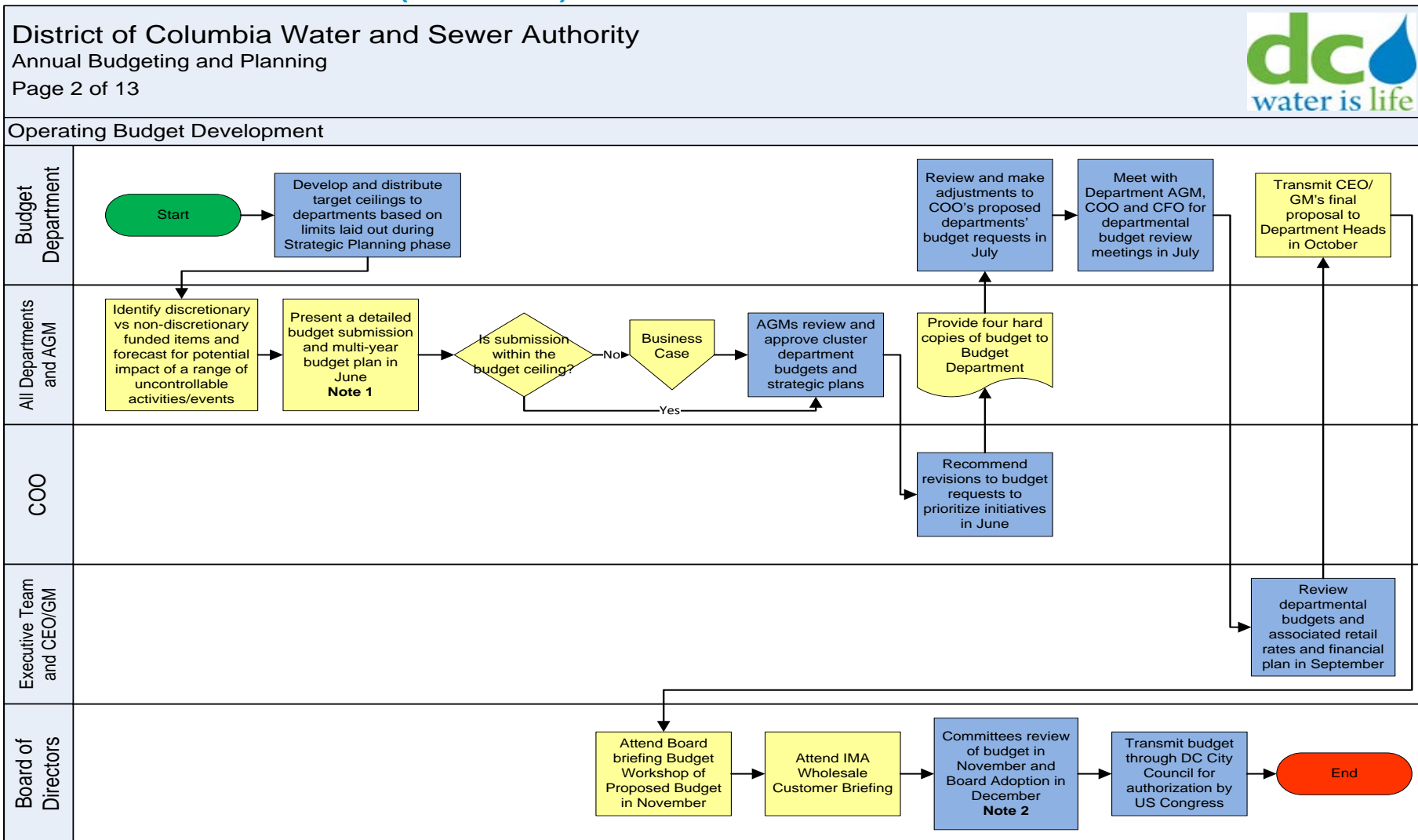


**APPENDIX B – FLOWCHARTS**





APPENDIX B – FLOWCHARTS (CONTINUED)



**Note 1:** Budget submission must include Departmental Overview, Operating Budget Request (for personnel and non-personnel services), contractor full-time equivalents, and strategic planning and performance management sections. The multi-year budget submissions should include proposed operational changes, proposed dollar savings or increases, projected impact on staffing levels and contractor full-time equivalents, and support required from other departments to implement proposed changes.

**Note 2:** All operating and capital expenditures must be included in the Board-approved budget without regard to funding source or type of expenditure. Specifically, expenditures must be included even if a project is grant-funded or funded by another revenue source, all legal and contract cost must be included, and all capital equipment and capital projects must be included.



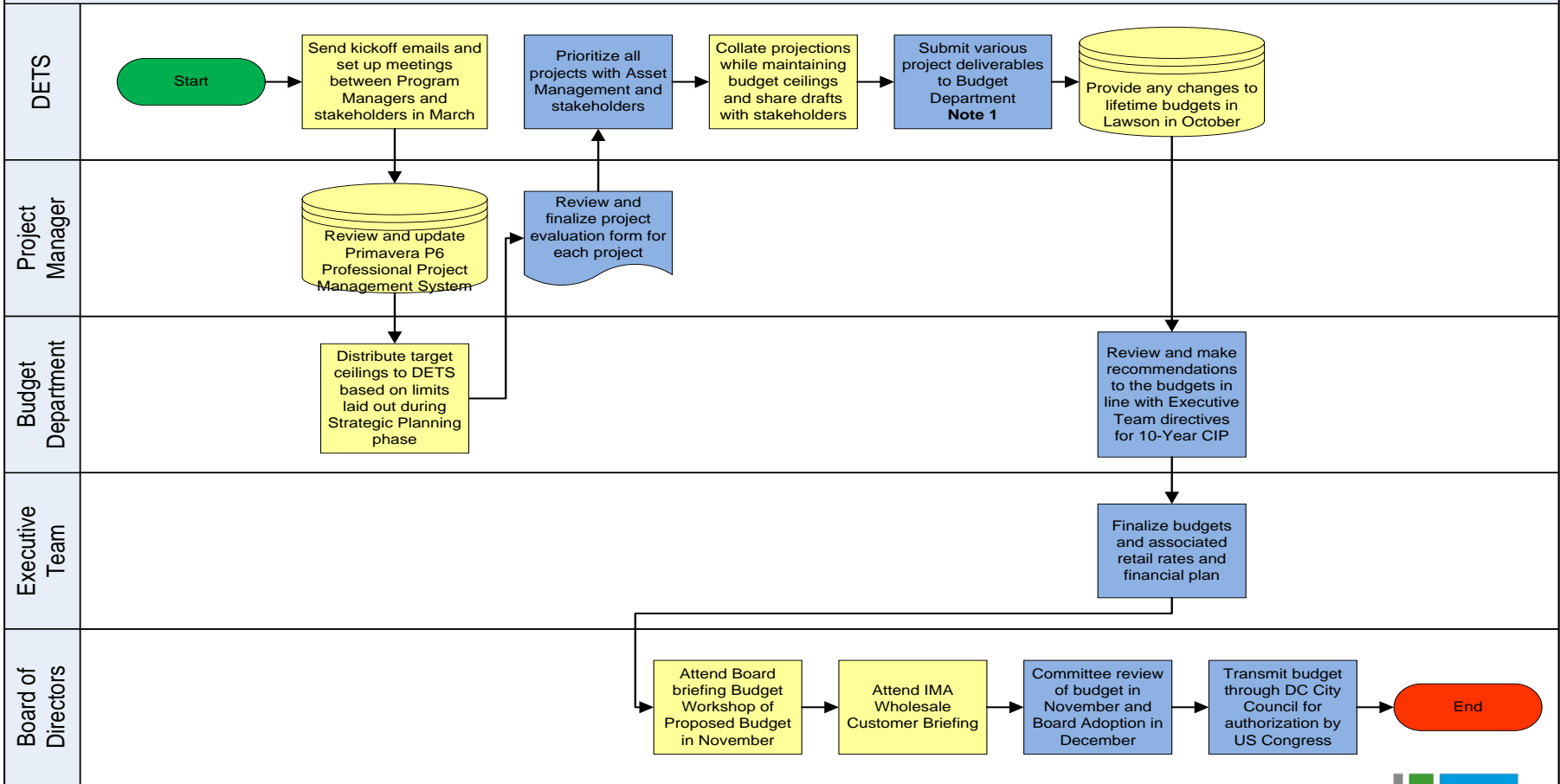


**APPENDIX B – FLOWCHARTS (CONTINUED)**

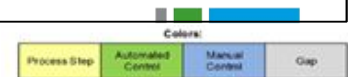
District of Columbia Water and Sewer Authority  
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**Capital Projects Budget Process**

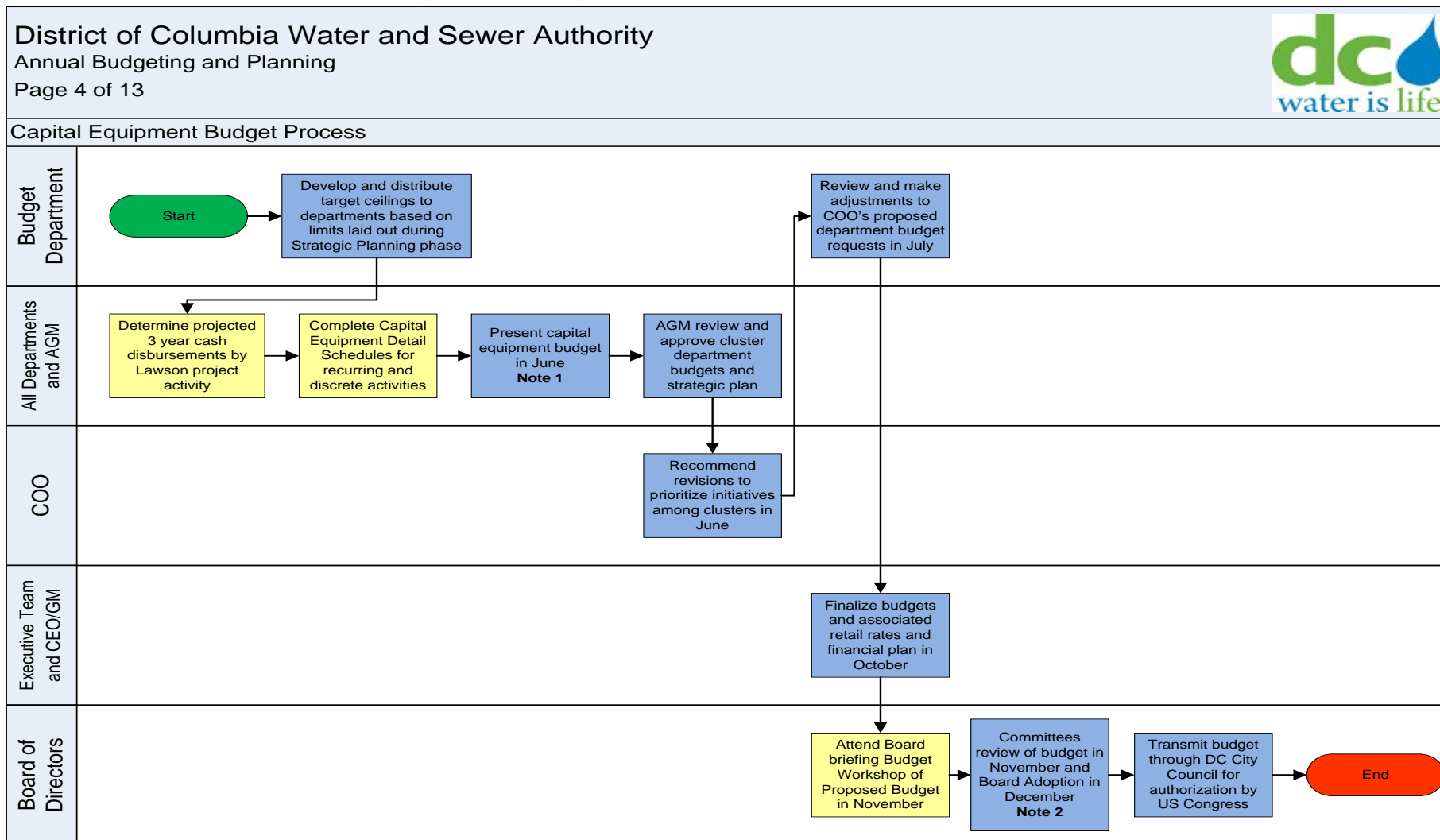


**Note 1:** Deliverables include potential operating/capital equipment items in stakeholder requests due in April, a 2 year disbursement plan due in May, an automated meter reading program 10 year disbursement plan due in June, the remaining 8 year disbursement plan, access file, user fees and lifetime budgets due in July, and the budget book narrative due in September.





APPENDIX B – FLOWCHARTS (CONTINUED)



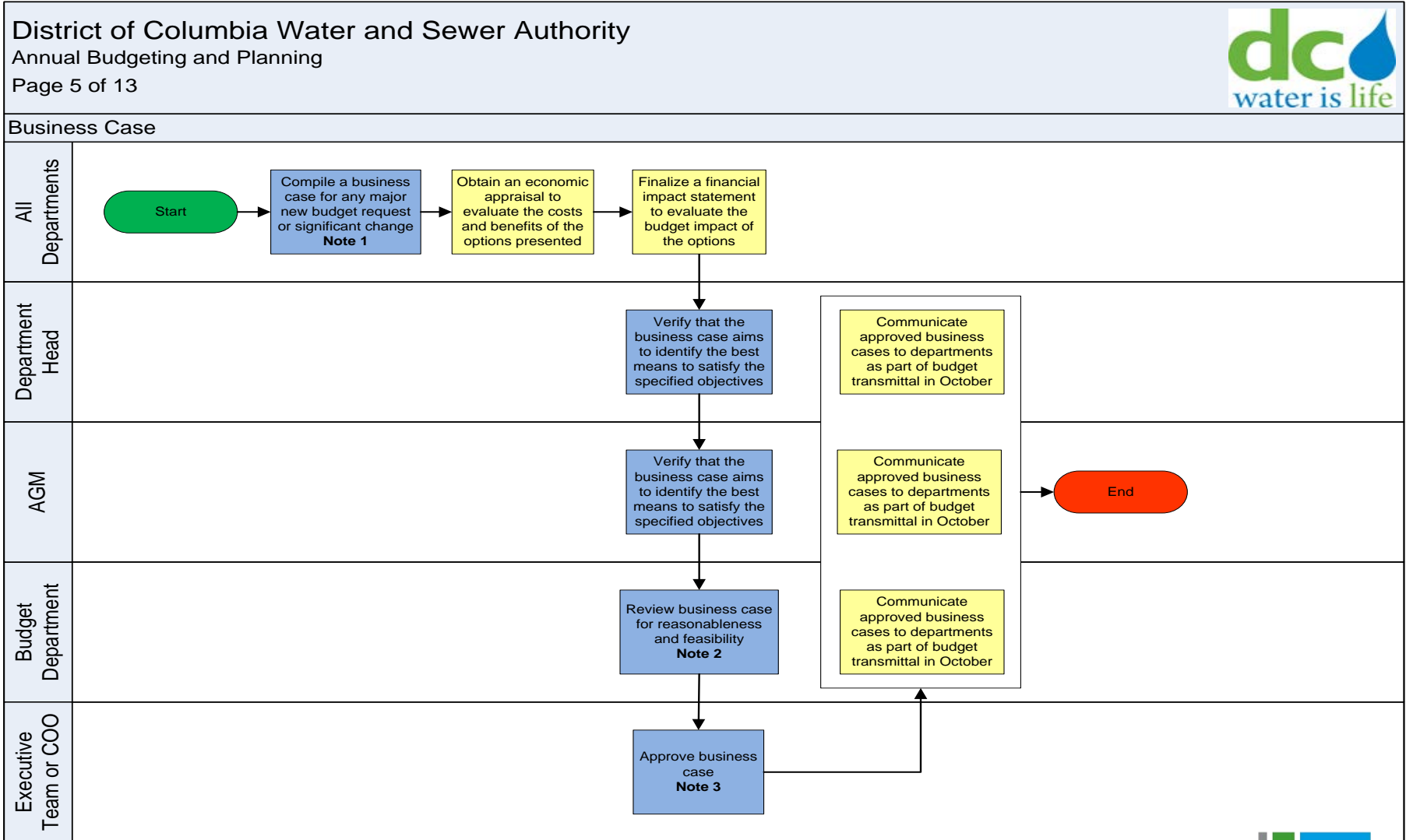
**Note 1:**A Business Case must be completed for any new initiatives.

**Note 2:** All operating and capital expenditures must be included in the Board-approved budget without regard to funding source or type of expenditure. Specifically, expenditures must be included even if a project is grant-funded or funded by another revenue source, all legal and contract cost must be included, and all capital equipment and capital projects must be included.





APPENDIX B – FLOWCHARTS (CONTINUED)

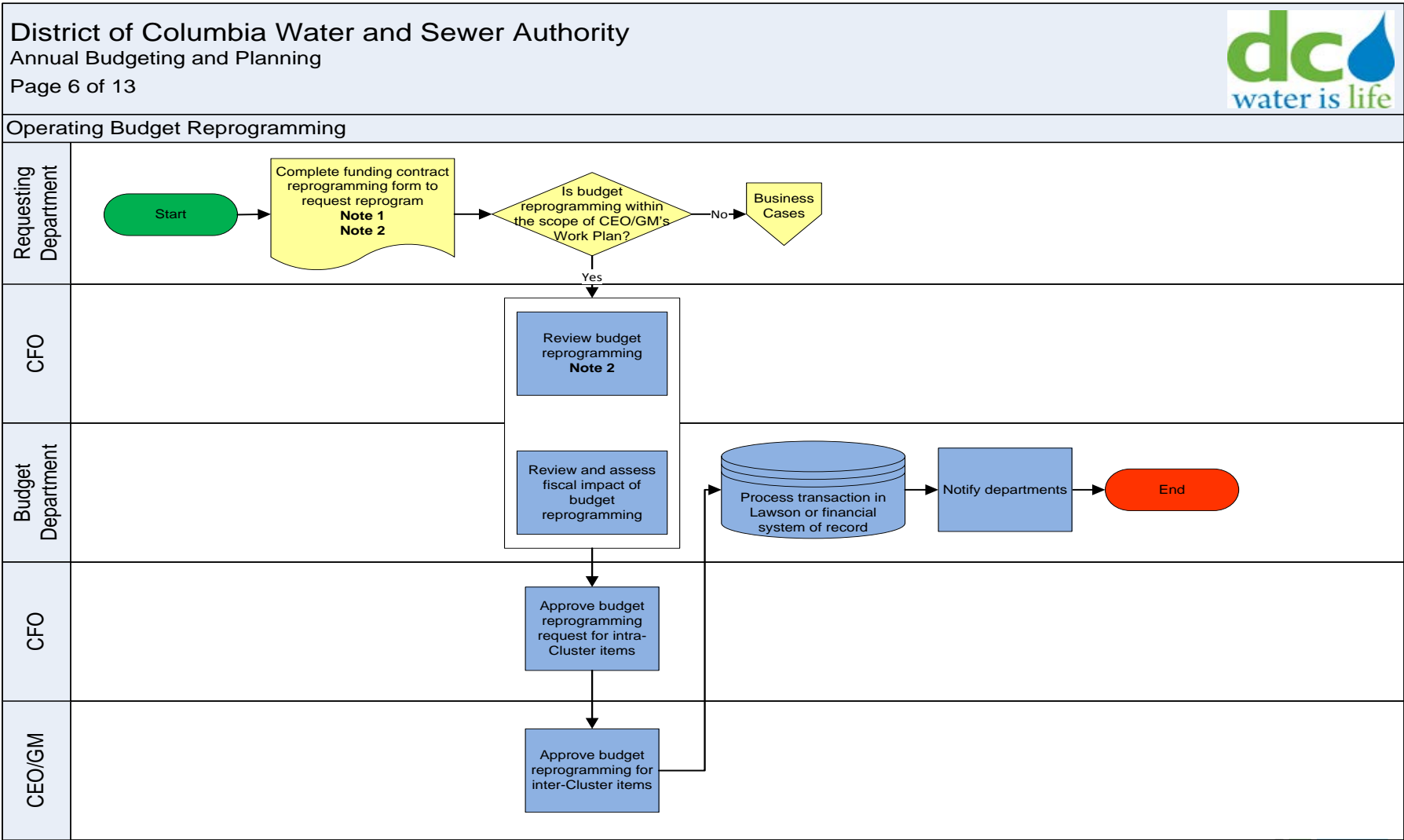


**Note 1:** Overtime requests in excess of current projections should be accompanied by a business case with related wage adjustments.  
**Note 2:** Review business case along with initiative-specific reviewer laid out in the Business Case Analysis section of the Budget Manual.  
**Note 3:** Approve business case along with initiative-specific approver laid out in the Business Case Analysis section of the Budget Manual.





APPENDIX B – FLOWCHARTS (CONTINUED)

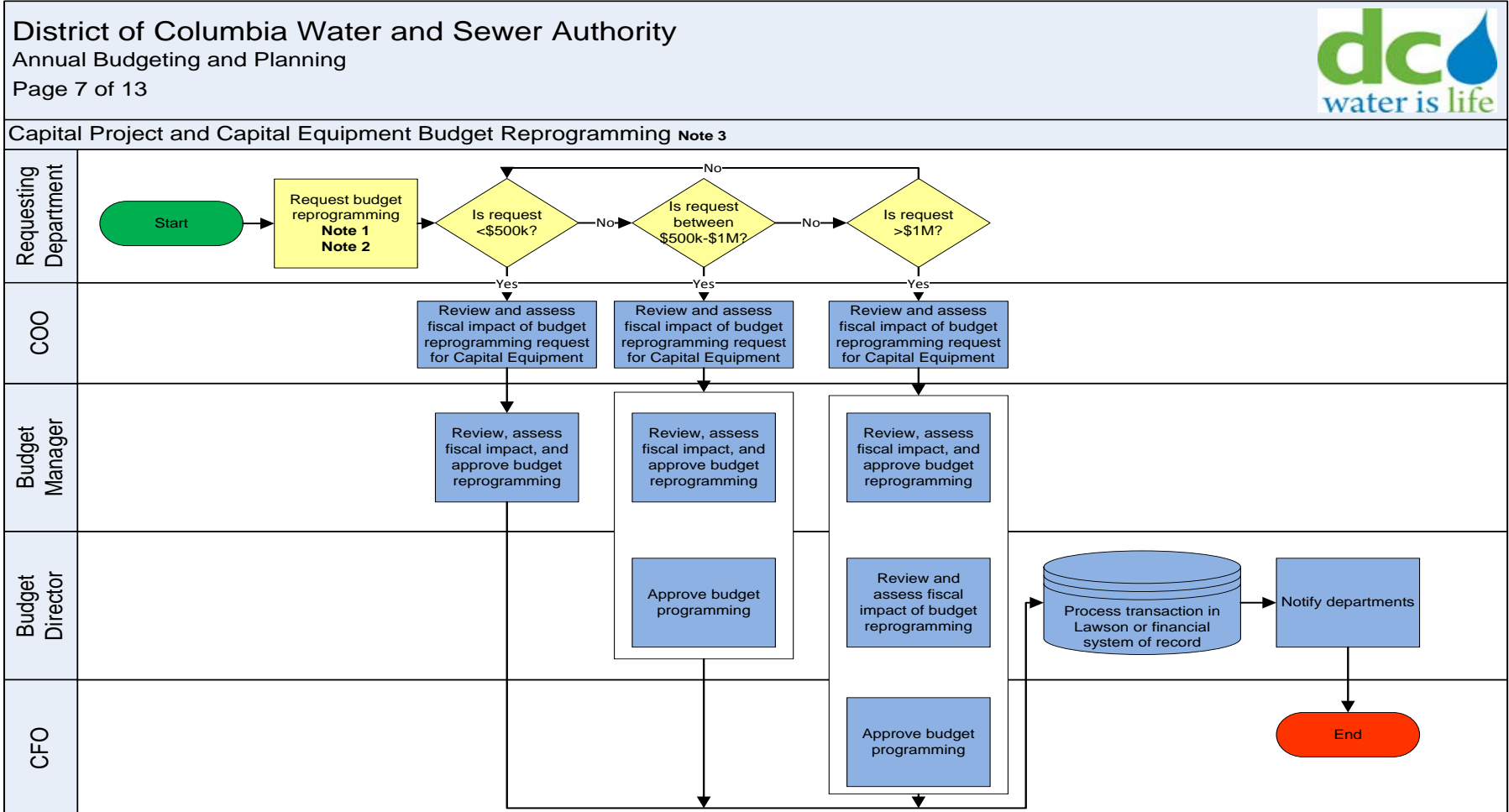


**Note 1:** This flowchart covers the budget reprogramming process for any reprogramming between non-personnel and personnel services categories (with the exception of overtime) and between Departments. Issues requiring budget reprogramming to cover overtime costs must have written approval by the CEO/GM in line with Strategic Plan.  
**Note 2:** DC Water Managers have the flexibility to expend funds as the business need arises within the overall personnel services and non-personnel services object class categories (with the exception of overtime) if the end result stays within budget for each category. However, personnel and non-personnel budgets cannot be comingled.





APPENDIX B – FLOWCHARTS (CONTINUED)



**Note 1:** This flowchart covers any reprogramming between capital project lifetime budgets and capital equipment activity group budgets. Each request must include a narrative detailing the amount, receiving project/equipment activity, reason for the budget reprogram, and from where funds should be reprogrammed. Capital program request narratives should in addition address alternatives considered, a discussion of whether the reprogram will trigger additional budget increases in the future, and the consequences if the reprogram is not done.

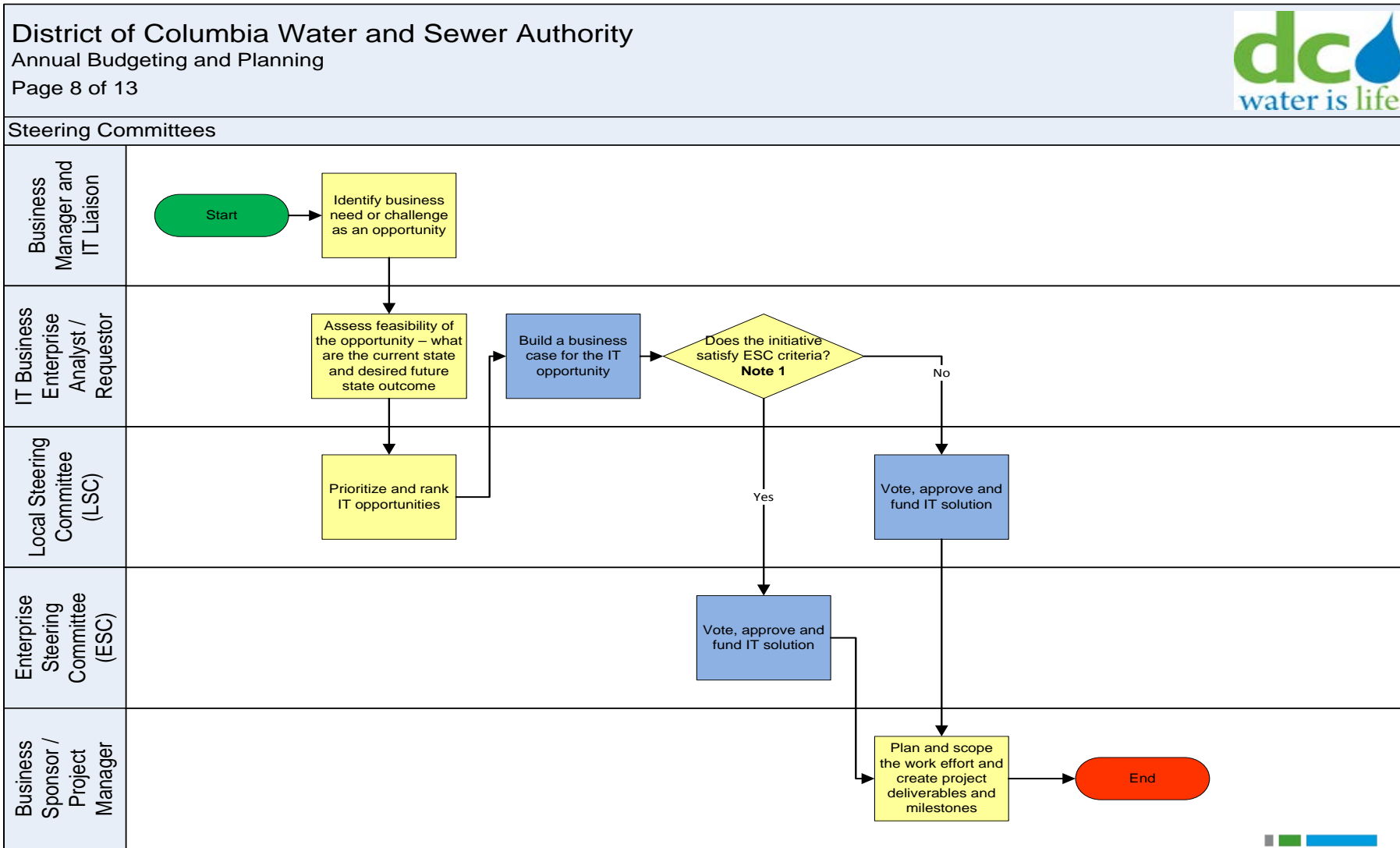
**Note 2:** Budget transfers between funding contracts within the same project, to cover direct or indirect labor, to cover Engineering Program Management Consultant costs, or to establish/change an EPA grant or Federal appropriation budget, or to initiate billing of IMA unprocessed list (GM120) only require Budget Department review and approval from the Budget Manager.

**Note 3:** Unlike operating, the capital budget process allows for budget reprogramming to previously approved budgets. During each budget cycle, a 10 year budget is approved. In the subsequent budget cycle, departments have the opportunity to reprogram funds within ceiling for the nine years previously approved.

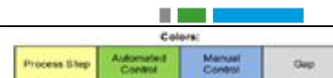




APPENDIX B – FLOWCHARTS (CONTINUED)



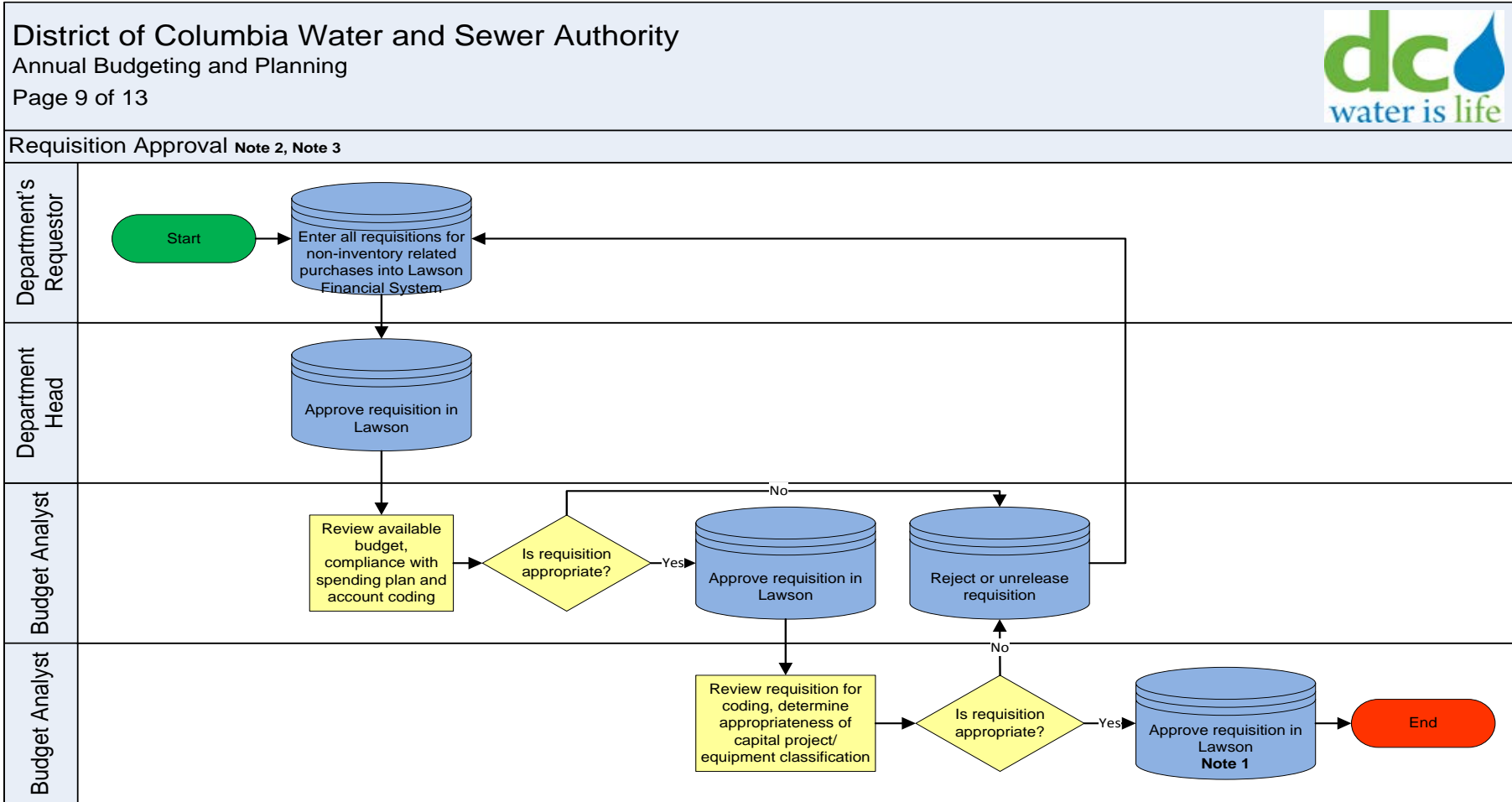
**Note 1:** ESC criteria includes: cost is over \$500,000, or 3 months or greater behind schedule, or over budget by 10% or more, or adversely impacted by a resource constraint and/or conflict as determined by the LSC.



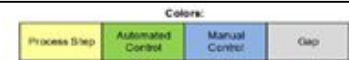




**APPENDIX B – FLOWCHARTS (CONTINUED)**

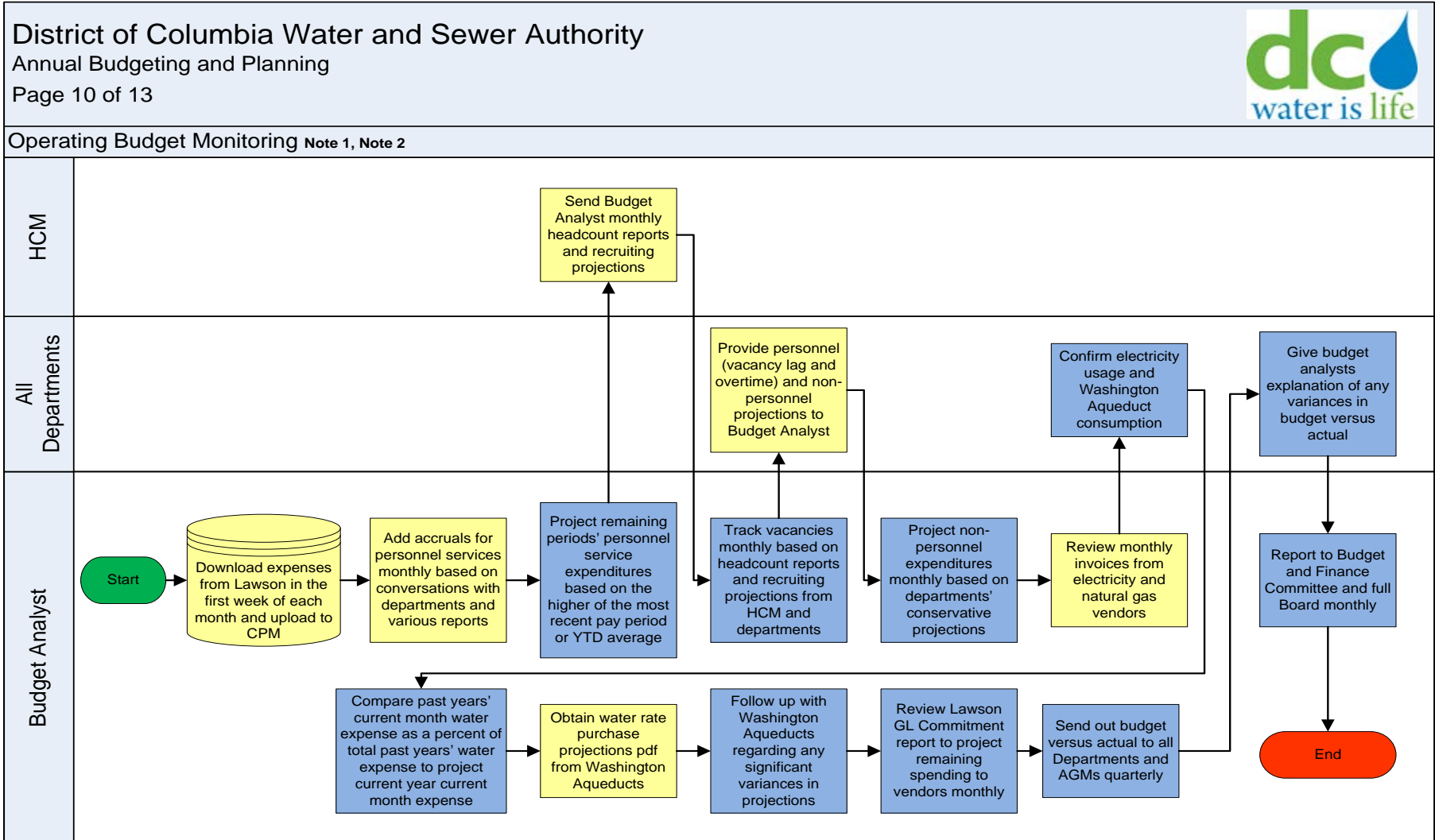


**Note 1:** The turnaround time for processing capital requisitions by the Budget Department is maximum of two business days.  
**Note 2:** This process does not include warehouse requisition for materials sourced through Maximo which is an automated process.  
**Note 3:** A different process (Form 440) is used for items outside the requisition/PO process and requires additional justification from the department.





APPENDIX B – FLOWCHARTS (CONTINUED)



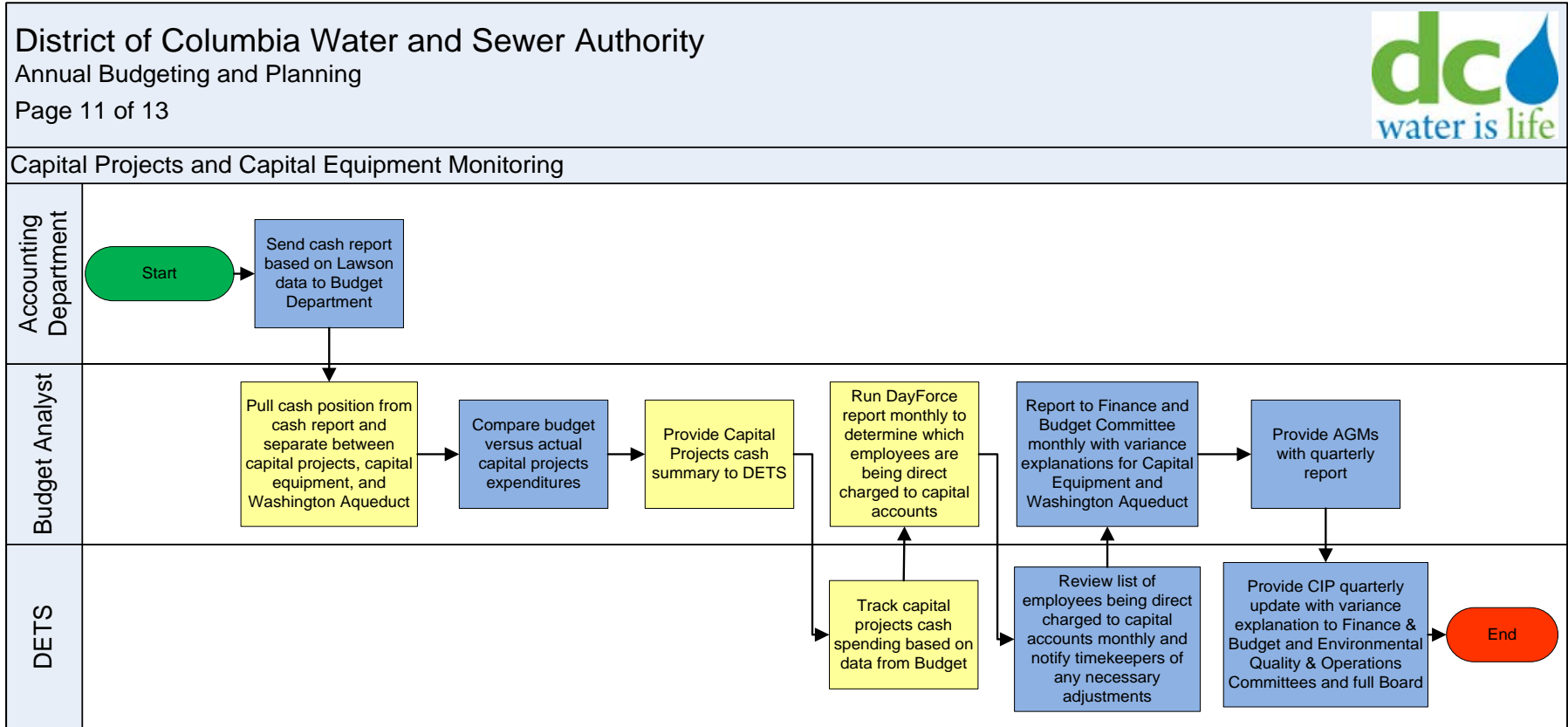
**Note 1:** Personnel Services include: overtime, new hires, leave accruals, position reclassifications, terminations, etc.

**Note 2:** Non-Personnel Services include: chemicals, supplies, utilities (electricity, gas, rent telecom), contracts, water purchases and small equipment.





**APPENDIX B – FLOWCHARTS (CONTINUED)**







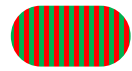
## APPENDIX B – FLOWCHARTS (CONTINUED)

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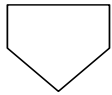


### Legend

**Flowchart Legend:**



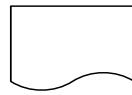
Start/ End



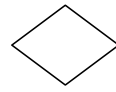
Off-Page Connector



Database



Document




Decision Point



Sub process/Function

**Colors:**

Process Step	Automated Control	Manual Control	Gap
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# DC WATER INTERNAL AUDIT

## Automatic Meter Reading (AMR) Implementation Review Progress Report



### INTERNAL AUDIT UPDATE

Audit Committee Meeting

April 27<sup>th</sup>, 2017

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# Transmittal Letter

April 27<sup>th</sup>, 2017

The Audit Committee of DC Water  
5000 Overlook Avenue, SW  
Washington, DC 20032

Pursuant to the approved 2017 internal audit plan for the District of Columbia Water and Sewer Authority (“DC Water” or the “Authority”), we hereby present the following progress report related to the Automatic Meter Reading (AMR) Implementation Review, including our review of the inventory procurement and disposal processes. Our report is organized in the following sections:

Objectives and Approach	The objectives of our procedures and our approach to the execution of those procedures are expanded upon in this section.
Project Snapshot	This section provides an overview of the current status of each area subjected to our procedures.
Process Flowcharts	This section provides a visual depiction of the workflow of all key processes included within our scope.

Our work has and continues to assist management with facilitation of this project. We did not, nor does DC Water desire us to, perform management functions, make management decisions, or otherwise perform in a capacity equivalent to that of an employee or officer of DC Water.

We would like to thank the staff and all those involved in assisting the Internal Auditors in connection with this review.

Respectfully Submitted,

**INTERNAL AUDITORS**

# Objectives and Approach

## Objectives

The purpose of this review is to gain an understanding of the business process transformation and evaluate the Automated Meter Reading (AMR) project implementation.

## Approach

In our approach we focused on obtaining an understanding of the AMR project through performing detailed walkthroughs with key members of Customer Service, Information Technology, M&S Parts Materials, including contracted personnel involved in the replacement and field operations of the project.

The audit scope is based on the objectives defined in the two-phase approach below:

- Phase I: Project initiation and business process review
- Phase II: IT Design and implementation review

**This progress report is for Phase I of our AMR implementation review.**

# Objectives and Approach – Phase I

## Phase 1: Project initiation and business process review

- Evaluate the meter program implementation plan and meter installation process, including the monitoring and reporting on the status of the implementation;
- Assess the inventory management process and controls implemented by the installation vendor, including:
  - Compliance with the contract requirements;
  - Confirm installation vendor is performing physical inventory counts to verify inventory balances and validate bi-weekly reports provided by the installer of inventory balances;
  - Confirm security of warehouse in which inventory is stored;
  - Confirm that meters are installed in the correct locations and that all meters are tested appropriately (i.e. Within guidelines established by the manufacturer for new meters and/or DC Water for legacy meters);
- Assess the meter disposal process and controls, including:
  - Physical security of the meters and hazardous materials;
  - Determine compliance with DC Water’s Disposal of Scrap and Excess Property Policy;
- Review billing adjustments for customers with new meters (if applicable); and
- Provide timely recommendations regarding overall project risk management.

# Objectives and Approach – Phase II

## Phase 2: IT Design and implementation review

- **Project Governance & SDLC Adoption:** Assess the appropriateness of the SDLC (System Development Life Cycle) framework and key project documents (i.e., project timeline, project plan, project approvals, etc.).
- **Business Process Enablement Review:** Evaluate the design and operating effectiveness of future state business processes, proposed business requirements, technical requirements traceability, and automated controls that support the automated meter reading and customer billing processes.
- **Data Integrity & Migration Review:** Review the data migration strategy, contingencies, test plans, cutover, validation results and proposed data interfaces designed to transfer data between automated meter readers and the CIS applications.
- **Information Protection & Security Review:** Identify and assess the security risks involved with the AMR implementation by reviewing the business & technical requirements, security model, application roles, and the underlying security permissions. Additionally, we will review management's ability to identify segregation of duties conflicts and design / rely upon compensating controls.
- **Infrastructure Operations Review:** Examine the IT general controls that govern the underlying AMR technology, including the critical database(s) and operating system(s) that support the implementation, including but not limited to the security requirements and system configurations.
- **Third Party Management Review:** Identify risks related to the use and oversight of third party providers, including a review of the associated vendors, including SmartGrid Solutions regarding vendor management processes and underlying control considerations.

6

# Background – Oversight of the AMR Implementation

- In order to manage the replacement of over 85,000 meters and MTUs, DC Water established an Executive Oversight Committee and a Project Management Office (PMO).
- The PMO is comprised of individuals from various Departments throughout the Authority, including CIS/Billing, IT, Inventory Management, Public Communications, and Procurement.

## Key Activities of PMO

- Establish Team Charter to document roles and responsibilities, including a RACI chart
- Draft a project schedule, including identification of key performance indicators
- Develop a project risk register, which is reviewed monthly by the Executive Oversight Committee
- Hold weekly meetings with project team and with installation contractor to discuss the progress of the project, including tracking of planned and actual meter replacements

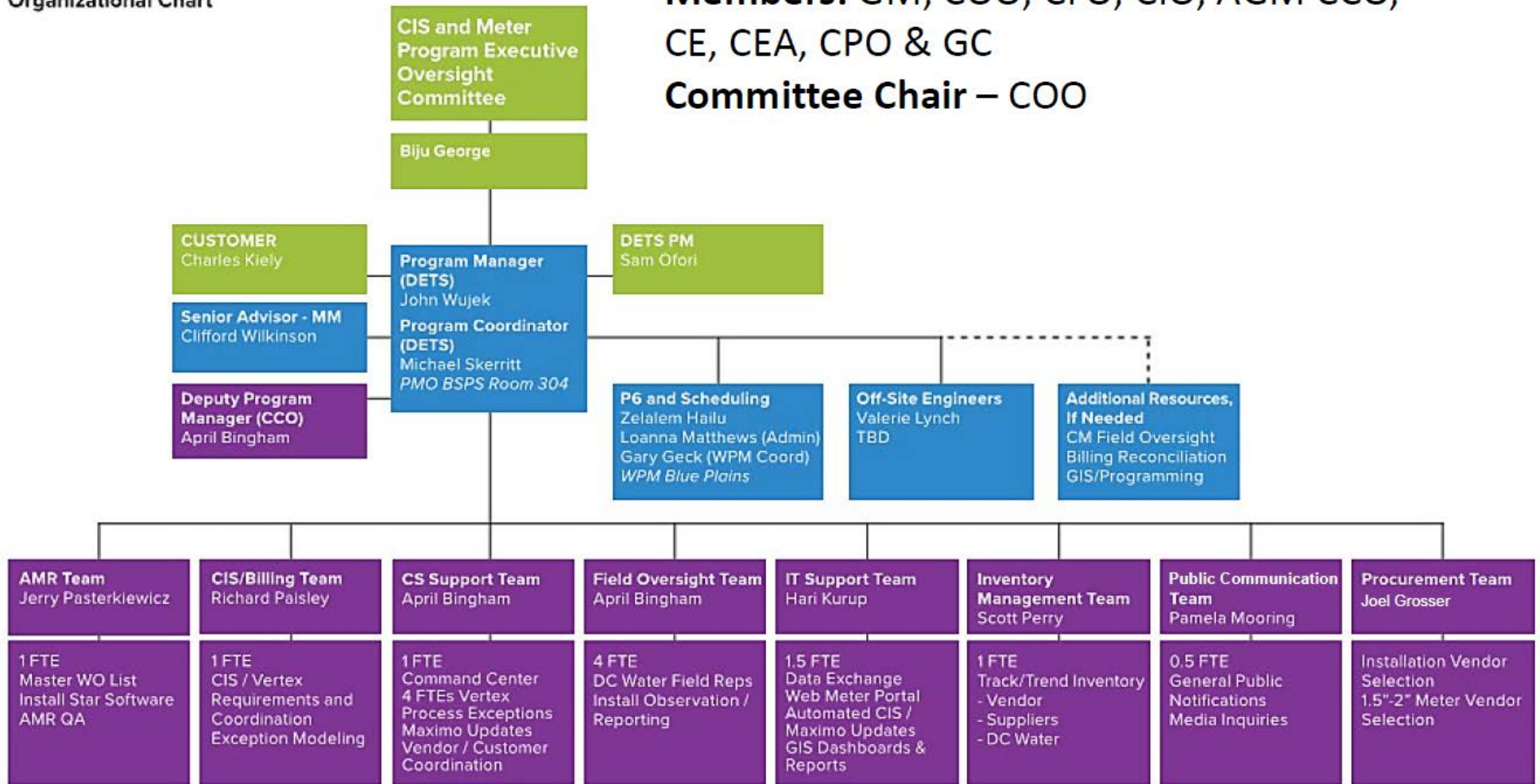
Week	Total Planned Installs	Total Completed	Remaining Installs
12	9,500	6,725	83,861

*As of April 15, 2017*

# Background – Organizational Chart

## DC Water Meter Replacement Program Organizational Chart

**Members:** GM, COO, CFO, CIO, AGM CCO,  
CE, CEA, CPO & GC  
**Committee Chair – COO**



# Background – Day-to-Day Project Management

- The P&M Parts Manager monitors the Contractors progress on the work plan by utilizing multiple systems and reports from the vendors.
  - These reports are provided to the Authority throughout the course of each month and a reconciliation is performed between the inventory count, number of meters replaced, and the weight of scrap disposed of.
- Monthly, the P&M Manager will coordinate with the Contractor and vendors to create a monthly production cycle. That is used to re-order meters, MTUs, and lids for the next months scheduled meter replacements.
- Daily, the SGS refers to the work plan and prepare the inventory for the Field Technicians. SGS utilizes their application called ProField to monitor the status of all inventory and work performed.
- Inventory is scanned both in and out of the warehouse, as each specific item is assigned to a WO that correlates with DC Water's Maximo system.

# DC Water Accomplishments

- Conducted RFP process then subsequently issued purchase orders for all identified AMR Project requirements.
- Established sampling and quality control process for monthly production of water meters to minimize field installation issues.
- Developed schedule to review monthly requirements of meters and lid with suppliers and SGS to minimize supply interruptions and minimize storage required at SGS warehouse.
- Developed and deployed the disposal process for legacy meters removed from service to minimize storage and material handling requirements.
- Completed 6 out of 7 ANC meetings for Wards 1 and 4.
- Weekly team progress meetings have been held, which are beneficial for sharing information.
- Weekly meetings with SGS remain intact for project management purposes.
- No customer issues reported within the first 90 days.
- The interactive webpage has been launched to support customer engagement.



# Inventory and Disposal of Meters

Internal Audit performed walkthroughs of Meter Operations located at Bryant St. and the SGS Warehouse located in Landover, MD on March 10<sup>th</sup>, 2017 in order to obtain an understanding of the inventory management process and controls implemented by the installation vendor and the meter disposal process and controls.

The Customer Service Manager and M&S Parts Manager conducted the walkthroughs and explained the roles of the PMO and the contractor in the day-to-day management of the AMR project. Our walkthroughs were documented in the flowcharts (reference “Appendix A: AMR Flowcharts”).



# Inventory and Disposal of Meters (continued)



## Meter Operations Walkthrough

- During the walkthrough we toured the Meter Operations Warehouse.
- We obtained an understanding of various processes including:
  - Initial order of the seed stock inventory;
  - Monthly inventory ordering process;
  - Sensus meter testing and utilization of the test bench;
  - Work Order (WO) creation and tagging for testing of legacy meters and MTU's under warranty, and;
  - Reconciliation of meter installations and disposals utilizing contractor reports.

# Inventory and Disposal of Meters (continued)

## SGS Warehouse Walkthrough

- During the walkthrough we toured the SGS Warehouse, where all the new inventory is maintained prior to installation and where old meters are maintained prior to disposal.
- We obtained an understanding of various processes including:
  - Physical security of meter inventory and warehouse;
  - Disposal of hazardous materials (MTU's);
  - Contractor status reporting, and;
  - Inventory management and monitoring during installation.



## Next Steps

Internal Audit will continue to monitor the progress of the AMR project by performing the following actions:

- Complete the Phase I of our objectives and approach, including:
  - Review billing adjustments made for customers with new meter and verify proper management of accounts that have billing exceptions and/or customer disputes;
  - Review a sample of disposal reconciliations;
  - Verify SGS is providing the appropriate reporting in accordance with their contract, and;
  - Confirm that meters are installed in the correct locations and that all meters are tested appropriately (i.e. Within guidelines established by the manufacturer for new meters and/or DC Water for legacy meters).
- Perform Phase II of our objectives and approach (reference “Objectives and Approach – Phase II).

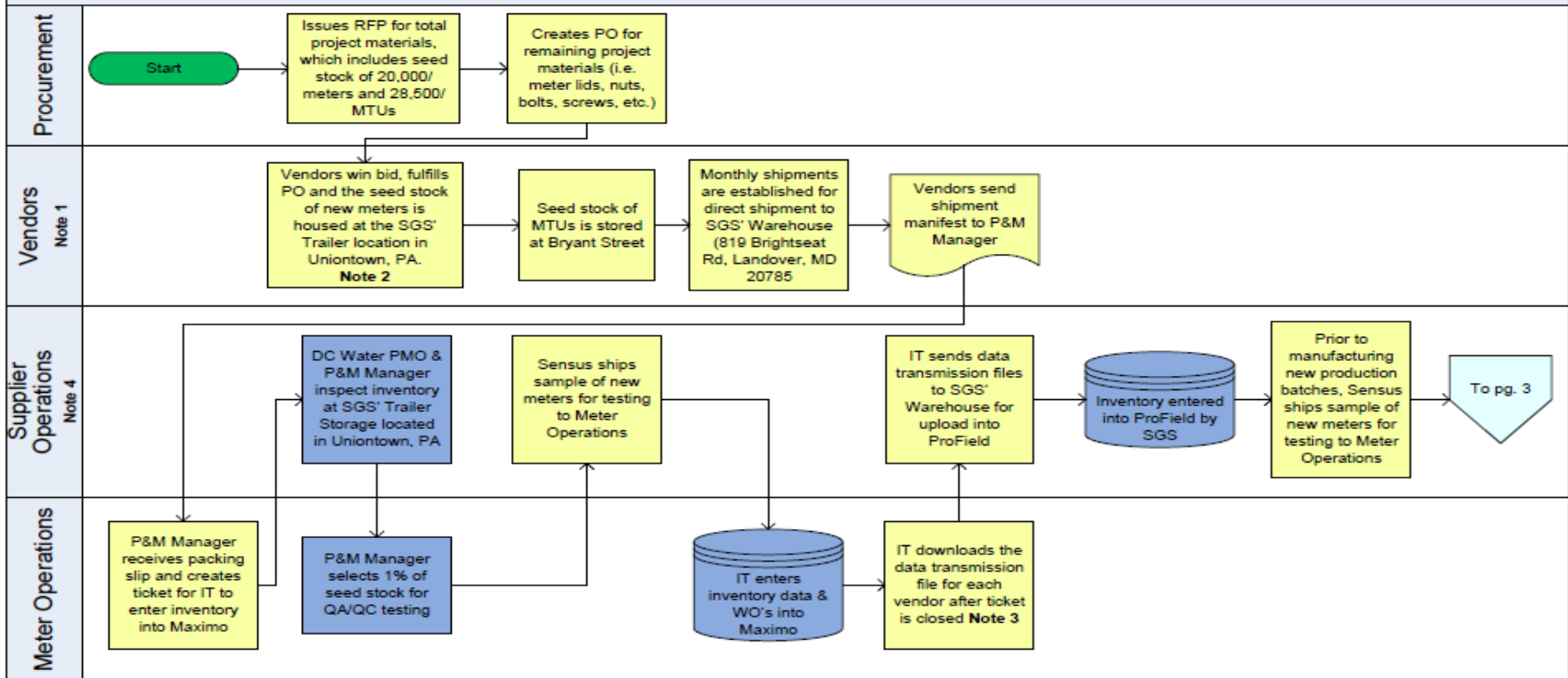
# Appendix A: AMR Flowcharts



## District of Columbia Water and Sewer Authority Automated Meter Reading (AMR) Implementation

Page 1 of 8

### Project Inventory Orders



**Note 1:** The contract for meters was won by Fasteners RX, Inc. The contract for MTUs was won by ACLARA Technologies and the contract for meter lids was won by Business Promotion Consultants. A host of other vendors were used to secure the remaining materials (i.e. nuts, bolts, screws, washers, gel caps, gaskets, nails, burial splice kits, UR connectors, etc.)

**Note 2:** In July 2016 the DC Water Board of Directors approved contract No. 16-PR-CCO-59 for Fasteners, RX (i.e. Sensus meters) and contract No. WAS-12-002-AA-SH-1 for ACLARA Technologies (i.e. upgraded MTUs).

**Note 3:** The data transmission file contains all WO #'s, Meter #'s, and MTU #'s.

**Note 4:** SGS is a company owned by ACLARA Technologies, SGS maintains the inventory and performs the meter replacements in the field for the AMR Implementation project. Sensus is the manufacturer of the new meters used in the AMR Implementation project.

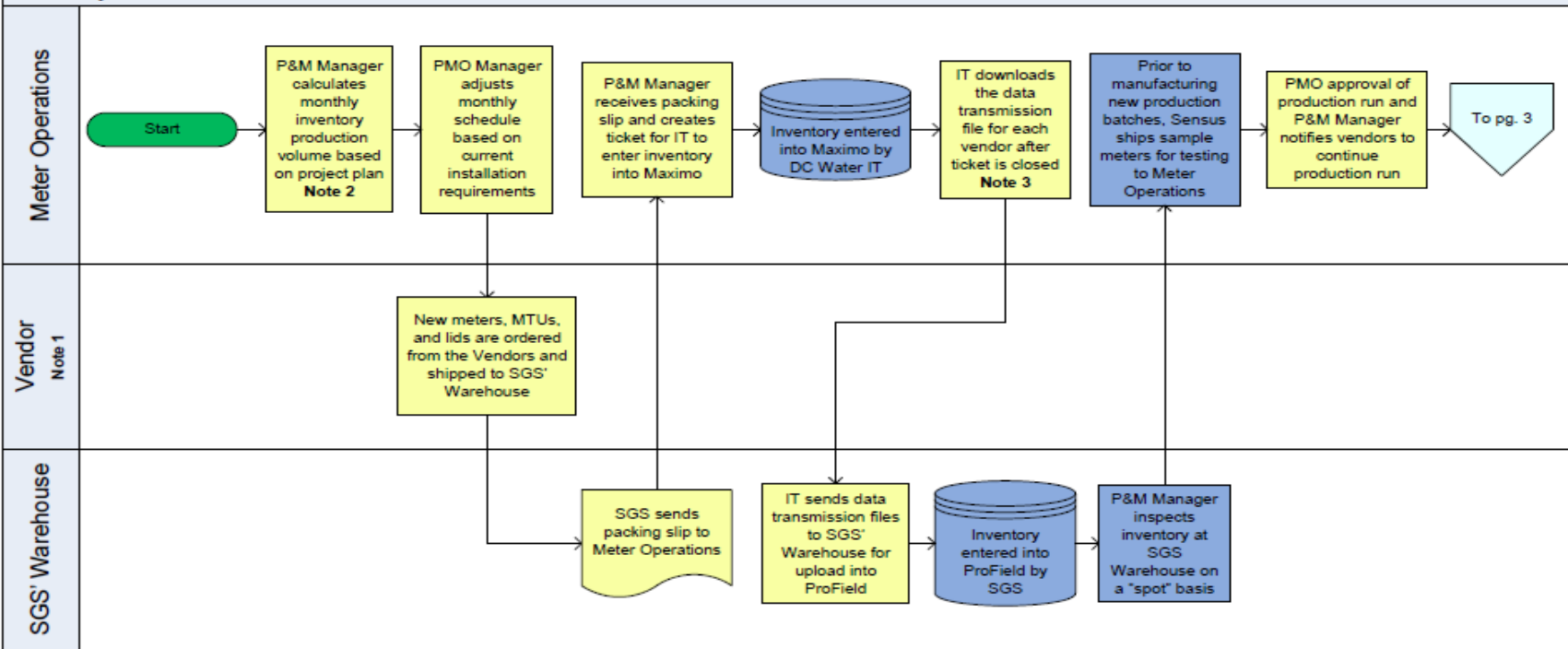


# Appendix A: AMR Flowcharts (continued)

District of Columbia Water and Sewer Authority  
 Automated Meter Reading (AMR) Implementation  
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## Inventory Re-Production



**Note 1:** The contract for meters was won by Fasteners RX, Inc. The contract for MTUs was won by ACLARA Technologies and the contract for meter lids was won by Business Promotion Consultants. A host of other vendors were used to secure the remaining materials (i.e. nuts, bolts, screws, washers, gel caps, gaskets, nails, burial splice kits, UR connectors, etc.)  
**Note 2:** The seed stock is used to cover production plan vs. actual variance in meter replacement. The P&M Manager works with the vendors and SGS to create a production schedule each month.  
**Note 3:** The data transmission file contains all WO #'s, Meter #'s, and MTU #'s.

**Flowchart Legend:**

Start/ End	Off-Page Connector	Database	Document	Decision Point	Sub process/Function

**Colors:**

Process Step	Automated Control	Manual Control	Gap

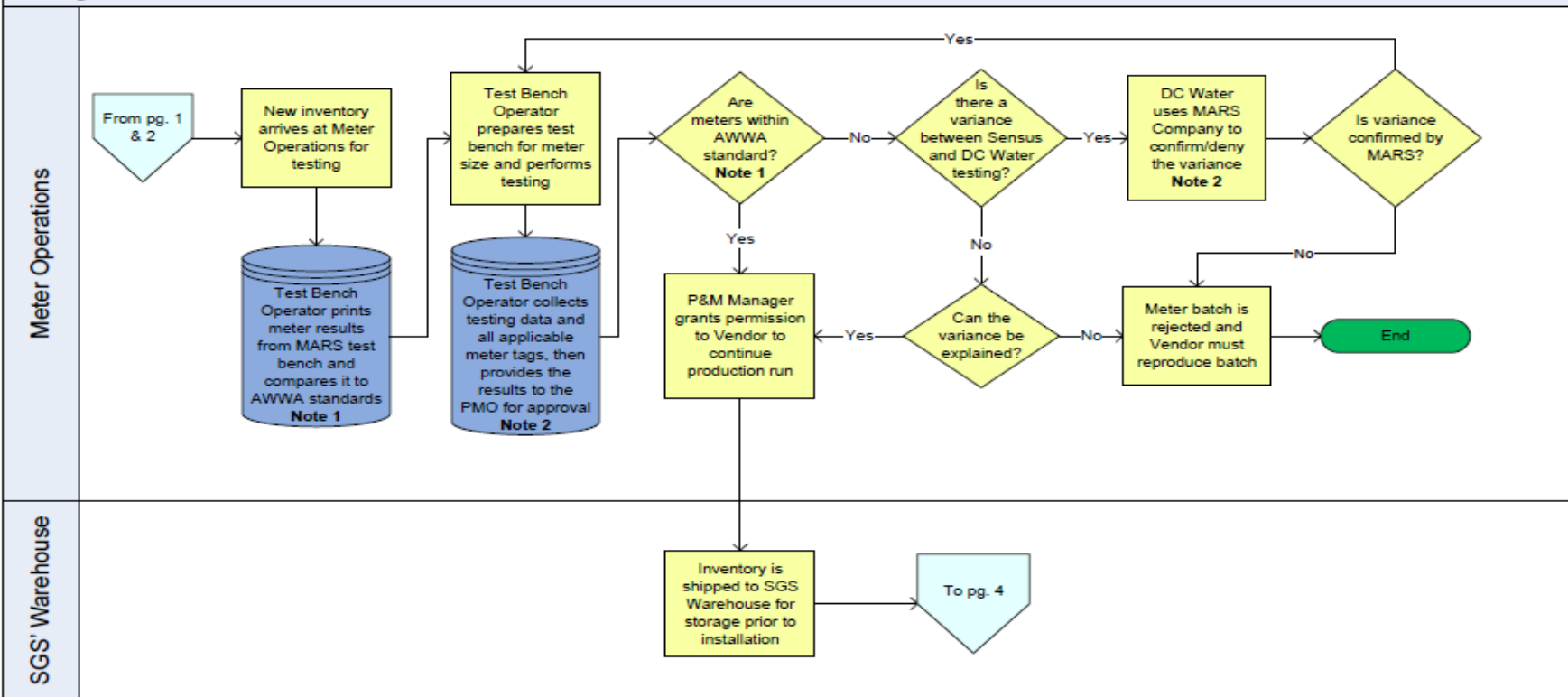


# Appendix A: AMR Flowcharts (continued)

District of Columbia Water and Sewer Authority  
Automated Meter Reading (AMR) Implementation  
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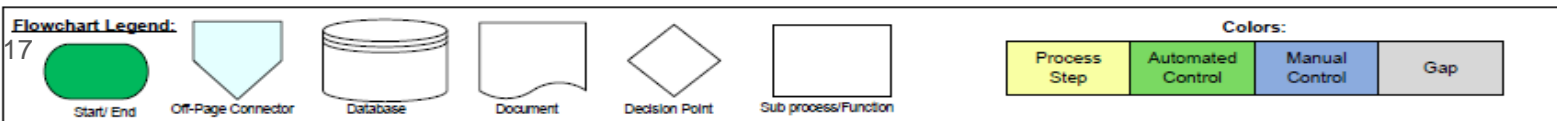


## Testing of New Meters



**Note 1:** The AWWA standard of meter reading accuracy is 98.5% - 101.5%.

**Note 2:** DC Water utilizes MARS Company in two separate ways. (1) The Authority owns and operates two MARS Test Benches for testing meters. (2) If there is a variance between the Sensus meter readings and DC Water Test Bench readings, Meter Operations will send the meters to a satellite MARS location to be tested at production facility.

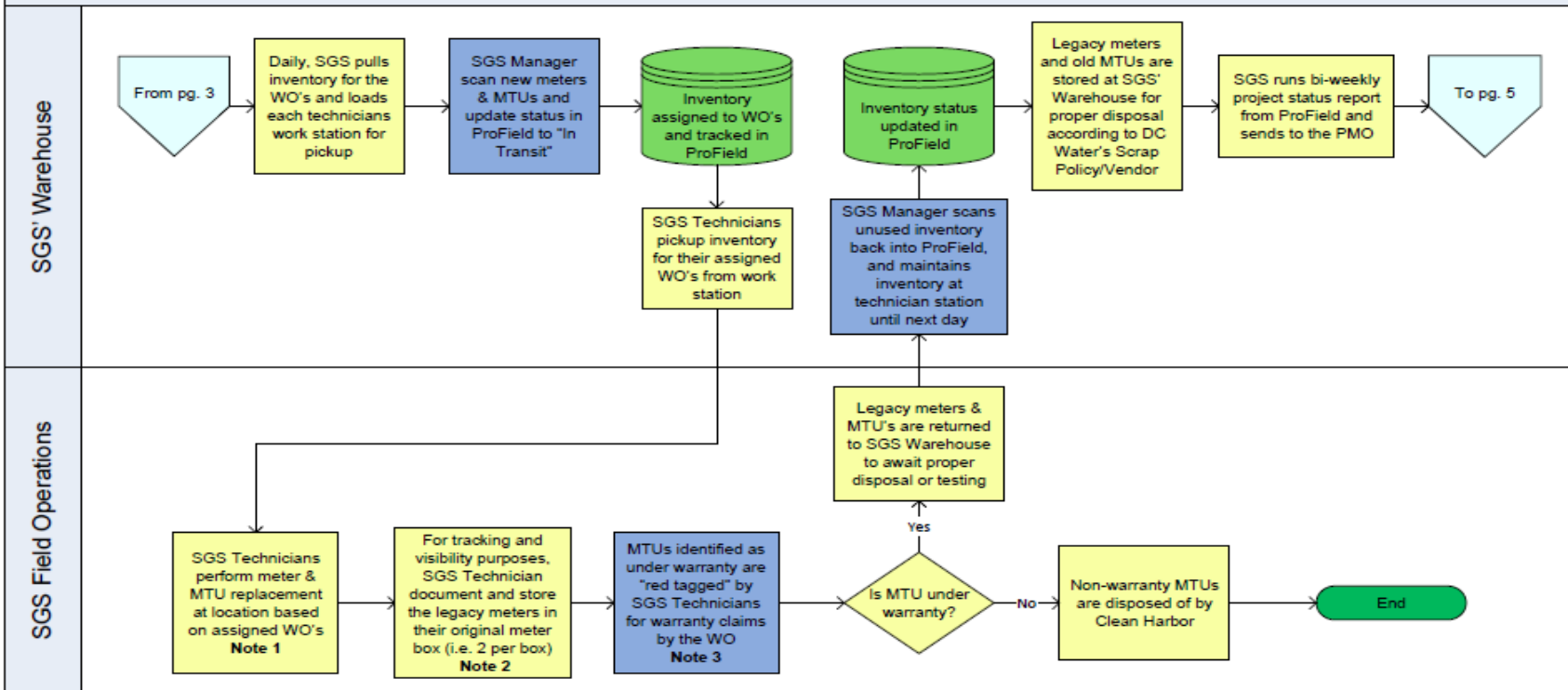


# Appendix A: AMR Flowcharts (continued)

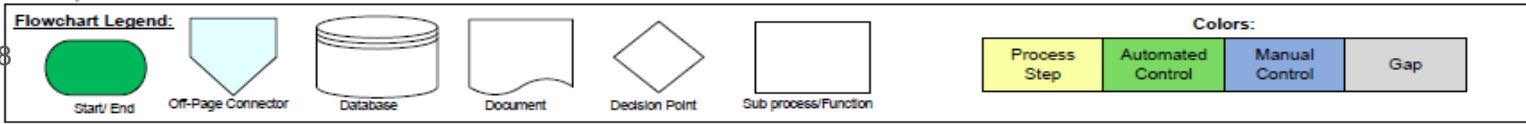
District of Columbia Water and Sewer Authority  
Automated Meter Reading (AMR) Implementation  
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## Installation of New Meters and Replacement of Legacy Meters



**Note 1:** DC Water Security will perform unannounced spot checks at meter replacement sites. Additionally, they will shadow SGS Field Operators after the meter is replaced in the field back to the warehouse location to ensure oversight and security of physical assets.  
**Note 2:** During replacement the SGS Technician tags the Sensus meters, records the tag #, location, date, and signs the technicians name on Sensus meter box. Each Legacy meter that was replaced is stored in the box of the Sensus meter it was replaced with, boxes can store 2 Legacy meters each.  
**Note 3:** WO's can be "red tagged" by DC Water prior to a replacement to mark that the old MTU is still covered under warranty and should be shipped to Meter Operations. (See pg. 7, Disposal of Legacy Meters & MTUs)



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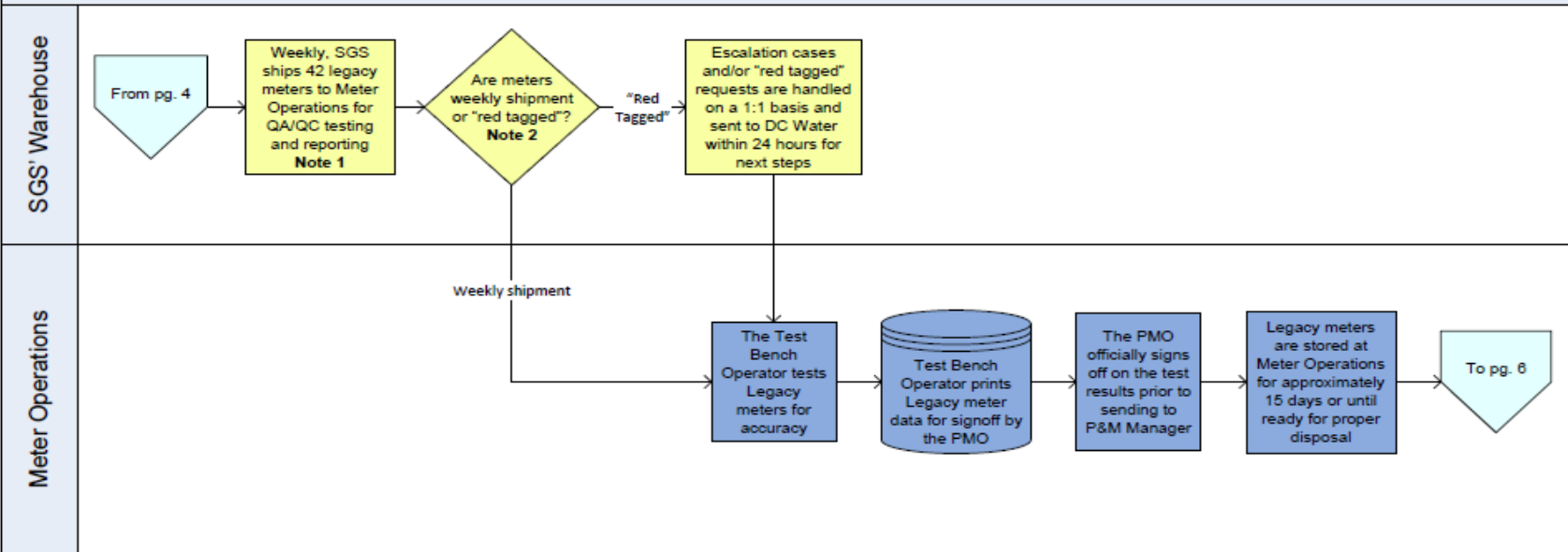


# Appendix A: AMR Flowcharts (continued)

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 Automated Meter Reading (AMR) Implementation  
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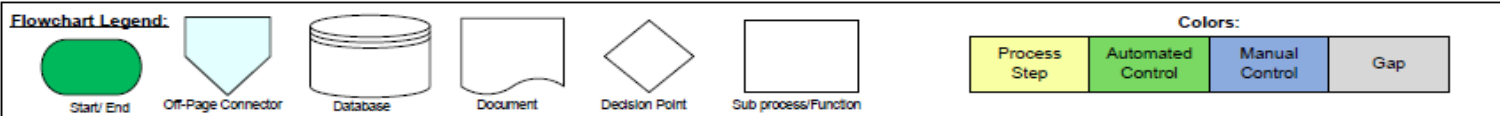


## Testing of Tagged & Sample of Legacy Meters



**Note 1:** Legacy meters represent (12) 5/8 inch; (10) 3/4 inch; (9) 1 inch; (6) 1 1/2 inch; and (5) 2 inch.

**Note 2:** Legacy meters can be "red tagged" by DC Water through their associated WO. This occurs when a customer has complained about a Legacy meter reading/billing error, so the meters are sent to Meter Operations for testing.

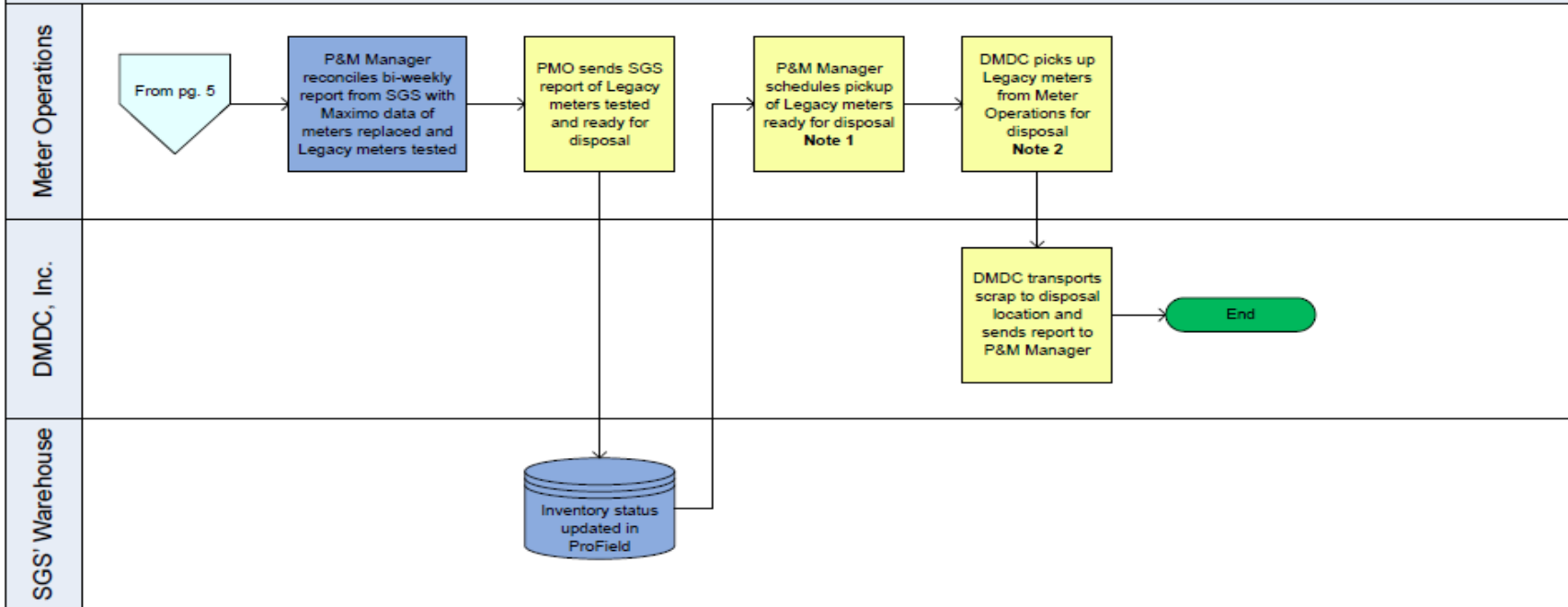


# Appendix A: AMR Flowcharts (continued)

District of Columbia Water and Sewer Authority  
Automated Meter Reading (AMR) Implementation  
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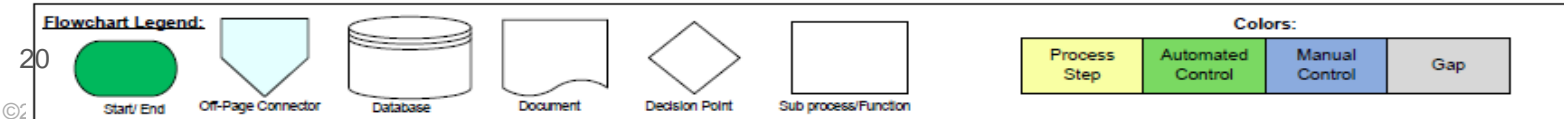


## Disposal of Legacy Meters after Testing



**Note 1:** Legacy meters are stored at Meter Operations for approximately 15 days or until ready for proper disposal.

**Note 2:** DC Water Security is notified by the P&M Manager of the location and time of all scrap pickups and will facilitate the handoff of scrap, during a 2 hour timeframe at a pre-chosen location.

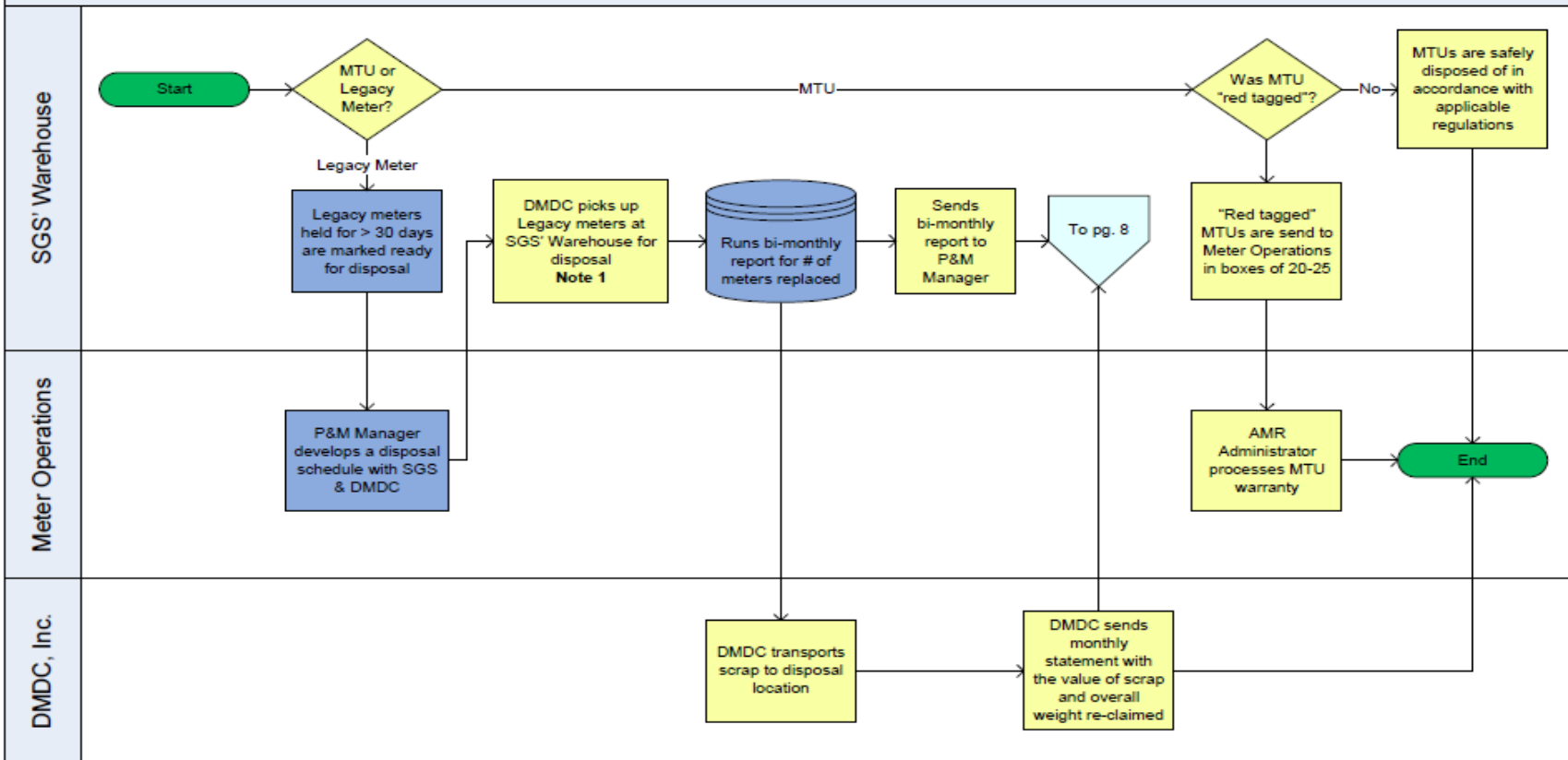


# Appendix A: AMR Flowcharts (continued)

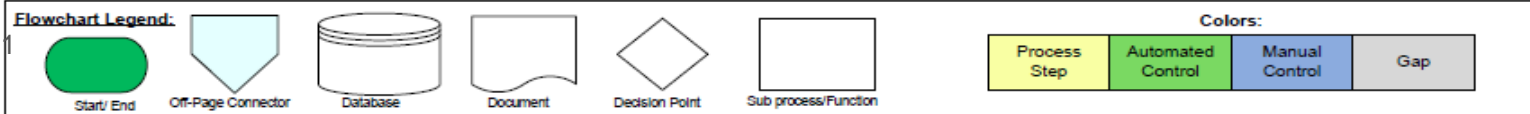
District of Columbia Water and Sewer Authority  
Automated Meter Reading (AMR) Implementation  
Page 7 of 8



## Disposal of Legacy Meters & MTUs



**Note 1:** DC Water Security is notified by the P&M Manager of the location and time of all scrap pickups and will facilitate the handoff of scrap, during a 2 hour timeframe at a pre-chosen location.

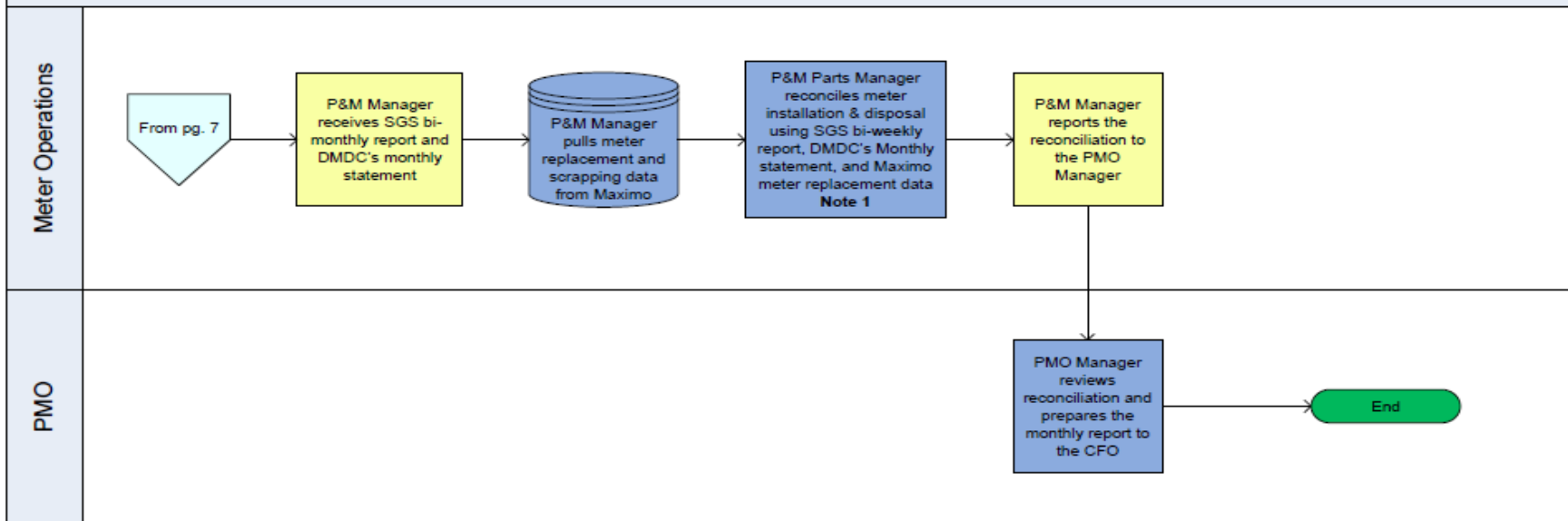


# Appendix A: AMR Flowcharts (continued)

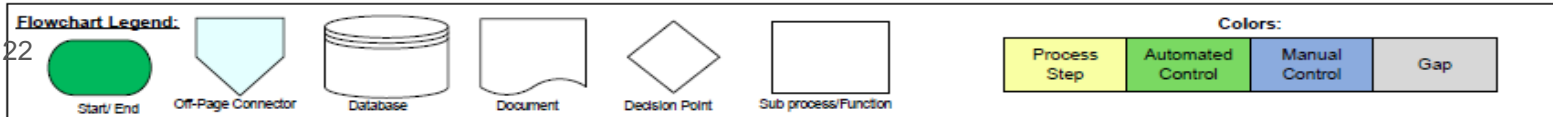
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 Automated Meter Reading (AMR) Implementation  
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## Reconciliation



**Note 1:** To perform the reconciliation the P&M Manager will calculate the weight reported from the monthly scrapping report back to approximate weight of replaced meters, which is pulled from ProField and checked against the meter replacement data in Maximo.



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# Internal Audit Report Department of Maintenance Services Work Order Management (Blue Plains)

April 2017



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**Work Order Management Internal Audit**  
 Internal Audit Report  
 Issued: April 2017



## TRANSMITTAL LETTER

April 2017

The Audit Committee of DC Water  
 5000 Overlook Avenue, SW  
 Washington, DC 20032

Pursuant to the approved 2017 internal audit plan for the District of Columbia Water and Sewer Authority (“DC Water” or the “Authority”), we hereby present the results of our Department of Maintenance Services Work Order Management Internal Audit. We will be presenting this report to the Audit Committee of DC Water at the next scheduled meeting on April 27, 2017. Our report is organized in the following sections:

<b>Executive Summary</b>	This provides a summary of the observations identified during our internal audit of the Department of Maintenance Services Work Order Management process.
<b>Background</b>	This provides an overview of the Department of Maintenance Services Work Order Management process.
<b>Objectives and Approach</b>	The internal audit objectives and focus are expanded upon in this section, as well as a review of the various phases of our approach.
<b>Detailed Observations</b>	This section provides a description of the observations noted during our work and recommended actions as well as management’s response, responsible party, and estimated completion date.

We would like to thank the staff and all those involved in assisting the Internal Auditors in connection with this review.

Respectfully Submitted,

**Internal Auditors**





**Work Order Management Internal Audit**  
 Internal Audit Report  
 Issued: April 2017

**EXECUTIVE SUMMARY**

**Background**

Department of Maintenance Services (DMS) utilizes a team of employees and contractors to deliver the DMS mission, “To economically maintain DC Water’s process equipment and facilities **at the Blue Plains Advanced Wastewater Treatment Plant**, ensuring that the operational and customer service objectives of the Authority are achieved.” DMS is divided into the following major work areas:

- Electrical Maintenance
- Mechanical Maintenance
- Maintenance Management

To facilitate the achievement of management’s objectives, and for planning and documenting the work order process, DMS has implemented a Computer Maintenance Management System (CMMS) called Maximo.

Within Maximo, work order types are categorized by: (1) Predictive, (2) Preventative and (3) Corrective. Predictive work orders are used to determine the condition of the asset / equipment and are initiated in an effort to remediate a problem prior to failure. Preventative work orders are based on machine hours, or calendar based, and are initiated on a recurring schedule (e.g. every 100 hours or quarterly/annually). Corrective work orders are initiated in response to a specific failure.

**Observations**

The observations identified during our assessment are summarized on the next few pages. We have assigned relative risk or value factors to each observation. Risk ratings are the evaluation of the severity of the concern and the potential impact on the operations of each item. Observations will require management action plans with estimated completion dates that will be included in the routine follow up of internal audit observations.

**Objective and Scope**

Our procedures were performed in accordance with the internal audit scope and approach set forth in our audit notification letter, dated January 16, 2017 and were limited to the procedures described therein.

Phase 1 of our work consisted of inquiry in an effort to obtain an understanding of the Authority’s structure and key processes within our scope. The primary objectives of our Phase 2 procedures, which were executed during the January 2017 to March 2017 timeframe, included the following:

- To assess the design of key controls identified during Phase 1, and;
- To assess the operating effectiveness of key controls identified, through review and detailed testing of documentation within the following areas:
  - Work order initiation and screening
  - Work Planning and scheduling
  - Work execution and data entry
  - Work order closeout
  - Reporting and monitoring

The scope of this Work Order Management internal audit included the review of DMS maintenance work orders from the Maximo Computerized Maintenance Management System (CMMS) under the supervision of DMS personnel as well as testing of the operating effectiveness of key monitoring controls in-place for the Work Order management function.

**Summary of Observation Ratings** *(See Appendix A for definitions)*

	Number of Observations by Risk Rating		
	High	Moderate	Low
Work Order Management	1	3	0

***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 all observations noted in the areas reviewed (see “Detailed Observations” section for additional information). Definitions of the rating scales are included in the Appendices.

Summary of Observations	
Observations	Rating
<p><b>1. SUPERVISORY REVIEW OF WORK ORDERS WITHIN MAXIMO</b></p> <p>Through our detailed testing, we noted that 46 of 60 work orders tested (44/52 PM and 2/8 CM) did not contain evidence of Trade Foreman (supervisor) involvement or review and approval within Maximo. The noted work orders were completed in hard-copy outside of the Maximo workflow (as is practice for PM and PdM work orders - refer to observations #2 and #3) and manually keyed into Maximo by Work Order Assistants. In addition, we noted CM child and follow-up work orders to an original parent work order do not require routing through the workflow for supervisor approval. As such, data entered in the child or follow-up work order may not be specifically reviewed for reasonableness or accuracy.</p>	<b>High</b>
<p><b>2. INCOMPLETE POLICIES AND PROCEDURES</b></p> <p>Through our detailed testing of work orders we noted several instances of potential noncompliance with policies as a result of unclear requirements within established policies and procedures. Through follow up discussions with Management we noted these instances were primarily a result of the following:</p> <ul style="list-style-type: none"> <li>• Policies and procedures relevant to the DMS Work Order Management process do not always clearly delineate between requirements specific to CM work orders vs requirements specific to PM or PdM work orders.</li> <li>• Policies and procedures, as written, suggest that no deviation is expected or approved; however through discussions with Management, we noted that many scenarios exist where exceptions to the policies have been approved either through design of the workflow, or directly by Management.</li> </ul>	<b>Moderate</b>



## EXECUTIVE SUMMARY (CONTINUED)

Summary of Observations	
Observations	Rating
<p><b>3. LABOR DATA ENTRY ERRORS</b></p> <p>During our detailed testing of work orders, we noted that 2 of 60 work orders reviewed contained data entry errors:</p> <ul style="list-style-type: none"> <li>• WO #16-490636 labor hours entered on the DC Water PM Work Order Detail Report totals 6.5 hours, while the labor entered in Maximo totals 7 hours.</li> <li>• WO #15-313509 labor hour entered on the DC Water PM Work Order Detail report totals 1 hour, while the labor entered in Maximo totals 3 hours.</li> </ul>	<b>Moderate</b>
<p><b>4. WORK ORDER DIRECT COST TRACKING</b></p> <p>Through our detailed testing of work orders, and discussion with Management and key process owners, we noted that DMS is not currently capturing all available direct cost data consistently within Maximo. Specifically:</p> <ul style="list-style-type: none"> <li>• We noted through interviews that equipment rental costs (e.g. scaffolding) are not consistently entered as direct costs to work orders.</li> <li>• Inventory costs ordered through administrative work orders are not consistently applied to the appropriate corrective work order.</li> </ul>	<b>Moderate</b>

Process Improvement Opportunities have also been provided to Management for consideration.



## BACKGROUND, OBJECTIVES AND APPROACH

The mission of the Department of Maintenance Services (DMS) is “To economically maintain DC Water’s process equipment and facilities **at the Blue Plains Advanced Wastewater Treatment Plant**, ensuring that the operational and customer service objectives of the Authority are achieved”. The Department of Maintenance Services utilizes a multitude of employees and contractors to assist with executing this mission.

As outlined in the Departmental Summary of Maintenance Services within the Approved Budgets, the number of authorized positions in fiscal year 2016 was 115 with an average of 104 positions filled. The Personnel Services costs, including overtime, accounted for \$11,223,000 of a total \$18,563,000 fiscal year 2016 Operations and Maintenance expenditures (60%). The remaining 40% of the Operations and Maintenance expenditures consisted of Non-Personnel Service costs including Supplies, Utilities, Contractual Services, and Small Equipment. In addition, the Capital Equipment expenditures from DMS totaled \$4,132,000 for fiscal year 2016.

Fiscal year 2017 Major planned activities and changes to be implemented include:

- Continue to perform preventive, corrective, and predictive maintenance services in all treatment process area equipment to improve reliability, reduce down town and maximize asset life.
- Continue driving change in support of both the Asset Reliability and Asset Management programs
- Continue critical spare parts inventory evaluation process and develop the part “Item Master” in Maximo using Failure Mode Effect Analysis (FMEA) and the results of Reliability Centered Maintenance (RCM) Analyses
- Continue to track, report, and analyze asset failures by cost to identify “poor performers”
- Continue Preventive Maintenance Validation Team’s improvement program and implementing tasks based on the FMEA and RCM results
- Continue to build equipment reliability program (predictive maintenance/condition monitoring)
- Develop and deploy new key performance indicators to measure maintenance efficiency and productivity
- Increase level of work order planning and schedule compliance to reduce level of reactive maintenance

### Division Organizational Structure and Service Summary

The Maintenance Services Division is divided into the following major work areas:

#### Electrical Maintenance

The Electrical Maintenance team within the Maintenance Services Division retains primary responsibility for the following activities:

- Maintains electrical process control systems, equipment, and components for the Blue Plains Advanced Wastewater Treatment Plant
- Operate and maintain electrical power distribution system from 5kv to 69kv, electrical control systems for all process equipment and all DC Water facilities
- Inspect and maintain cranes for all DC Water facilities



## BACKGROUND, OBJECTIVES AND APPROACH-CONTINUED

### Mechanical Maintenance

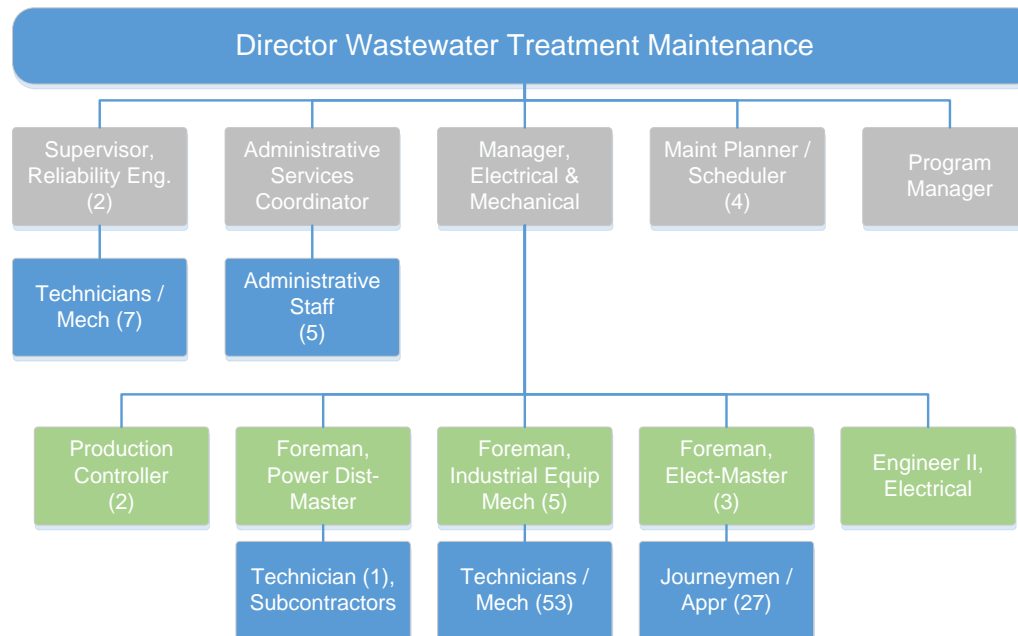
The Mechanical Maintenance team within the Maintenance Services Division retains primary responsibility for the following activities:

- Maintain mechanical process systems and equipment for the Plant
- Plan, schedule, and perform condition monitoring for all process equipment at all DC Water facilities

### Maintenance Management

The Maintenance Management team within the Maintenance Services Division retains primary responsibility for the following activities:

- Plan and coordinate all activities for corrective, preventive, and predictive maintenance
- Plan and operate support systems to manage maintenance by planning, estimating, inspecting, and scheduling maintenance activities
- Coordinate work through operations and engineering and provide administrative support





## BACKGROUND, OBJECTIVES AND APPROACH-CONTINUED

### Systems and Data

To facilitate the achievement of management’s objectives pursuant to the services outlined above, DMS has implemented a Computerized Maintenance Management System (CMMS) called Maximo. Maximo is a data management software that allows DMS to share and enforce best practices, inventory, resources and personnel. Maximo’s work management ability allows DMS to manage both planned and unplanned work activities, from initial request through completion and recording of actuals (labor and materials). The entire life cycle of the work order can be captured within Maximo in order for management to properly analyze and track all work order processes occurring on a daily basis. The management software also has available enhanced modules that include asset, service, contract, inventory, and procurement management.

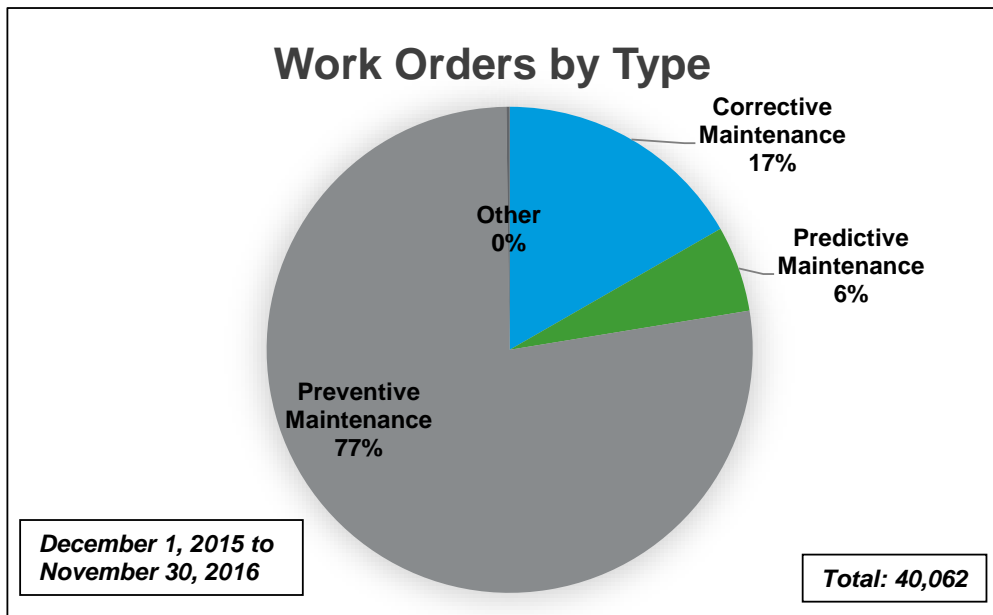
The Department of Maintenance Services utilizes Maximo to manage all of the maintenance work executed at the Blue Plains Advanced Wastewater Treatment Plant. There were over 40,000 work orders closed during our in-scope period between December 1, 2015 and November 30, 2016. Maximo is used to track technician/mechanic labor hours and materials used in the completion of each work order.

Within Maximo, work order types are categorized by the following types:

- Predictive,
- Preventative
- Corrective

Predictive work orders are used to determine the condition of the asset / equipment and are initiated in an effort to remediate a problem prior to failure. Preventative work orders are based on machine hours, or calendar based, and are initiated on a recurring schedule (e.g. every 100 hours or quarterly/annually). Corrective work orders are initiated in response to a specific failure.

The chart to the right was derived from the work order data provided by management, and summarizes the breakout of work order types during our in-scope period of December 1, 2015 to November 30, 2016.

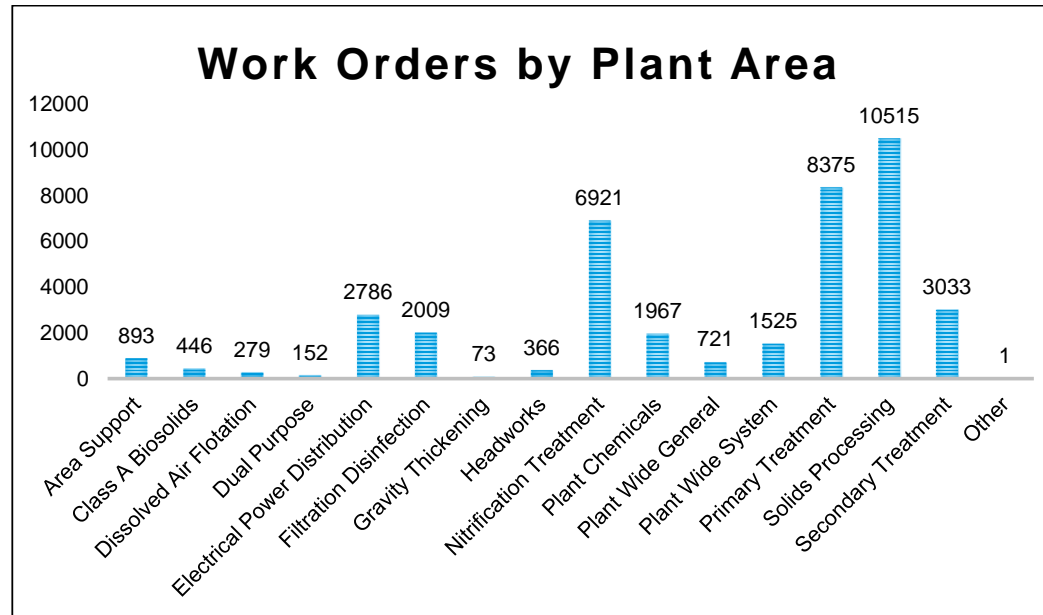


**Work Order Management Internal Audit**  
 Internal Audit Report  
 Issued: April 2017



**BACKGROUND, OBJECTIVES AND APPROACH-CONTINUED**

The following chart was derived directly from the work order data provided by management, and summarizes the breakout of work orders by plant area for the in-scope period of December 1, 2015 to November 30, 2016.



The following table summarizes the average labor hours, labor costs, material costs, and service cost captured in Maximo for the population of closed work orders for the period of December 2, 2015 - November 30, 2016.

Work Type	Average Cost Per Work Order			
	Labor hours	Labor Costs	Material Costs	Service Costs
Preventive Maintenance	2.30	\$123.21	\$0.03	\$0.00
Corrective Maintenance	14.62	\$657.87	\$585.08	\$351.14
Predictive Maintenance	2.01	\$92.11	\$0.20	\$0.00



---

## BACKGROUND, OBJECTIVES AND APPROACH-CONTINUED

### OBJECTIVES AND APPROACH

The internal audit of the Authority's Department of Maintenance Services, Work Order Management function was performed in accordance with the internal audit scope and procedures set forth in our audit notification letter, dated January 16, 2017, and were limited to the procedures described therein:

#### **Obtaining an Understanding**

The first phase of our review consisted primarily of inquiry in an effort to obtain an understanding of the Authority's structure and key processes within our scope. The following procedures were conducted as part of the first phase of our review:

- Conducted interviews with key personnel to obtain a detailed understanding of the Authority's policies and procedures, operating functions, and key performance indicators for the following areas:
  - Work order initiation and screening
  - Work planning and scheduling
  - Work execution and data entry
  - Work order closeout
  - Reporting and monitoring
- Reviewed documented policies and procedures, organizational charts, and any other key process information available to further our understanding of the function.
- From our interviews and review of policies, we identified key risks and controls, and developed a detailed control testing script to facilitate phase 2 testing.

#### **Detailed Testing**

The second phase of our review consisted of an assessment of the design of key controls, and testing of the operating effectiveness of those controls. This process was facilitated through the testing of a sample of work orders closed by the Department of Maintenance Services during the period of 12/1/2015 – 11/30/2016. Our procedures during this phase included, but were not limited to:

- From the population of closed work orders during the in-scope period, we selected a random sample of sixty (60) DMS maintenance work orders
- For each work order selected, we requested and reviewed relevant supporting documentation in an effort to determine the operating effectiveness of controls within the Authority's DMS work order function. Key areas of focus included but were not limited to:
  - Labor hours
  - Subcontractor costs
  - Equipment costs
  - Inventory costs

#### **Reporting**

At the conclusion of this internal audit, we summarized our observations related to the Department of Maintenance Services, Work Order Management function and reviewed the results of our testing with management.





## DETAILED OBSERVATIONS

Work Order Management Internal Audit			
1.	<u>Supervisory Review of Work Orders within Maximo</u>	<u>Recommendation</u>	<u>Management's Action Plan</u>
	<b>Observation Rating: High</b>		
	<p>Through our detailed testing, we noted that 46 of 60 work orders tested (44/52 PM and 2/8 CM) did not contain evidence of Trade Foreman (supervisor) involvement or review and approval within Maximo.</p> <p>With parent CM work orders, supervisory approval is documented via a status change to the work order by the Trade Foreman (from "Tech Complete" to "Field Complete" or "Maintenance Complete") within the Maximo workflow; however, for the exceptions above the work orders were completed in hard-copy outside of the Maximo workflow (as is practice for PM and PdM work orders - refer to observations #2 and #3) and manually keyed into Maximo by Work Order Assistants. As such, the work orders did not contain evidence of Trade Foreman involvement or review.</p> <p>In addition, we noted CM child and follow-up work orders to an original parent work order do not require routing through the workflow for supervisor approval. As such, data entered in the child or follow-up work order may not be specifically reviewed for reasonableness or accuracy.</p> <p>Without required or documented review by supervisors, work orders may contain incorrect data, including labor hours, materials, and/or notes. This increases the risk of undetected error or misappropriation of Authority assets.</p>	<p>We recommend DMS update existing workflows within Maximo to require supervisory review and approval for all completed work orders. The ability to perform this approval should be restricted to only Trade Foreman and Management, and not include Technicians/Mechanics or Work Order Assistants.</p>	<p><b>Response:</b> DMS will work with the Asset Management team to redesign the process to ensure that all completed work orders are reviewed and approved by Foremen.</p> <p><b>Responsible Party:</b> Director, Wastewater Treatment Maintenance</p> <p><b>Target Date:</b> September 30, 2017</p>



## DETAILED OBSERVATIONS

Work Order Management Internal Audit			
2.	<u>Incomplete Policies and Procedures</u>	<u>Recommendation</u>	<u>Management's Action Plan</u>
	<b>Observation Rating: Moderate</b>		
	<p>Through our detailed testing of work orders we noted several instances of potential noncompliance with policies as a result of unclear requirements within established policies and procedures. Through follow up discussions with Management we noted these instances were primarily a result of the following:</p> <ul style="list-style-type: none"> <li>• Policies and procedures relevant to the DMS Work Order Management process do not always clearly delineate between requirements specific to CM work orders vs requirements specific to PM or PdM work orders. For example, P&amp;P state that initial screening by Operations, and field investigation by a Planner/Scheduler shall be performed for “all new” work orders; however this language infers that “new” work order only pertains to CM, as PM and PdM are recurring.</li> <li>• Policies and procedures, as written, suggest that no deviation is expected or approved; however, through discussions with Management, we noted that many scenarios exist where exceptions to the policies have been approved either through design of the workflow, or directly by Management. For example, P&amp;P state that if anticipated work is greater than 2 man-hours The DMS Planner/Scheduler is responsible for field investigating all new non-emergency work orders; however this does not apply to high voltage work orders, as they are field investigated by the high-voltage staff. (continued)</li> </ul>	<p>We recommend that DMS update or amend policies to clearly delineate between requirements specific to CM work orders vs requirements specific to PM or PdM work orders . This will help ensure that staff have a current, clearly defined, listing of requirements and expectations for work performed. This will also help ensure that data is entered and tracked in Maximo with consistency, which will allow for more efficient, reliable, and comparable data for use in tracking metrics over multiple periods.</p> <p>All exceptions to the established workflow should either be documented in an approved exceptions listing, or documented in each work order.</p>	<p><b>Response:</b> DMS will work with the Asset Manager to update work order documentation Policies and Procedures.</p> <p><b>Responsible Party:</b> Director, Wastewater Treatment Maintenance</p> <p><b>Target Date:</b> September 30, 2017</p>



## DETAILED OBSERVATIONS (CONTINUED)

Work Order Management Internal Audit			
2.	<u>Incomplete Policies and Procedures</u>	<u>Recommendation</u>	<u>Management's Action Plan</u>
	<b>Observation Rating: Moderate</b>		
	<p>(continued)</p> <p>Without current, up-to-date policies and procedures, staff may not understand all requirements and expectations applicable to the work they are performing. As such, this may lead to inconsistent application of policies, which will affect the accuracy and reliability of data reported from the Maximo system. Consistent treatment and entry of data when originally collected is critical to obtaining consistent historical data for reporting and monitoring.</p> <p>Further, the workflow through Maximo of work orders as described in the DMS P&amp;P, is designed to: (a) prevent unnecessary work orders and increase efficient identification of root cause, (b) document planned hours and pre-order materials for efficiency, and (c) provide for documented supervisory and operations review and approval of work completed. By not following the policies and procedures as written, or by not updating policies and procedures to accurately reflect current practice, unnecessary work may be completed, or work orders may be closed without proper work completed.</p>		



## DETAILED OBSERVATIONS (CONTINUED)

Work Order Management Internal Audit			
3.	<u>Labor Data Entry Errors</u>	<u>Recommendation</u>	<u>Management's Action Plan</u>
	<b>Observation Rating: Moderate</b>		
	<p>During our detailed testing of work orders, we noted that 2 of 60 work orders reviewed contained data entry errors. These exceptions are detailed below:</p> <ul style="list-style-type: none"> <li>WO #16-490636 labor hours entered on the DC Water PM Work Order Detail Report totals 6.5 hours, while the labor entered in Maximo totals 7 hours.</li> <li>WO #15-313509 labor hour entered on the DC Water PM Work Order Detail report totals 1 hour, while the labor entered in Maximo totals 3 hours.</li> </ul> <p>As a potential cause of the errors noted above, we noted through our discussions with process owners, and detailed testing of work orders, that Maximo is utilized inconsistently by DMS personnel. For example, some foreman noted that all technicians/mechanics under their supervision enter their own time and materials to individual work orders, while other foreman enter data on behalf of their technicians/mechanics, and other foreman utilize Work Order Assistants for data entry.</p> <p>The manual process of data entry by individuals other than the technician/mechanic, from handwritten notes, increases the risk of miss-keyed or transposed data. Also refer to Process Improvement Opportunity #1.</p>	<p>Management noted they are currently in the process of a phased rollout, which will eventually require technicians/mechanics to own the data entry process. We recommend Management continue this rollout, with defined milestones/deadlines for full adoption by technicians.</p> <p>In the interim, we recommend DMS provide training to all supervisors and technicians regarding data entry into Maximo.</p> <p>This will help to ensure that data is entered and tracked in Maximo with consistency, which will allow for more efficient, reliable, and comparable data for use in tracking metrics over multiple periods.</p>	<p><b>Response:</b> DMS Maintenance Manager will provide additional training to DMS Foreman regarding the importance of accuracy in the data entry process. To validate that remediation, the DMS Maintenance Manager sample work orders at random for review for the next 90 days.</p> <p><b>Responsible Party:</b> DMS Maintenance Manager</p> <p><b>Target Date:</b> July 31, 2017</p>



## DETAILED OBSERVATIONS (CONTINUED)

Work Order Management Internal Audit			
4.	<u>Work Order Direct Cost Tracking</u>	<u>Recommendation</u>	<u>Management's Action Plan</u>
	<b>Observation Rating: Moderate</b>		
	<p>Through our detailed testing of work orders, and discussion with Management and key process owners, we noted that DMS is not currently capturing all available direct cost data consistently within Maximo. Specifically:</p> <ul style="list-style-type: none"> <li>We noted through interviews that equipment rental costs (e.g. scaffolding) are not consistently entered as direct costs to work orders.</li> <li>Inventory costs ordered through administrative work orders are not consistently applied to the appropriate corrective work order.</li> </ul> <p>To clarify, 'shop stock' inventory is allocated to administrative work orders and is intended to capture costs of consumables not feasibly allocable to individual work orders (gloves, rags, etc.) However, through review of open administrative work orders, we noted instances of items purchased for repairs (not consumable), applied to administrative work orders, rather than applied to the appropriate maintenance work order.</p> <p>By not tracking the costs noted above, DMS is unable to capture the total direct cost of performing work orders, and therefore unable to assess the actual direct cost of maintaining each asset. This limits management's ability to monitor trends, assess performance, and identify areas of concern for further investigation.</p>	<p>We recommend Management consider expanding the usage of Maximo to capture all practicable direct costs.</p> <p>Capturing this data will assist DMS by providing more detailed information for use in developing PEIs, and will also assist the Authority in capturing all relevant costs for use in tracking true lifetime costs at the individual asset level.</p>	<p><b>Response:</b> DMS will develop new procedures requiring the entry of all rental equipment costs to be consistently captured within Maximo. DMS will provide training to staff regarding these new procedures.</p> <p>DMS has developed a monthly report showing all inventory additions to administrative shop stock work orders. This report is reviewed by the DMS Maintenance Manager and the Director of Wastewater Treatment Maintenance to ensure that only shop stock items are added to these work orders. All other items identified are reclassified to the appropriate maintenance work order.</p> <p><b>Responsible Party:</b> Director, Wastewater Treatment Maintenance</p> <p><b>Target Date:</b> September 30, 2017</p>



## PROCESS IMPROVEMENT OPPORTUNITY

### Work Order Management Internal Audit

1. Labor data for each work order is entered into Maximo through various personnel, including but not specifically limited to: Work Order Assistants, Trade Foreman, Technicians, and Production Controllers. Through discussion and interviews with management and key process owners, we noted that future-state may include mobile devices for technicians / mechanics to enter time while in the field, in real-time. Due to the current manual nature of entering labor data into Maximo, entries are susceptible to error; however with direct entry in real-time by technicians / mechanics the risk of miss-keying or transposing may be reduced. Also refer to Observation #3.

We recommend the Authority consider the use of mobile devices for DMS technicians / mechanics to use for data entry while in the field. This may help reduce the risk of manual entry error, by eliminating the need for secondary entry by administrative personnel. This may also reduce the need to maintain paper copies, and reduce the need for double-entry of data, thereby increasing efficiency of data entry.

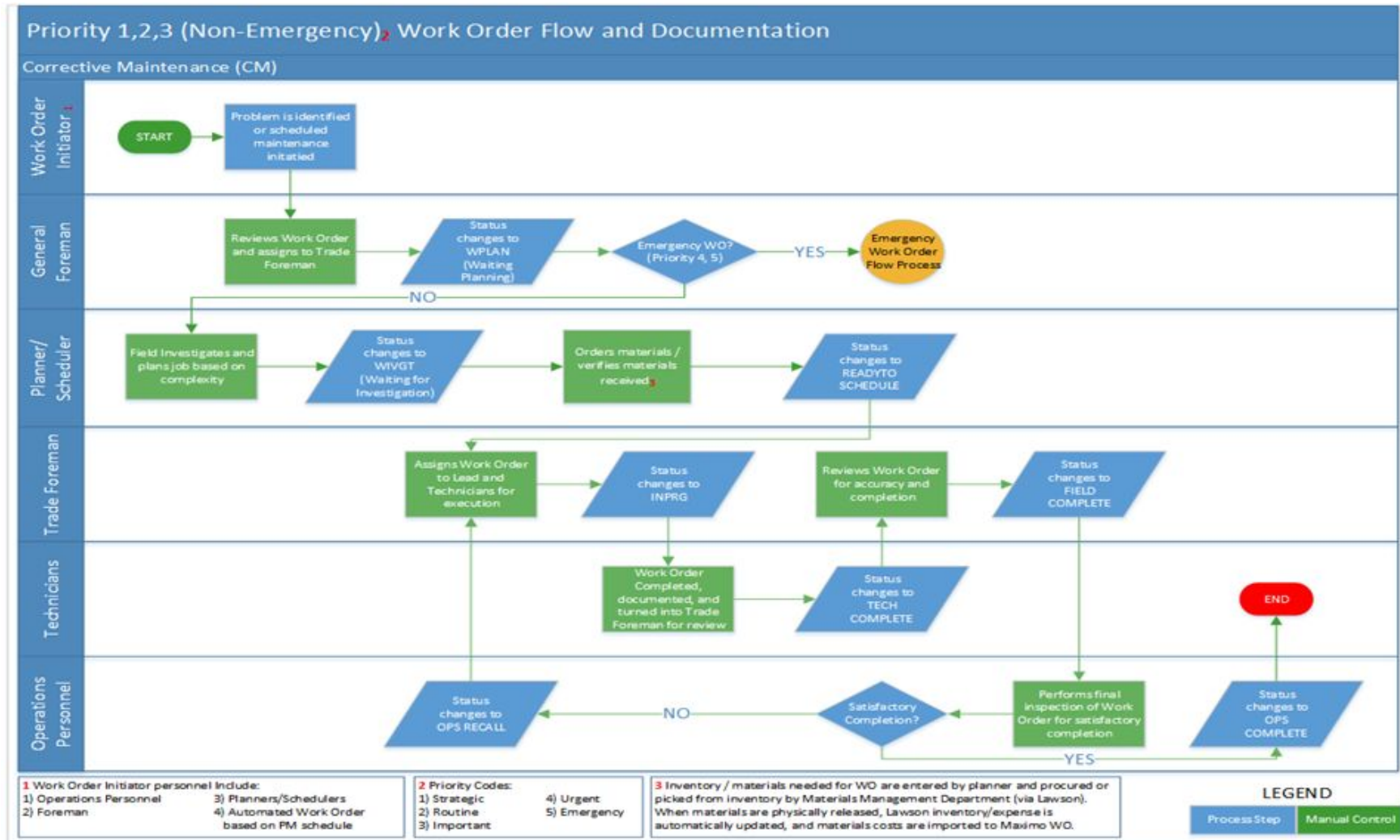


## APPENDIX A – RATING DEFINITIONS

Observation Risk Rating Definitions	
Rating	Definition
<b>Low</b>	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 12 months (if related to external financial reporting, must mitigate financial risk within two months unless otherwise agreed upon).
<b>Moderate</b>	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).
<b>High</b>	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).



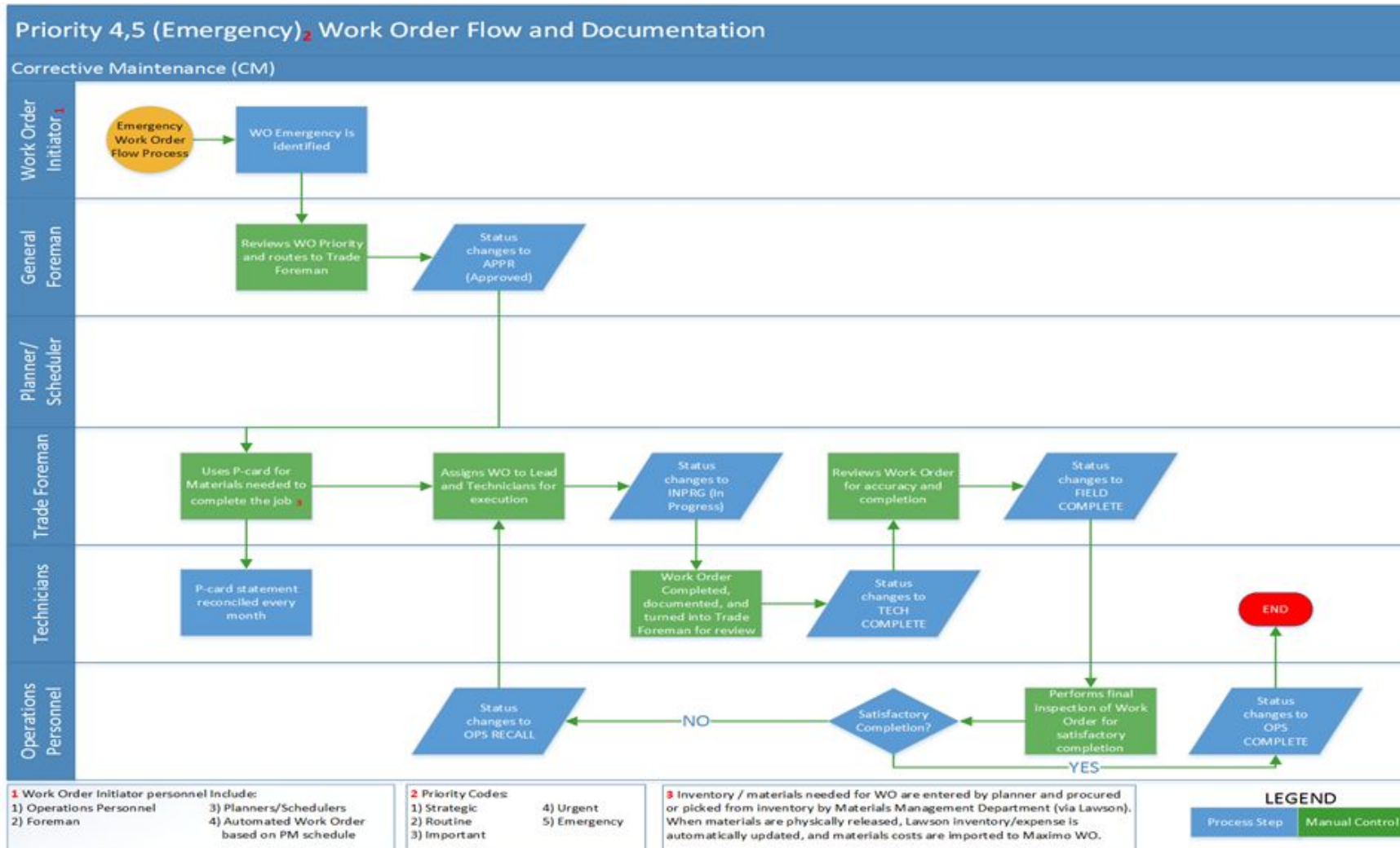
**APPENDIX B – PROCESS FLOWCHARTS**








**APPENDIX B – PROCESS FLOWCHARTS - CONTINUED**





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# Internal Audit Report Purchasing Card (P-Card) Program

April 2017



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## TRANSMITTAL LETTER

April 2017

The Audit Committee of DC Water  
5000 Overlook Avenue, SW  
Washington, DC 20032

Pursuant to the approved 2017 internal audit plan for the District of Columbia Water and Sewer Authority (“DC Water” or the “Authority”), we hereby present our assessment of DC Water’s Purchasing Card (P-Card) Program. We will be presenting this report to the Audit Committee of DC Water at the next scheduled audit committee meeting on April 27, 2017. Our report is organized in the following sections:

<b>Executive Summary</b>	This provides a summary of the observations and related to our internal audit of the Purchasing Card (P-Card) Program.
<b>Background</b>	This provides an overview of the Purchasing Card (P-Card) Program.
<b>Objectives and Approach</b>	The internal audit objectives and focus are expanded upon in this section, as well as a review of the various phases of our approach.
<b>Detailed Observations</b>	This section gives a description of the observations noted during our work and recommended actions as well as management’s response, responsible party, and estimated completion date.

We would like to thank the staff and all those involved in assisting the Internal Auditors in connection with this review.

Respectfully Submitted,

**Internal Auditors**



## EXECUTIVE SUMMARY

### Background

Purchasing Cards (P-Card) are DC Water’s preferred method for micro-purchases that do not have an existing purchase order or for which the vendor cannot accept checks, or other primary method of payment. The largest single source of spending is for permits obtained from DC Government’s DDOT. P-Cards are also used for emergency purchases during weekends, holidays or after-hours, as needed by service crews.

P-Cards accounted for approximately \$1.8 million in spending during FY 2016. This is less than 1% of overall operating expenses of approximately \$388.4 million for the same period.

There are 75 P-Cardholders at DC Water, issued through Citibank’s Government Purchase Card Program. Citibank offers purchase rebates at tiered spending levels to DC Water, when payments are made timely.

For P-Cards, there is cardholder training, a procedures manual, and a policy in place to provide guidance to employees of the use of P-Cards. The P-Card program is monitored by the Compliance group, and there is an Internal Review Committee.

There are also 33 separately issued Travel Cards, to be used exclusively for travel expenses, also from Citibank. The average total monthly usage of the Travel Card is approximately \$25,000. There is also a separate Travel Card policy. This process is separate from P-Cards, and travel cards are reconciled by the cardholders and sent to Accounts Payable for processing.

### Overall Summary / Highlights

The observations identified during our assessment are summarized on the next few pages. We have assigned relative risk or value factors to each observation. Risk ratings are the evaluation of the severity of the concern and the potential impact on the operations of each item. Observations will require management action plans with estimated completion dates that will be included in the routine follow-up of internal audit observations.

### Objective and Scope

The purpose of this review was to obtain an understanding of how the Authority monitors the P-Card and Travel Card programs. The audit scope was based on the following objectives:

- Review and assess the design of the Authority’s policies and procedures to determine the adequacy of internal controls over P-Cards and Travel Cards;
- Evaluate the adequacy of program administration and oversight, including internal controls to safeguard the Authority from fraud, waste and abuse;
- Evaluate the appropriateness of P-Card purchases;
- Perform analytical procedures on the FY 2016 P-Card spending to identify trends and high risk activity or transactions;
- Determine whether the P-Card and Travel Card programs are adequate and appropriate for promoting and encouraging the achievement of management’s objectives for an effective process; and
- Identify process improvement opportunities and recommend internal control enhancements to improve the overall P-Card and Travel Card programs.

Fieldwork was performed February 2017 through March 2017

### Summary of Observation Ratings *(See Appendix A for definitions)*

	Number of Observations by Risk Rating		
	High	Moderate	Low
<b>Purchasing Card Program</b>	1	2	2
<b>Travel Card Program</b>	1	0	0

***We thank all DC Water team members who assisted us throughout this review.***



## EXECUTIVE SUMMARY (CONTINUED)

### Ratings and conclusions

Following is a summary of all observations noted in the areas reviewed (see “Detailed Observations” section for additional information). Definitions of the rating scales are included in the Appendix.

Summary of Observations	
Observations	Rating
<p><b>1. MISSING / LATE RECONCILIATIONS AND SUPPORT</b></p> <p>For 8 of 65 samples selected (12.3%), reconciliations were not available for testing. Additionally, we noted reconciliations were submitted late in 22 of 57 available samples (38.6%).</p>	High
<p><b>2. TRAVEL CARD OVERSIGHT AND MONITORING</b></p> <p>The Travel Card Policy is outdated (2005) and not readily available to cardholders. Further, the process is administered in the same way as P-Cards, and the monitoring and oversight of travel card activities is not consistent.</p>	High
<p><b>3. DOCUMENTATION OF AUTHORIZED EXCEPTIONS TO P-CARD POLICY</b></p> <p>During our testing, we identified that 4 potentially split purchases, as well as purchases of items included on the Prohibited Items List. Upon inquiry, management indicated that two of these potential split transactions were previously reviewed by the IRC and deemed reasonable, but evidence of the review and resolution was not provided. Management also noted there are certain blanket exceptions to the prohibited items policy for specific cardholders; however, these exceptions are not documented. The policy requires documented approval of the transactions when exceptions to policy are made.</p>	Moderate
<p><b>4. P-CARD POLICY UPDATES</b></p> <p>The current P-Card policy was updated in January 2015. The policy contains of procedures that are different from those currently followed by P-Cardholders, Procurement, Compliance, and Accounts Payable employees. The areas of focus are Delegation of Authority, Itemized Receipts, Card Termination procedures and purchases that may require competitive selection.</p>	Moderate
<p><b>5. INTERNAL REVIEW COMMITTEE OVERSIGHT</b></p> <p>The Internal Review Committee (IRC) meets on a quarterly basis to review a report showing each individual transaction. Subsequent documentation review is manual and the process can be time-consuming. This group is comprised of eleven employees both administrative and operational; we noted that purchases made the Office of the General Manager are not independently reviewed. Further, many technology purchases made, but no IT representative is on the IRC.</p>	Low



## EXECUTIVE SUMMARY (CONTINUED)

### Ratings and conclusions

Summary of Observations	
Observations	Rating
<p><b>6. CARDHOLDER AND REVIEWER TRAINING</b></p> <p>During our testing, we observed 1 instance in which a P-Card was issued to an employee but there was no evidence that no training or guidance on its use occurred. We also noted there is no specific documented training for reviewers as well as those delegated with authority to review in their absence.</p>	<p><b>Low</b></p>

Process Improvement Opportunities have also been provided to Management for consideration.





## BACKGROUND, OBJECTIVES AND APPROACH

### Background

#### Overview

Purchasing Cards (P-Cards) are the preferred method for micro-purchases that do not have an existing purchase order or for which the vendor cannot accept a check or ACH. P-Cards are not considered a primary method of payment at DC Water. P-Cards accounted for approximately \$1.8 million in spending during FY2016, which is less than 1% of the Authority's overall operating expenses of \$388.4 million for the same period. The largest single source of spending occurs for permits obtained from DC Government's DDOT. P-Cards are also used for emergency purchases during weekends, holidays or after-hours, as needed by service crews.

As of January 2017, there are 75 P-Card holders at DC Water and there is cardholder training, a procedures manual, and policy in place to provide guidance to employees of the use of P-Cards, which are obtained through the Citibank Government Purchase Card Program via the GSA Master Contract. Citibank offers a purchase rebate program under tiered levels of spending. DC Water's spending is relatively low, and as such, the rebate program has not been widely utilized.

P-Card Spending Limits		
Single Transaction Limit	Monthly Cycle Limit	Number of Issued Cards
\$0	\$5,000	1
\$0	\$7,500	1
\$2,000	\$5,000	54
\$2,000	\$7,000	1
\$2,000	\$10,000	3
\$2,000	\$15,000	1
\$2,500	\$10,000	1
\$2,500	\$15,000	1
\$3,000	\$5,000	3
\$3,600	\$5,000	1
\$3,850	\$5,000	1
\$3,900	\$15,000	1
\$4,800	\$5,000	1
\$4,800	\$30,000	1
\$5,000	\$10,000	2
\$5,000	\$15,000	1
\$7,000 (Permits Card)	\$45,000 (Permits Card)	1
<b>Total</b>		<b>75</b>

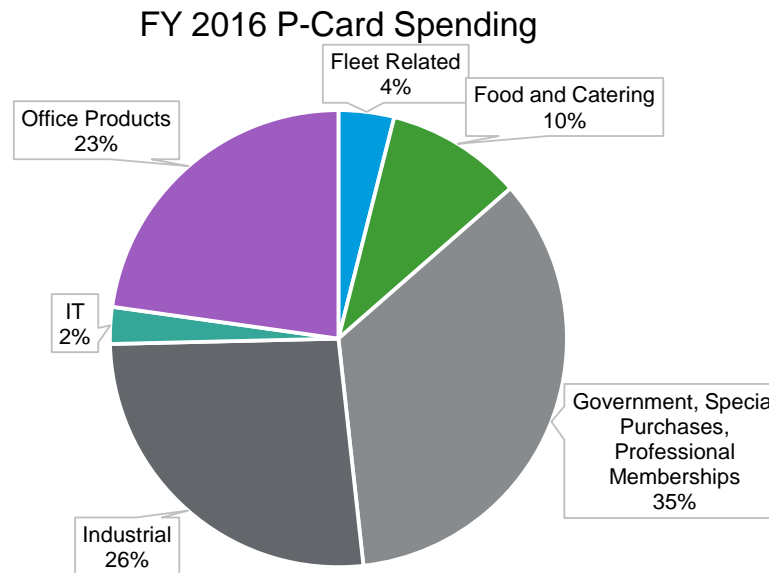
Source: Internal Audit Analysis of Citibank Cardholder Export on 1/25/2017



## BACKGROUND, OBJECTIVES AND APPROACH (CONTINUED)

### Background (continued)

P-Cards applications and holders' monthly reconciliations are manually reviewed and approved by department heads. Each cardholder has a spending limit per transaction and per cycle (one month), as specified on the original cardholder application. Any changes to the permanent or one-time spending limit are submitted to the P-Card Administrators in Compliance, after first obtaining approval from a manager and/or department head. The Director of Procurement, or their designee, then reviews the reasons for the limit change and ultimately decides whether or not it is justified. The Citibank system will not allow any transactions over the approved spending limits in their system. The chart below illustrates overall P-Card spending percentages by category for FY 2016.



Source: Data from Annual Report on DC Water Local Small Business Enterprise Program

In addition to the P-Cards issued, there are 33 Travel Cardholders. All but 6 of these cardholders are also P-Cardholders. The Travel Card program is not monitored by Compliance like the P-Cards. Travel Cardholder make purchases (as approved), reconcile their statements, and then submit approved reconciliations to Accounts Payable for processing and payment.



## BACKGROUND, OBJECTIVES AND APPROACH (CONTINUED)

### Background (continued)

The table below lists the Top 25 Vendors by dollars spent, as well as the Top 25 by number of transactions made. There were over 10,000 transactions made during 2016, with the average transaction amount of \$176.

Top 25 Vendors by Dollars Spent		Top 25 Vendors by Number of Transactions *	
Vendor Name	Dollars Spent	Vendor Name	Number of Transactions
DCGOV DDOT PERMITS	\$423,368.22	<i>DCGOV DDOT PERMITS</i>	4454
AMAZON	\$53,011.08	HOME DEPOT	681
AOP BUSINESS SERVICES	\$50,220.15	<i>AMAZON</i>	652
U.S. OFFICE SOLUTIONS	\$47,614.82	STAPLES	538
APPLIED IND TECH 2621	\$41,492.34	<i>APPLIED IND TECH 2621</i>	152
HOME DEPOT	\$29,891.59	<i>AOP BUSINESS SERVICES</i>	130
FERGUSON ENTERPRISES	\$28,762.28	<i>FERGUSON ENTERPRISES</i>	104
ECO PROMOTIONAL PRODUCTS	\$25,175.31	LOWES	91
FASTENERS RX, INC	\$25,173.83	<i>PANERA BREAD</i>	88
STANDARD OFFICE SUPPLY	\$24,918.69	TARGET	87
STAPLES	\$22,481.50	GRAINGER	86
NEAL R. GROSS & CO.	\$18,821.10	<i>STANDARD OFFICE SUPPLY</i>	82
NBA OFFICE PRODUCTS	\$17,992.96	FASTENAL COMPANY01	76
D.W. CARY HAULING	\$17,981.00	<i>U.S. OFFICE SOLUTIONS</i>	74
FULL MOON RISING	\$17,852.65	<i>CATERING AUBONPAIN 970</i>	67
PANERA BREAD	\$17,389.35	THE WEBSTAUANT STORE	64
DEJANA TRUCK	\$17,207.90	GRAYBAR ELECTRIC COMPANY	57
CATERING AUBONPAIN 970	\$15,999.61	<i>NBA OFFICE PRODUCTS</i>	57
WEF BK	\$15,541.00	MSC	54
HOMELAND INDUSTRIAL	\$15,347.19	DC WATER CAFE INC	52
WINDOWS CATERING COMPANY	\$14,802.14	HOWARD UNIVERSITY	51
CORNER BAKERY	\$14,786.72	<i>CORNER BAKERY</i>	49
OEMSUPPLIES	\$12,311.67	<i>FULL MOON RISING</i>	46
IN HOMELAND INDUSTRIAL	\$12,163.39	<i>WINDOWS CATERING COMPANY</i>	44

7

Source: Internal Audit Analysis from Citibank FY 2016 Data; \* Items in italic appear in both columns.





## BACKGROUND, OBJECTIVES AND APPROACH (CONTINUED)

### Background (continued)

The table below shows the top 10 Users / Cardholders with their top Vendor.

Top 10 Users / Cardholders	Dollars Spent	Top Vendor
PERMIT OPERATIONS - Manager, CC&O CC Mgmt, Water Services	\$359,667.86	DCGOV DDOT PERMITS
Executive Assistant I, ISF Fleet Management	\$86,250.33	Aramark Uniform
Executive Assistant II, Finance & Budget	\$73,934.54	OEMSupplies
Secretary to the Board	\$71,070.42	Staples
Manager, CC&O CC Mgmt, Water Services	\$63,590.36	DCGOV DDOT PERMITS
Senior Executive Assistant, OGM	\$53,312.41	Howard University
Administrative Services Coordinator, Engineering & Technical Services	\$50,994.10	Amazon
Executive Assistant II, OGM	\$43,837.68	Amazon
Executive Assistant I, Engineering & Technical Services	\$43,009.11	U.S. Office Solutions
Executive Assistant II, Information Technologies	\$39,171.63	Amazon

Source: Internal Audit Analysis from Citibank FY 2016 Data.

#### **Purchase Card Issuance and Training**

There is a standardized DC Water P-Card Request Form and it requires the approval of the applicant's manager and department head. The employee also fills out the Citibank P-Card application at the same time to be submitted with the DC Water P-Card Request Form. The current P-Card Administrators are the Compliance Officer and a Contract Specialist I. A P-Card Administrator receives and reviews the application for completeness and obtains written approval from the Director of Procurement or their designee before faxing the application to Citibank. All P-Cards, newly issued or replacement, are mailed to the attention of the P-Card Administrators at DC Water. The P-Cardholder is then contacted by the P-Card Administrators and the mandatory P-Card training is given to P-Cardholders before they receive their card. P-Cardholders must also sign an Agreement specifying that they understand the list of prohibited items and procedures for using their P-Cards. No Personally Identifiable Information (PII) is obtained or retained by the P-Card Administrator.

#### **Purchase Card Reconciliation and Review**

P-Cardholders are given access to their Citibank P-Card account online for viewing transactions and downloading their monthly statements. Cardholders are responsible for maintaining all receipts and invoices in order to match them to the statement received each month. The statement is created on the 25<sup>th</sup> of each month and the cardholders are responsible for turning in their reconciliations of transactions by the 10<sup>th</sup> of the following month (generally, 15 calendar days). Their reconciliations are reviewed by department heads and then submitted to Accounts Payable. After all reconciliations for a department have been received, Accounts Payable then reconciles individual cardholder statements to the master statement for each department in DC Water.



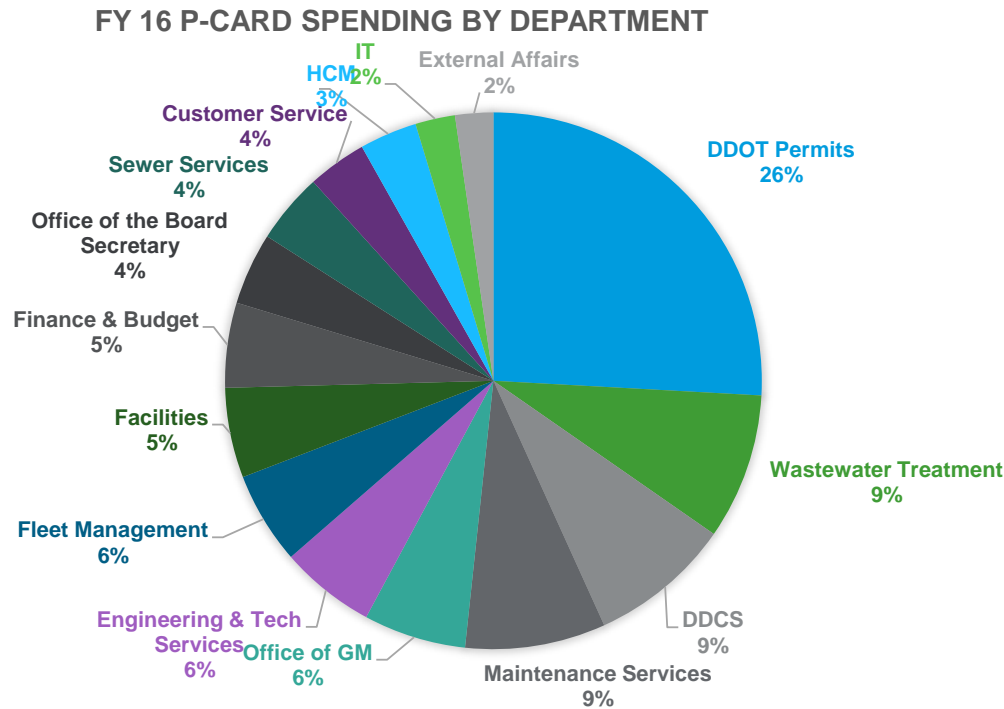
## BACKGROUND, OBJECTIVES AND APPROACH (CONTINUED)

### Background (continued)

The reconciliation and record retention processes are done manually, without any additional applications outside of Citibank’s online access. After all reconciliations, Authority-wide, have been received, Accounts Payable obtains approval from the Accounts Payable Manager to submit the Citibank invoice for payment. A check is then mailed to Citibank to pay for all of transactions occurred in that month. If the transactions are processed timely, Citibank issues a rebate, based on spending percentages, to the Authority.

All transactions are reviewed at least quarterly by the Internal Review Committee (IRC), which is primarily made up of Compliance and Finance personnel. This is a manual process whereby the IRC reviews each transaction for reasonableness and relevancy. The process of reconciling, reviewing, overseeing, and approving P-Cards is manual, and maintained in paper files in the Compliance or Procurement area.

The chart below illustrates overall P-Card spending percentages by department for FY 2016:



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Source: Internal Audit Analysis from Citibank FY 2016 Data





## BACKGROUND, OBJECTIVES AND APPROACH (CONTINUED)

### Objectives and Approach

#### **Objectives**

The purpose of this review was to obtain an understanding of how the Authority monitors the P-Card and Travel Card programs. The audit scope was based on the following objectives:

- Review and assess the design of the Authority's policies and procedures to determine the adequacy of internal controls over P-Cards and Travel Cards;
- Evaluate the adequacy of program administration and oversight, including internal controls to safeguard the Authority from fraud, waste and abuse;
- Evaluate the appropriateness of P-Card purchases;
- Perform analytical procedures on the FY 2016 P-Card spending to identify trends and high risk activity or transactions;
- Determine whether the P-Card and Travel Card programs are adequate and appropriate for promoting and encouraging the achievement of management's objectives for an effective process; and
- Identify process improvement opportunities and recommend internal control enhancements to improve the overall P-Card and Travel Card programs.

#### **Approach**

Our audit approach consisted of the following phases:

##### Understanding of the Process

The purpose of this phase was to gain an understanding of DC Water's P-Card Program and how it is currently administered and the spending monitored. This phase included a process walkthrough with the P-Card Administrators, the Accounts Payable P-Card Team, and the Authority's Controller. Existing documentation of the process and all applicable forms were requested as well as exports of all data for P-Card purchases during Fiscal Year 2016. Specific procedures performed include:

- Inquired of the P-Card Administrators and the Accounts Payable team as to the current process for P-Card and Travel Card reconciliations;
- Reviewed existing documentation on the process for approving new P-Card requests and monthly reconciliations, and
- Attended an IRC meeting where P-Card transactions were reviewed for appropriateness.

##### Detailed Testing

The purpose of this phase was to test the documentation of completed cardholder requests and monthly reconciliation packets to verify compliance with DC Water P-Card procedures, based on our understanding. A sample of 15 cardholders was selected to test issuance. A sample of 65 transactions during the period October 2015 to December 2017 was selected for authorization, reconciliation, review and approval testing. Specific procedures performed included validating that:

- Cardholder files contained properly approved forms for authorizing the issuance of their P-Card and any changes in their spending limit, and
- Transactions were appropriate, reconciliations were properly completed, approved, and submitted to Accounts Payable.

We also performed a walkthrough of the Travel Card process and obtained support for a few transactions. This process is not well-defined, and not monitored the same way as P-Card, and as such our testing was limited due to lack of available records. Recommendations for how to improve and enhance controls for this process are included within this report.

##### Reporting

At the conclusion of this audit, we summarized our observations related to the Purchasing Card (P-Card) Program. We have reviewed the results of our testing with management.



## DETAILED OBSERVATIONS

Purchasing Card Internal Audit			
1.	<u>Monthly Reconciliations and Support</u>	<u>Recommendation</u>	<u>Management's Action Plan</u>
	<b>Observation Rating: High</b>		
	<p><u>Missing Reconciliation Documentation</u> – For 8 of 65 samples selected (12.3%), reconciliations were not available for testing. Documentation was not provided; therefore we are unable to determine if purchases were adequately supported or cardholders' delegated authority to use the P-Card was evidenced.</p> <p>Monthly reconciliations are in paper format stored in boxes in the Payroll Department, filed in date order, with reconciliations and statements together in payment batch. Records may be frequently requested and not refiled timely; Such record retention makes it difficult for paperwork to be located in a reasonable time. No backup documentation currently exists.</p> <p><u>Late Submission</u> – The P-Card Policy states that “the cardholder must reconcile receipts to statements monthly, sign and date the P-card reconciliation and submit the statement with the original receipts/invoices to the approving official. The vendor, Citibank, sends notifications to the P-Cardholder that the statement is ready on the 25th of the month. The P-Cardholders have until the 10th of the following month to reconcile and submit.”</p> <p>We noted reconciliations were submitted late in 22 of 57 available samples (38.6%). Late submission leads to late payment to Citibank and DC Water can could therefore lose the rebate benefits. Additionally, untimely or ineffective monitoring contributes to a weak internal control environment, which can leave the authority vulnerable to fraud, waste, and abuse.</p>	<p><u>Missing Reconciliation Documentation</u> - We recommend that reconciliations should be scanned and stored in an electronic format. This eliminates the challenge of locating them in the future, allows for backup of the files, and makes them more secure. In order to avoid any undue burden on a single department, we recommend that each cardholder scan their monthly reconciliation after it is signed by their department head and themselves. It should then be submitted to Accounts Payable electronically. More information on this is included in the Process Improvement Opportunities section. If electronic storage is not a cost effective, than at a minimum, the P-Cardholder should maintain a copy of their statements and reconciliations for backup purposes in accordance with retention policies.</p> <p><u>Late Submission</u> - We recommend that the authority continue to remind cardholders and approvers of the importance of timely reconciliation and review of monthly transactions. Additionally, there should be timely communication regarding late submissions between Accounts Payable and the P-Card Administrator, so that enforcement procedures can occur, as applicable.</p>	<p><u>Missing Documentation</u> - Management agrees with the recommendation. A communication will be issued to all p-card holders requiring that reconciliation documentation be placed in adobe format (i.e., .pdf) and sent electronically to the AP mailbox. Original source documents will still be required to be sent to AP. AP will then store the electronic images in DCW imaging system (perceptive software) for future reference.</p> <p><b>Responsible Party:</b> Finance <b>Target Date:</b> July 31, 2017</p> <p><u>Late Submission</u> - Management agrees with the recommendation. All p-card holders will be informed of the escalation penalty. The Internal Review Committee will review the submission dates recorded by AP and will enforce escalation penalty as recommended. The list of those who were late with their submission and the escalation action taken will be sent to the Program Director.</p> <p><b>Responsible Party:</b> Procurement <b>Target Date:</b> May 30, 2017</p>



## DETAILED OBSERVATIONS (CONTINUED)

Purchasing Card Internal Audit			
2.	<u>Travel Card Oversight and Monitoring</u>	<u>Recommendation</u>	<u>Management's Action Plan</u>
	<b>Observation Rating: High</b>		
	<p>In addition to the 75 P-Cards issued, there are 33 Travel Cards issued to employees, and which are to be used exclusively for travel related expenses. All but 6 Travel Cardholders also have a P-Card. Average monthly spending for the first quarter of FY 2017 was \$25,000 per month.</p> <p>Per discussion with Management, travel card activities are to be pre-approved, and then reconciled by the cardholders, with final review of the reconciliations by the cardholder's supervisor, as applicable. Reconciliations are then provided by the cardholder to Accounts Payable (AP) and subsequent payments are made by AP to Citibank. AP verifies the documentation and processes payments, but does not review individual transactions for reasonableness, authorization or propriety. This process is not managed the same way as P-Cards, and the activities are not monitored consistently for compliance with policies.</p> <p>We were able to obtain a paper copy of the 2005 Travel Policy with outdated information but were unable to locate a more recent policy. The Travel Policy is not located on Pipeline, DC Water's intranet, where all other policies are generally located. A training manual that was located from 2015 named a Compliance employee as the Travel Card Administrator; however, this process is not occurring in practice.</p> <p>A lack of, or ineffective monitoring of transactions that occur outside of the normal procurement process can leave the authority vulnerable to fraud, waste, and abuse.</p>	<p>We recommend that the 2005 Travel Policy be updated and made available on Pipeline for employees to reference.</p> <p>Management should also consider issuing, reconciling, and monitoring Travel Cards in the same manner as P-Cards, as the users are generally the same, requiring little additional effort to train accordingly. The IRC should review those transactions as well. See observation #5 for more information on the IRC review process.</p>	<p>Management agrees with the recommendation. The travel policy will be updated and placed on DCW pipeline.</p> <p>A travel authorization is the initiating authorization point for use of the travel card. That is, a travel authorization form is completed by a departmental employee and/or administrative staff and the manager's and department head's signature is required. Subsequently, the travel card may be used to reserve/purchase transportation and lodging. Internal Review Committee will communicate to all travel card holders that travel card reconciliations must be accompanied by the travel authorizations for which the travel card was used. These will be reviewed by the Internal Review Committee and follow the escalation procedure noted in Notice of Finding and Recommendation #1 for late submission.</p> <p><b>Responsible Party:</b> Finance and Procurement</p> <p><b>Target Date:</b> July 31, 2017</p>





## DETAILED OBSERVATIONS (CONTINUED)

Purchasing Card Internal Audit			
3.	<u>Documentation of Authorized Exceptions to the P-Card Policy</u>	<u>Recommendation</u>	<u>Management's Action Plan</u>
	<b>Observation Rating: Moderate</b>		
	<p><u>Split Transactions</u> - We identified that 4 out of 57 available samples tested (10.5%) to be potentially split purchases. Upon inquiry, management indicated that two of these transactions were previously reviewed by the IRC and deemed reasonable, but evidence of the review and resolution was not provided.</p> <p>There is a process that allows for increased spending limits, if needed, as well as multiple cardholders with varying spending limits that would allow for higher-dollar purchases.</p> <p><u>Prohibited Items List</u> – During our testing, as well as review of the vendors and merchant category codes (MCC) for overall FY 2016 P-Card spending, we noted that items on the Prohibited Items List are being purchased, such as flowers and food. Food items are allowed to be purchased with the P-Card with prior authorization using a special catering form. However, in 5 of our food-related test selections, this form was not available. General grocery and restaurant purchases (such as providing lunch to a crew in the field) do not appear to be allowed.</p> <p>Upon inquiry, management noted there are certain blanket exceptions to the policy for specific cardholders; however, these exceptions are not documented. The policy requires documented approval of the transactions when exceptions to policy are made.</p>	<p><u>Split Transactions</u> - We recommend that re-emphasis be provided to those involved with the P-Card program (Cardholders, designated approvers, and Department Heads) that circumvention of the P-Card single transaction/daily dollar limits through split-purchase transactions is not allowed and personnel are expected to comply with P-Card policies and procedures.</p> <p>Additionally, an escalating penalty could be established for split transactions. For example for a 1st time violation - email to cardholder reinforcing policy for applying for temporary increased spending limit, 2nd time - email to cardholder and department head, 3rd time - one month suspension of P-Card privileges, 4th time - cancellation of P-Card.</p>	<p><u>Split Purchases:</u> Instances involving split purchases are closely monitored by the P Card Administrators and the Internal Review Committee. Moreover, DC Water runs a set of monthly compliance reports generated by Citibank - one of which includes a "Split Ticket" report. When a questionable purchase is identified, one of the P Card Administrators conducts a review of the purchase to determine if a violation occurred. This review includes contacting the affected cardholder, reviewing the details in the reconciliation packet, and (if necessary) contacting the vendor in question. If a violation is substantiated, a findings memo is prepared for the Program Director's review/sign off. Included in the memo is a summary of the infraction, a prescribed alternative that conforms with DC Water policy. Moreover, depending on the severity (or number of prior) of the infraction, penalties, will be imposed on the contractor in a manner consistent with the P Card Policy. DC Water will continue to its practice of monitoring P-Card compliance. As an added tool, instances of all reviews will be documented and reported to the Program Director regardless if an infraction was substantiated.</p>



## DETAILED OBSERVATIONS (CONTINUED)

Purchasing Card Internal Audit			
3.	<u>Documentation of Authorized Exceptions to the P-Card Policy (continued)</u>	<u>Recommendation</u>	<u>Management's Action Plan</u>
	<b>Observation Rating: Moderate</b>		
	We did note that the Department Head or Manager had reviewed the reconciliation at the end of the month.	<p><u>Prohibited Items List</u> - All exceptions to prohibited items or a policy/procedure should be documented in writing (such as email), specifying the reason for the exception, any limits associated, and include proper approvals. Ideally, these approvals should be obtained prior to the purchases being made and periodically reviewed for continued reasonableness. Alternatively, management could consider modifying the policy per current needs of the Authority.</p>	<p>Finally, DC Water will remind cardholders of its policy concerning split purchases to ensure that the rules and enforcement conforms. However, the 4 samples identified in this audit were not split purchases.</p> <p><u>Prohibited Items List:</u> Program Director will issue a memo reminding all cardholders on the policy and process for pre-approval, documentation, and reconciling the purchase of prohibited items. P-Card Administrator will strictly enforce the policy and notify Program Director upon any violations and Program Director will issues escalations and warnings (including suspension and termination) for any violations.</p> <p><b>Responsible Party:</b> Procurement <b>Target Date:</b> May 30, 2017</p>



## DETAILED OBSERVATIONS (CONTINUED)

Purchasing Card Internal Audit			
4.	<u>P-Card Policy Updates</u>	<u>Recommendation</u>	<u>Management's Action Plan</u>
	<b>Observation Rating: Moderate</b>		
	<p>The current P-Card policy was updated in January 2015. The policy contains of procedures that are different from those currently followed by P-Cardholders, Procurement, Compliance, and Accounts Payable employees. We found the following exceptions:</p> <p><u>Delegation of authority</u> - Responsibilities of Department Heads and Managers to review and approve P-Card applications and reconciliations are sometimes delegated to other individuals when the necessary party is not available. There is no section of the policy addressing whether such delegation is allowed, who the responsibility can be delegated to, or how to document the delegation for future reference.</p> <p><u>Itemized receipts</u> - Itemized receipts were not submitted with 11 cardholder reconciliations out of 57 available samples (19.3%). Without the itemized receipts, it is not possible to determine whether or not the item(s) purchased were allowable and reasonable.</p> <p><u>Card Termination Process</u> - We did not note any active P-Cards for employees no longer active in DC Water systems. While there were no exceptions to this testing, we did note there is no consistent process for the termination of a P-Card upon an employee's departure. Upon inquiry, it was noted that P-Card Administrators are notified by HCM or the Department Head of the separation after another employee has been hired for the position.</p>	<p>Management can refer to existing policies within the Authority and should consider updating the policy to include:</p> <p><u>Delegation of authority</u> - For any reviews or approvals where one individual is responsible for the task, there should be backups for appropriate parties specified.</p> <p><u>Itemized receipts</u> - We recommend that the policy be revised to include the requirement of submitting itemized receipts with monthly reconciliations. In addition, management should remind cardholders and department head reviewers to reinforce that detailed receipts are needed in the monthly reconciliations in order to approve payment.</p> <p><u>Card Termination Process</u> - The Authority should work with Security and/or HCM to obtain P-Cards for any departing employees. This should be a part of the existing termination process. P-Card Administrators should be notified of any terminations as part of this process to ensure cards are deactivated timely.</p>	<p><u>Delegation of authority</u>: DC Water's formal delegation process is applicable to the P Card process. When Directors/Department Heads delegate their authority to others, notifications of delegation are communicated authority wide via email. P Card Administrator then checks if a right authority has submitted the applications and reconciliations.</p> <p><u>Itemized receipt</u>: DC Water's P Card Procedures and training manual will be updated to include the requirement for itemized receipts.</p> <p><u>Card Termination Process</u>: DC Water is working with the Department of Security to update the <i>Employee Departure Checklist and the Separation Action Report</i> to include a checkbox for collecting P-Cards (as appropriate).</p> <p><u>Purchases Requiring Competitive Selection</u>: Management will update the training manual to \$25K to be in line with the Procurement Regulation but recommends to maintain current P Card thresholds to prevent any potential misuse.</p>



## DETAILED OBSERVATIONS (CONTINUED)

Purchasing Card Internal Audit			
4.	<u>P-Card Policy Updates (continued)</u>	<u>Recommendation</u>	<u>Management's Action Plan</u>
	<b>Observation Rating: Moderate</b>		
	<p><u>Purchases Requiring Competitive Selection</u> - DC Water's P-Card training manual requires copies of competing bids to be submitted with reconciliations for any transactions over \$5K. We noted only 4 transactions over this amount in the total population, and none required competitive selection due to the nature of the purchase (sole source, charitable event, etc.)</p> <p>We understand that management interprets the micro-purchase threshold for competitive selection to be \$25K in line with the Authority's procurement policy. However, the P-Card manual does not reflect this change. Additionally, because the P-Card is generally used for purchases without prior specific written authorization, thresholds for micro-purchases should potentially be lower, since there is no cardholder with the authority to make a single transaction purchase over \$25,000, and in fact the highest single transaction limit is \$7,000.</p>	<p><u>Purchases Requiring Competitive Selection</u> -In the event an emergency purchase requires a single transaction purchase over \$25,000 (as required in the procurement manual), there is no P-Card currently issued with that limit.</p> <p>Due to the nature and intent of the use of P-Cards, we recommend management update the P-Card policy to prohibit any purchases that require quotes, bids or competitive selection in accordance with the Authority procurement manual. See observation #1 for additional updates recommended.</p> <p>Once the P-Card policies have been updated and approved, we recommend that the P-Card Administrator provide refresher training to those involved with the program. This initial re-training should be mandatory, with updates on a periodic basis.</p> <p>See also the Process Improvement Opportunities regarding potentially using a P-Card as a primary method of payment, issued to Accounts Payable.</p>	<p>In the event of emergency, P Card Administrator can instantly increase the limit. Also the Director of Procurement is notified in the event of emergency to authorize any emergency purchases.</p> <p><b>Responsible Party:</b> Procurement <b>Target Date:</b> May 30, 2017</p>



## DETAILED OBSERVATIONS – CONTINUED

Purchasing Card Program Internal Audit			
5.	<u>Internal Review Committee Oversight</u>	<u>Recommendation</u>	<u>Management's Action Plan</u>
	<b>Observation Rating: Low</b>		
	<p>The Internal Review Committee (IRC) is primarily comprised of 11 personnel from Compliance, Procurement, Finance, Security and Materials Management. On a quarterly basis, the IRC meets to review a report showing each transaction line item. Transactions are selected for deeper review; the documentation review is manual and the process can be time-consuming. We noted that purchases made the Office of the General Manager are not independently reviewed outside of the IRC.</p> <p>Further, there is no IT representative on the IRC. As there are many technology purchases made, not including IT-related personnel on the committee could limit the committee's visibility and knowledge of commodities / purchases that may be available through an existing supply chain within the organization.</p>	<p>Rather than being an additional level of transactional review, the IRC should function as a strategic committee, to ensure that the P-Card (and Travel Card, if desired) programs are meeting expectations and policies are being followed. They should also periodically review and update the policies and procedures for relevancy.</p> <p>Similar to what has been presented within this report, we recommend that management perform analytical procedures and monitor KPI or trends, to identify high priority transactions for further review and investigation. These should then be presented to the IRC, along with the trend analysis results. Further, on a periodic basis, spot-check reviews of a sample of transactions should be performed.</p> <p>Membership in the IRC could also include one or two technology personnel. If the IRC tasks are adjusted to include a targeted review as described above, rather than individualized transactions, the number of members could decrease.</p> <p>For transactions by the Office of the General Manager, we recommend a secondary level of review by one of the Board committees.</p>	<p>DC Water will continue monitoring policy, process, and review the IRC's membership and roles for adequacy and continuous improvement.</p> <p><b>Responsible Party:</b> Procurement and OGM</p> <p><b>Target Date:</b> May 30, 2017</p>



## DETAILED OBSERVATIONS – CONTINUED

Purchasing Card Program Internal Audit			
6.	<u>Cardholder and Reviewer Training</u>	<u>Recommendation</u>	<u>Management's Action Plan</u>
	<b>Observation Rating: Low</b>		
	<p>During our testing, we observed one (1) instance in which a P-Card was issued to an employee but there was no evidence that no training or guidance on its use occurred. DC Water P-Card Procedures Manual section 4.3 specifies that all cardholders must complete training before receiving their P-Card.</p> <p>Further, we noted there is no specific documented training for reviewers, as well as those delegated with authority of reviewers, for the purposes of assisting managers who review reconciliations to understand their role and responsibility, as well as guide them in ways to identify split or unauthorized/prohibited purchases, as well as monitor accurate record-keeping (i.e., itemized receipts, final invoices instead of quotes, etc.)</p>	<p>Procurement should ensure that all employees are provided training before they are given the physical possession of the P-Card in compliance with current policy.</p> <p>Additionally, we recommend that an annual inventory of P-Cards be established to identify any missing P-Cards and reinforce training.</p> <p>Further, the existing training should be enhanced and required for all Reviewers of Reconciliations of P-Cards. Emphasis should be placed on ensuring that only approved transactions which are in compliance with DC Water policy should be submitted to Accounts Payable for payment. Periodic refresher training for all cardholders and reviewers may also be considered, if negative usage trends are identified by the P-Card Administrators or IRC. See observation #5 for more details on the IRC review process.</p>	<p>Beginning in 2012, all cardholders must go through a mandatory training on the card use and reconciliation prior to taking possession of the card.</p> <p>Training is also conducted as part of the two-year re-issuance of the cards.</p> <p>Going forward, DC Water will develop a training guide and one-pager for reconcilers and department heads. Particular emphasis will be placed the reconciliation process.</p> <p><b>Responsible Party:</b> Procurement <b>Target Date:</b> May 30, 2017</p>



## PROCESS IMPROVEMENT OPPORTUNITIES

### Purchasing Card Program Internal Audit – Process Improvement Opportunity

#### Rebate Program

We noted that due to the low level of purchasing used under the P-Card program, DC Water’s rebates are very low (<\$12,000 per year). In order to utilize the existing procurement control process, limit the number of P-Cardholders, and take advantage of the rebate program, management should consider issuing a P-Card to Accounts Payable, for use as a primary method of payment by the Authority, similar to a credit card, if allowable. Then, for purchases made in the ordinary course of business that are not emergencies or permit needs, the A/P P-Card could be used. This would include online purchases through general merchandising stores (such as Amazon), office supplies (which make up more than \$200K in purchases for FY 16), and other items.

#### Volume Discounts

We noted multiple instances of office supplies purchases, from a variety of vendors, both small business and major chain (see the list of Top 25 Vendors in the Background section). DC Water could potentially take advantage of volume discounts or competitive pricing by competitively selecting an office supply vendor, or using a GSA contract. Further, many of these companies provide government pricing that the Authority may not be taking advantage of when individual cardholders make purchases. Additionally, there were several membership purchases for home supply warehouse stores such as Sam’s Club. Stores such as these do not generally discount individual memberships, but do have special benefits and incentives for organizations over a certain size (For example, Sam’s Club requires 250+ employees). The Authority should consider taking advantage of these types of programs as well.

#### Digitizing Records

The P-Card reconciliations, supporting documentation and IRC reports are manually-generated and maintained in paper format. The Authority currently uses a document imaging and virtual storage application called ImageNow for payables and procurement documents, and there are potentially other databases available at Blue Plains that could be used to store the P-Card support. This would allow for backups, as well as reduce storage needs. Employees are already scanning or have digitized copies of much of the support, and could submit their documents via email in .pdf format. Another option would be to evaluate whether Day Force or Lawson have a workflow capability that would allow interface with a Citibank download file, reconcile within the application, submit for department head approval and then to Accounts Payable for final processing and payment.

#### MCC Code Blocking

We recommend that MCC Codes be blocked to include all prohibited transactions. Once a merchant category code is blocked, the P-Cardholder is not authorized to purchase from merchants within the blocked category code. If the P-Cardholder needs to make a prohibited item transaction, they should then follow the policy to obtain a one-time or blanket exception, which should be properly documented.



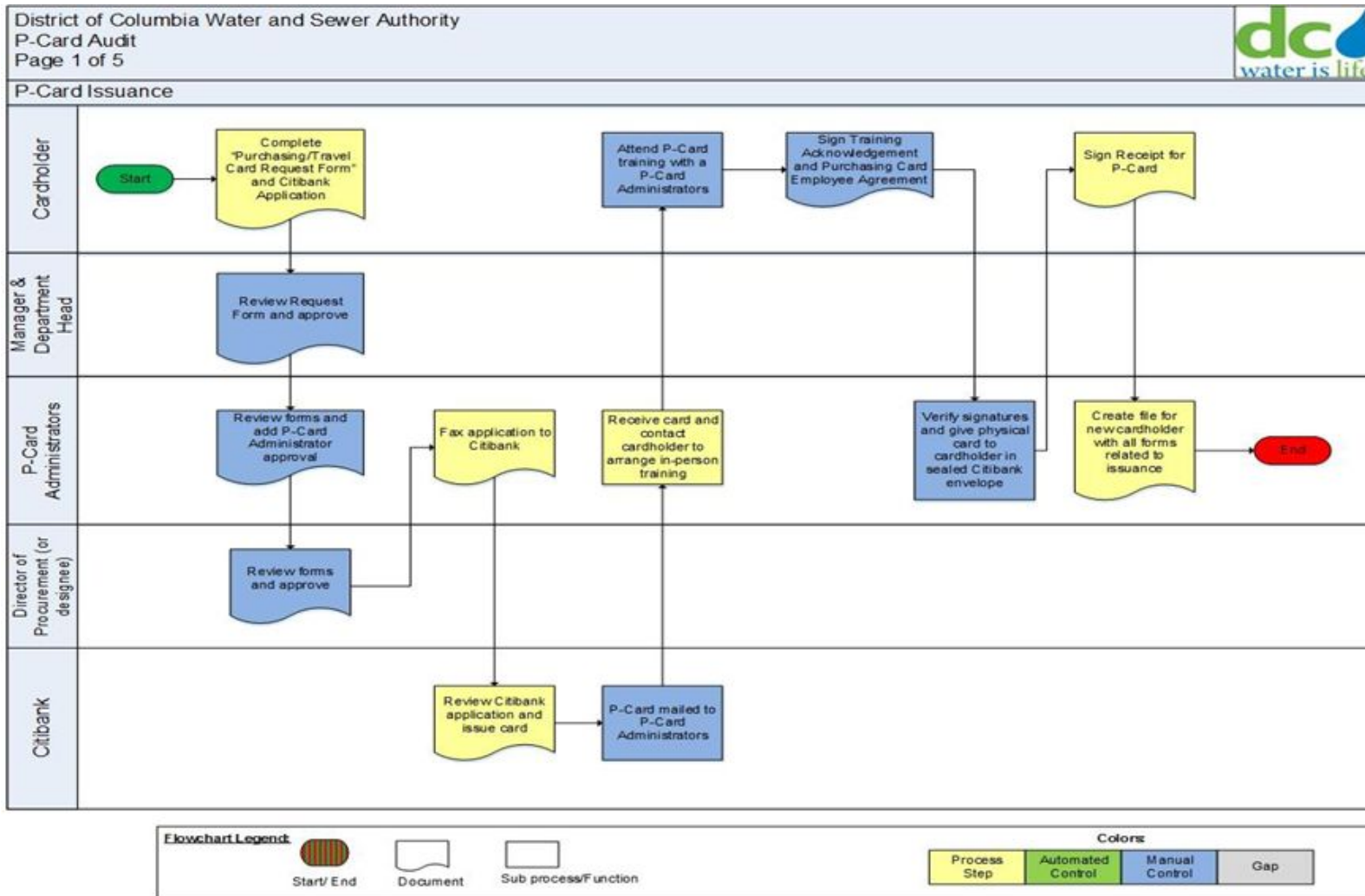
## APPENDIX A – RATING DEFINITIONS

Observation Risk Rating Definitions	
Rating	Definition
<b>Low</b>	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 12 months (if related to external financial reporting, must mitigate financial risk within two months unless otherwise agreed upon).
<b>Moderate</b>	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).
<b>High</b>	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).



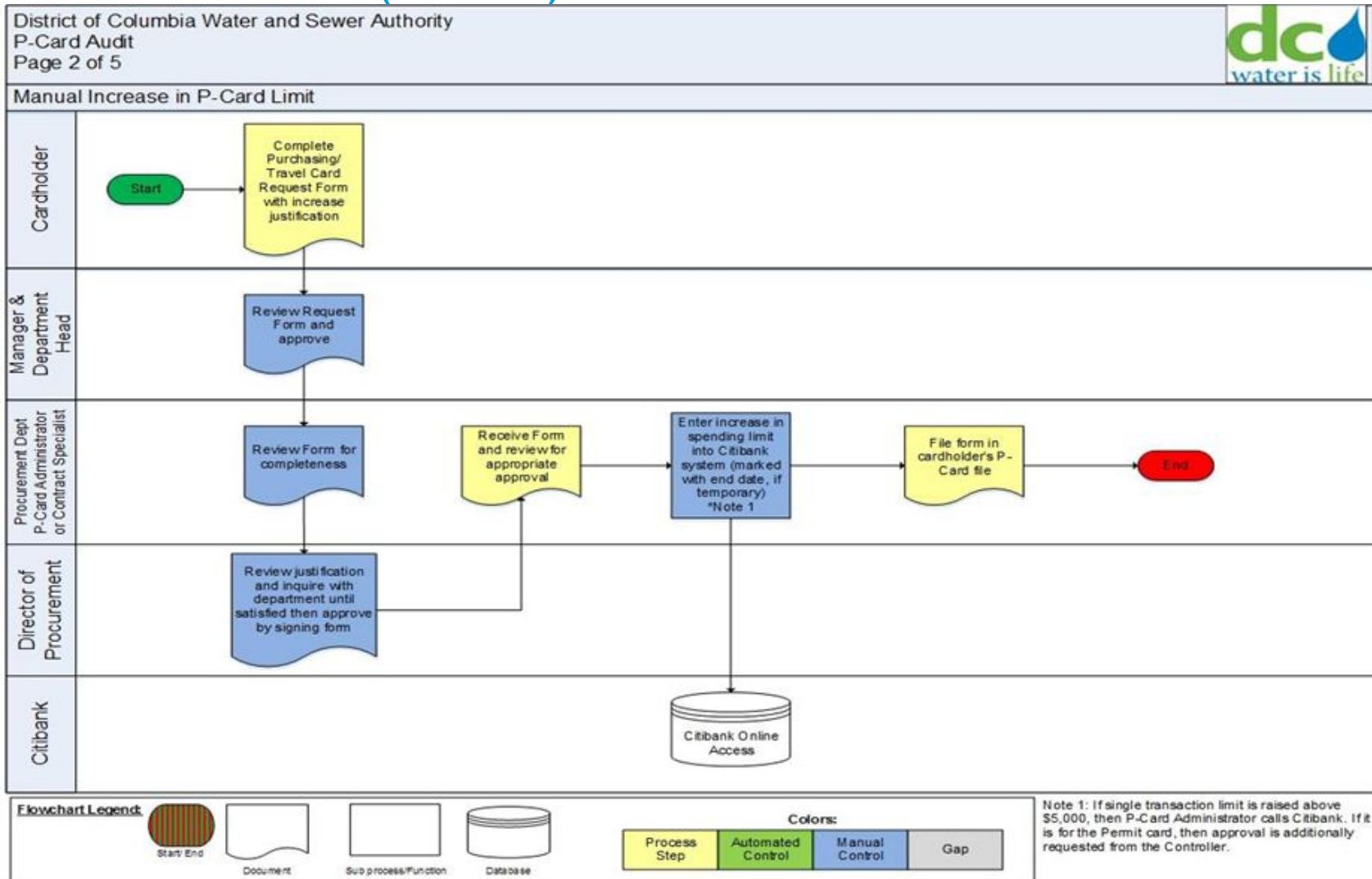


## APPENDIX B – FLOW CHARTS



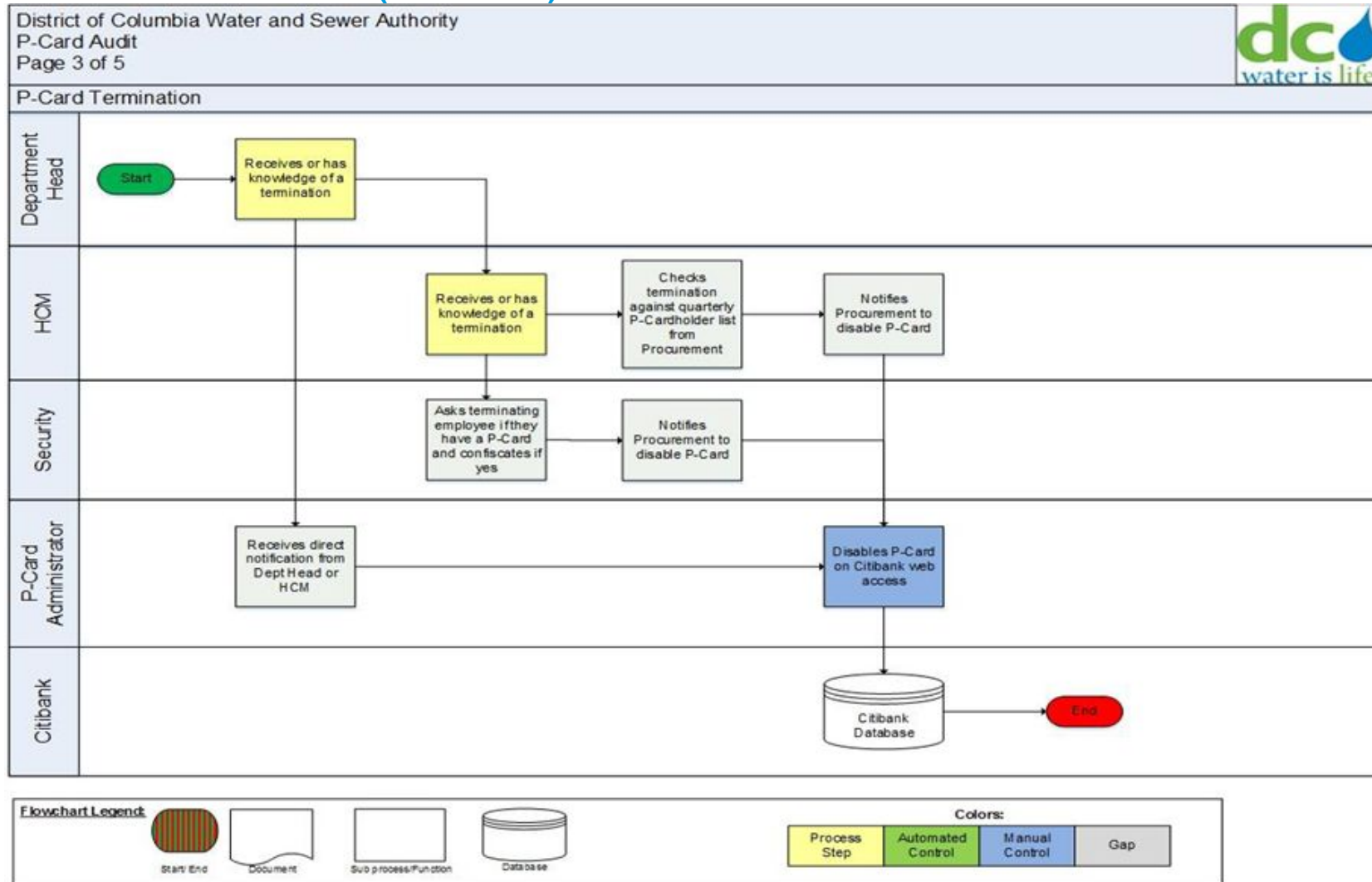


## APPENDIX B – FLOW CHARTS (CONTINUED)



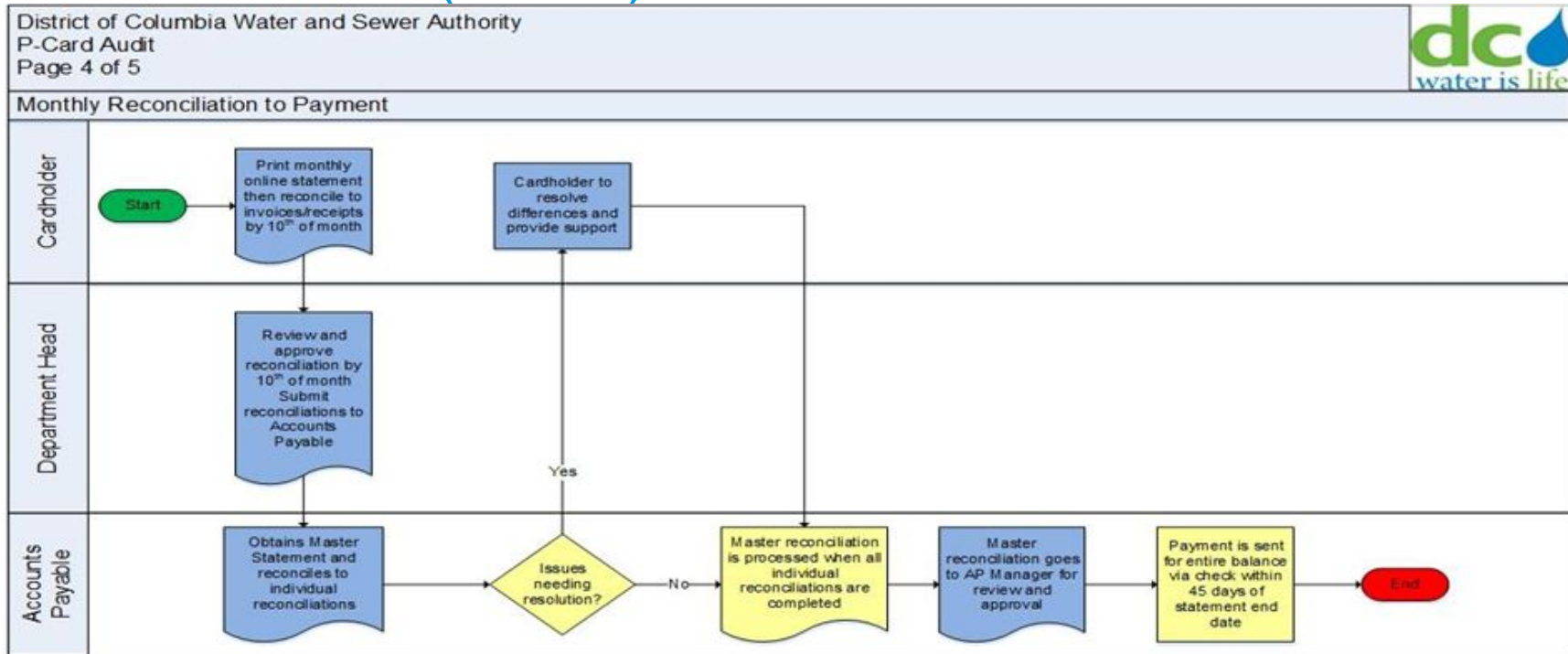


## APPENDIX B – FLOW CHARTS (CONTINUED)



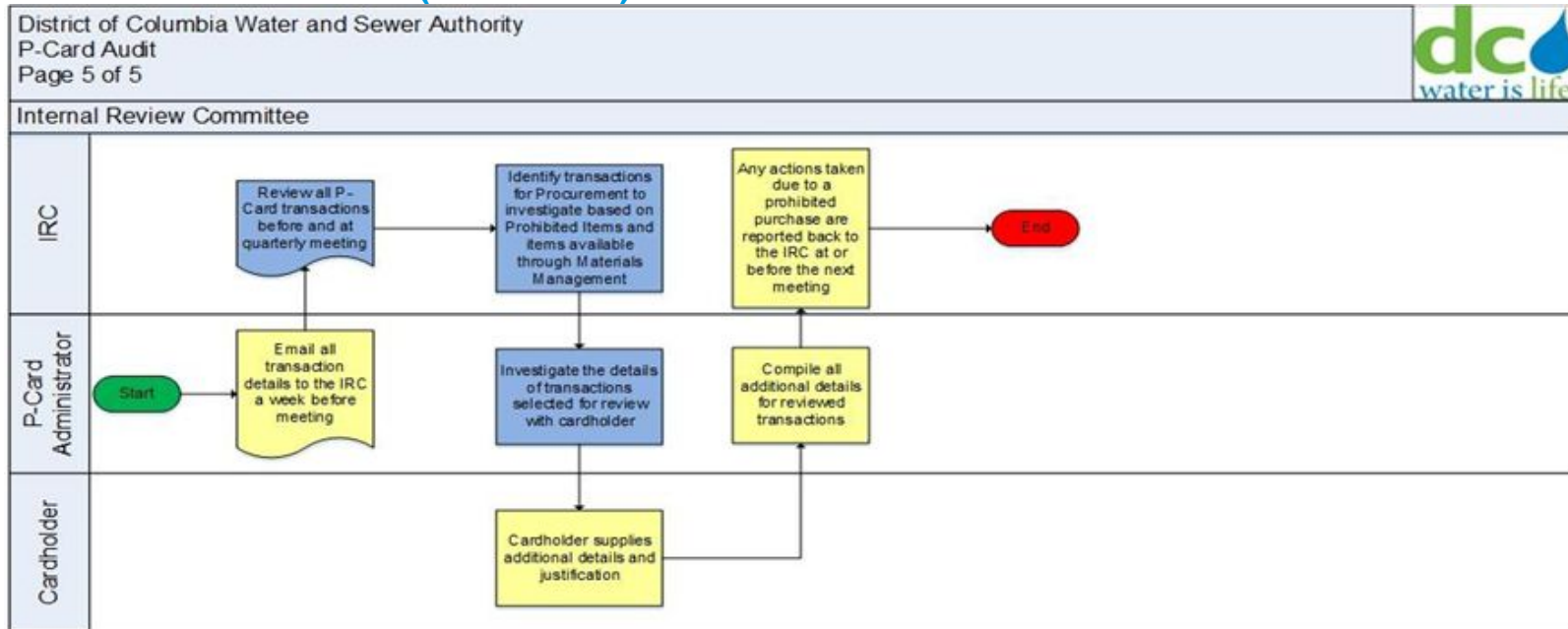



## APPENDIX B – FLOW CHARTS (CONTINUED)





## APPENDIX B – FLOW CHARTS (CONTINUED)





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