



**DISTRICT OF COLUMBIA  
WATER AND SEWER  
AUTHORITY  
Board of Directors**

*Audit Committee*

*Thursday, October 22, 2020*

9:30 a.m.

**[Join Microsoft Teams Meeting](#)**

**+1 202-753-6714**

**Conference ID: 879 844 804#**

- 1. **Call to Order**..... Floyd Holt, Committee Chairperson
- 2. **Internal Audit Update**..... Dan Whelan, RSM, Auditor General
  - A. FY 2020 Internal Audit Plan Status Update
  - B. Status Update on Prior Audit Findings
  - C. **Engineering Change Order Assessment**
  - D. **Customer Billing and Collections Audit**
  - E. Hotline Update
  - F. FY 2021 Risk Assessment and Proposed Audit Plan
- 3. **Executive Session\*** ..... Floyd Holt, Committee Chairperson
- 4. **Adjournment**..... Floyd Holt, Committee 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



October 22, 2020



## Agenda

- FY 2020 Internal Audit Plan Status Update
- Status Update on Prior Audit Findings
- Report on Completed Audits
  - Engineering Change Order Assessment
  - Customer Billing and Collections Audit
- Hotline Update
- FY21 Risk Assessment and Proposed Audit Plan
- Executive Session
  - SCADA ICS Review

# AUDIT PLAN STATUS UPDATE

# Internal Audit Plan Status Update

Audit	Status
<b>FY 2020</b>	
Work Order Planning Assessment	Report Complete
Phase 2: Physical Security Penetration Testing	Report Complete
Facilities Management Audit	Report Complete
Benefits and Compensation Audit	Report Complete
<i>Cybersecurity Incident Response Tabletop Exercise</i>	<i>Deferred*</i>
Oracle Embedded Risk Assurance Phase 1	Reporting in Progress
<i>Oracle Embedded Risk Assurance Phase 2</i>	<i>Deferred*</i>
<i>Procurement Pre-Award &amp; Selection Audit</i>	<i>Deferred*</i>
Engineering Change Order Assessment	<b>Report Complete</b>
Industrial Control System (ICS) Review - SCADA	<b>Report Complete</b>
<i>Industrial Control System (ICS) Review - PCS</i>	<i>Deferred*</i>
<i>Recruiting Alignment Assessment</i>	<i>Deferred*</i>
Customer Billing and Collections Audit	<b>Report Complete*</b>
Remediation Follow Up Procedures	On-going
Hotline Management	On-going

*\*Note that the Cybersecurity Incident Response Tabletop Exercise, Oracle Embedded Risk Assurance project, the Procurement Pre-Award and Selection Audit, a portion of the ICS Review project, and the Recruiting Alignment Assessment were all deferred as a result of COVID-19, as presented to the Audit Committee in April. The Customer Billing and Collections Audit was added to the Audit Plan in April.*





# PRIOR AUDIT FINDINGS – FOLLOW UP STATUS

## Open High Risk Prior Audit Findings (Prior to FY20)

	Audit FY	Issue Date	Audit Report	High Risk Open Finding	Original Target Date	New Target Date
1	2016	7/28/2016	<b>Training, Licensing, and Certification</b>	Identification and monitoring of training requirements by position	9/30/2017	10/1/2021
2	2017	4/27/2017	<b>Data Privacy Assessment</b>	<i>Finding Issued in Executive Session</i>	5/1/2017	3/31/2021
3	2017	10/26/2017	<b>Entity Level Assessment</b>	Lack of a comprehensive risk management function to evaluate entity-wide risk	10/1/2018	3/31/2022
4				Lack of Authority-wide policy and procedure management function	9/30/2018	2/28/2022
5	2017	10/26/2017	<b>Materials Management Operations and Inventory</b>	Inadequate documentation of variance review and root cause analysis for Lawson inventory data	1/17/2018	3/31/2021
6	2018	1/24/2019	<b>Enterprise Work Order Management Assessment</b>	DWO – Inadequate capture of labor and materials cost data in Maximo work orders	9/30/2020	12/31/20 for pilot completion
7				DWO – No formal process for monitoring of performance metrics	9/30/2020	
8				DWO – Inconsistent supervisory review of work orders within Maximo	8/21/2019	
9	2019	4/25/2019	<b>Legal Operations Assessment</b>	Lack of definition of Office of Legal Affairs' role in matters across the Authority	9/30/2020	9/30/2021
10	2019	4/25/2019	<b>Occupational Safety and Health Internal Audit</b>	Outdated comprehensive safety plan for the Authority	3/1/2020	10/31/2020
11				Inadequate review and enforcement of required safety training program by role	2/1/2020	10/31/2020
12	2019	7/25/2019	<b>Purchasing Card Internal Audit</b>	Non-compliance with documented PCard and TCard policies	5/25/2020	On hold (COVID-19)
13	2019	1/23/2020	<b>Asset Management Assessment</b>	Inaccurate data captured in GIS map and data table	7/31/2020	7/31/2021

### Legend

Past due

Original target date has not yet come due

7

© 2019





## Open High Risk Prior Audit Findings (FY20)

	Audit FY	Issue Date	Audit Report	High Risk Open Finding	Original Target Date	New Target Date
14	2020	4/15/2020	<b>Work Order Planning Assessment</b>	Inconsistent and poorly defined roles and responsibilities for the planning function	12/1/2020	N/A
15				Missing and inconsistent job planning for equipment maintenance	12/1/2020	N/A
16	2020	4/15/2020	<b>Facilities Management Audit</b>	Facilities – Inadequate capture of labor and materials cost data in Maximo work orders	6/15/2020	11/30/2020
17				Facilities – Lack of supervisory review of Maximo work orders and KPI monitoring	6/15/2020	
18	2020	4/15/2020	<b>Physical Security Penetration Testing Phase 2</b>	<i>Finding Issued in Executive Session</i>	8/31/2020	10/31/2020
19	2020	4/15/2020	<b>Physical Security Penetration Testing Phase 2</b>	<i>Finding Issued in Executive Session</i>	10/31/2020	N/A

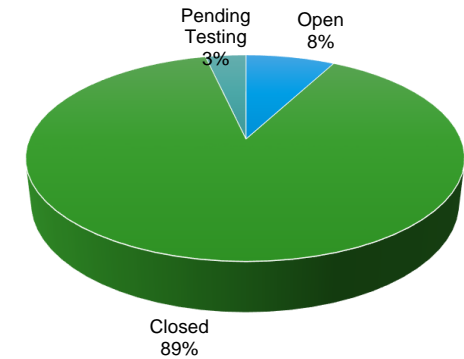
### Legend

	Past due
	Original target date has not yet come due

# Status Update on Prior Audit Findings

Audit Report/Subject	Report Issue Date	Corrective Actions			
		Total	Open	Closed	Pending Testing <sup>1</sup>
<b>Prior to FY19 Audit Findings</b>					
Training, Licensing & Certification	7/28/2016	7	1	6	0
Annual Budgeting and Planning	4/27/2017	1	1	0	0
HR/Employee Privacy Review	4/27/2017	7	2	5	0
Entity Level Assessment	10/26/2017	7	2	4	1
Materials Management Operations and Inventory	10/26/2017	4	1	3	0
Payroll & Timekeeping	10/25/2018	4	0	3	1
Accounts Payable	10/25/2018	5	1	4	0
Integrated Work Order Management	1/24/2019	10	3	4	3
<b>Total</b>		<b>45</b>	<b>11</b>	<b>29</b>	<b>5</b>

**FY16 – FY18 Prior Audit Findings Status**



<sup>1</sup>“Pending Testing” indicates that Management represents that the Action Plan is Completed, but Internal Audit has not yet performed testing to validate the status.

Note that the audit findings reported above only represent findings prior to FY19 with the status of “Pending Testing” or “Open”. Audits conducted prior to FY19 for which all findings have been closed are not represented in this table. However, the pie chart to the right includes status of all audit findings FY16 - FY18.

9

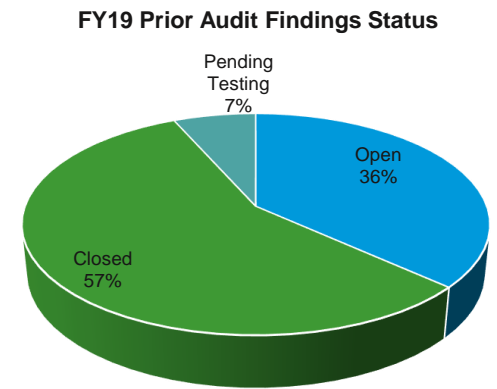
© 2019 RSM US LLP. All Rights Reserved.

Color Key	
	At least 1 original remediation target date has been extended



# Status Update on Prior Audit Findings

Audit Report/Subject	Report Issue Date	Corrective Actions			
		Total	Open	Closed	Pending Testing <sup>1</sup>
<b>FY19 Audit Findings</b>					
Fleet Management	4/25/2019	3	1	2	0
Legal Operations	4/25/2019	4	2	1	1
Occupational Safety and Health	4/25/2019	4	3	1	0
Active Directory Assessment	10/24/2019	5	0	5	0
Purchasing Card Internal Audit	7/25/2019	3	1	1	1
Wifi Security Testing	10/24/2019	1	0	1	0
CIS Application Security SOD Review	10/24/2019	4	2	2	0
Asset Management Assessment	1/23/2020	2	2	0	0
Physical Security and Social Engineering	7/25/2019	4	0	4	0
	<b>Total</b>	<b>30</b>	<b>11</b>	<b>17</b>	<b>2</b>



**Color Key**

At least 1 original remediation target date has been extended

<sup>1</sup>“Pending Testing” indicates that Management represents that the Action Plan is Completed, but Internal Audit has not yet performed testing to validate the status.

In total, 91% of all prior audit findings from FY14 – FY19 are closed. Management’s target closure rate is 90%.

## Action Deferred Update

The following items are considered “action deferred” items that are contingent on other action occurring and not included in the Prior Audit Findings Update slides above:

1. Intellectual Property Personnel Policy: Under review by management.

*The Authority has also been reviewing overarching policy management procedures, which is an open finding from the FY16 Entity-Level Assessment.*

# ENGINEERING CHANGE ORDER

# Engineering Change Order Assessment

## Purpose

The purpose of this review was to obtain an understanding of Engineering Change Order operations and processes, including the policies and procedures, and controls in place, to assess whether the system of internal controls are adequate and appropriate, at the department- and Authority-level

## Scope

The audit scope was based on the following objectives:

- Reviewed documented policies and procedures, organizational charts, and any other key process information available to further our understanding of the function;
- Conducted interviews with key personnel to obtain a detailed understanding of Engineering change order processes to assess the design of the control environment;
- Obtained and analyzed change order data at the program level, and using a risk-based approach, identified sample projects / change orders for control testing;
- Performed detailed testing over the control environment to validate compliance with relevant policies, operating procedures, and key performance indicators (as applicable) for the following areas:
  - Change order intake
  - Change order scope and entitlement review
  - Change order cost / estimate review
  - Change order negotiations (as applicable)
  - Change order approval;
- Identified process improvement opportunities and recommend internal control enhancements to improve the overall process; and,
- Worked with management to develop action plans to remediate identified control gaps.

# Engineering Change Order Assessment

A change order occurs when there needs to be a change within the scope of work that was originally agreed upon by a contractor and the owner (DC Water) within a contract. It is recognized that construction will inherently involve changes to scope during the execution and that some changes are good for the project.

Dating back to the beginning of FY16 (October 1, 2015), 178 change orders have been processed. Individual changes to project scope are processed at the Proposed Change Order (“PCO”) level, which are often bundled together to constitute one Change Order. A new SharePoint system was developed to optimize the change order review and approval process. Additionally, this new system is setup to combine three PCO’s into one change order for expediency.

## OLD PAPER BASED SYSTEM

### MANUAL & PAPER BASED

All documents were paper-based and were distributed by hand via routing slips for review.

### ACCESS TO DOCUMENTS

Document access was only limited to the document security efforts by the individual in possession of the documents.



## CURRENT SHAREPOINT BASED WORKFLOW

**NO LOOSE PAPERS** as all documents maintained within SharePoint site.

**STANDARDIZED FORMS/TEMPLATES** to streamline requests, review and approval.

**AUTOMATED MESSAGES** via Outlook to key personnel when they are required to complete a task.

**AUTOMATED BUSINESS ESCALATION** processes if a task is not completed timely.

**ENHANCED SECURITY** as access to documentation requires DC Water network account information, as well as change order workflow permissions.

**ELECTRONIC SIGNATURE** capability has supplemented remote working needs.

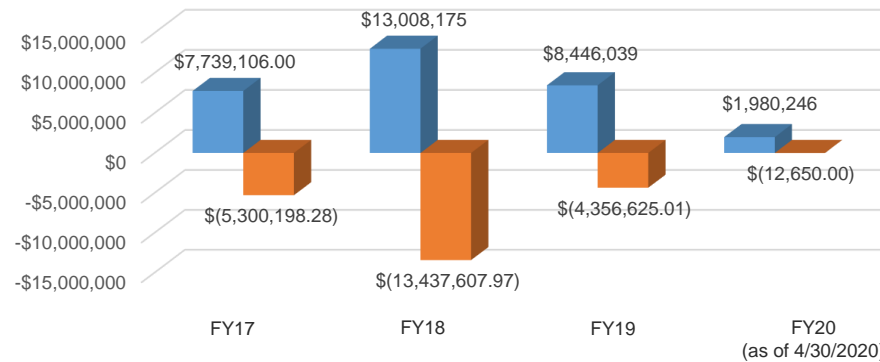
# Engineering Change Order Assessment

Historical change order data is illustrated in the tables to the right, including the total value of change orders (that increased the initial contract value) and the total number of change orders broken down by their impact on initial contract value.

The variation in total change order value year to year is related to normal ebb and flow of projects and the unplanned circumstances that trigger changes.

Note: Only half of FY20 was complete at the time this data was gathered. Total change order value and total change orders have likely increased since the data was gathered.

Total Value of Change Orders by Fiscal Year  
(Increases & Credits to Initial Contract Value)



Fiscal Year	Total Change Orders	Change Orders Increasing Contract Value	Change Orders with No Impact to or Decreasing Contract Value	Cumulative Value of Total Changes (Increases & Credits)
FY17	52	42	10	\$2,438,908
FY18	73	53	20	(\$429,433)
FY19	41	19	22	\$4,089,414
FY20	11	9	2	\$1,967,596

*It should be noted that the average change order rate dating back to 10/1/2016 is 3.24%.*

15 **No high risk findings to report. Two moderate risk and one low risk findings are included in the full report.**





# CUSTOMER BILLING AND COLLECTIONS

# Customer Billing and Collections Audit

## Purpose

The purpose of this review was to obtain an understanding of how the Authority executes and monitors the billing and collections processes, in order to assess the design and effectiveness of the control environment. Our testing period covered July 2019 to June 2020.

## Scope

Based on our audit objectives, the following procedures were performed:

- Conducted walkthroughs with responsible personnel within Customer Care to assess the design of the billing and collections control environment (pre-COVID-19 environment, current environment, and intended future state environment);
- Reviewed future state customer outreach plan post-COVID-19 public health emergency;
- Performed detailed testing over the following processes to assess the effectiveness of the billing and collections control environment:
  - Billing: Mass market (commercial, multi-family, and residential) billing, mass market exception reporting and review (implausible, bill out sort, and invoice out sort), mass market cancel rebill process, collective billing processes (design assessment only), periodic reporting (as applicable);
  - Collections: Inbound and outbound collections communication with customers, escalation to disconnects, liens, receivership, or tax sale (pre-COVID environment), write-offs, installment plan adjustments, periodic reporting (as applicable);
- Reviewed status of open prior audit findings related to segregation of duties and system permissions in eCIS to determine whether access to billing and collections data is properly restricted in order to maintain integrity and confidentiality of the data, where applicable; and
- Worked with management to develop action plans to remediate identified control gaps.

*\*Note the AMI and metering processes were out of scope for this audit.*

## Customer Billing and Collections Audit

The Collections team has a number of tools available to assist in increasing account collectability. Note that beginning March 12, 2020, DC Water suspended all collection activities detailed below in response to COVID-19.



### Late Fee

On the 1st day past due, a 10% late fee is applied to the current charges of the delinquent invoice.



### Reminder

Reminder notices are mailed on the 1st day past due to the customer's billing address. Reminder calls are generated on the 4th day past due for balances over \$80. For impervious only customers, there is a second reminder notice mailed on the 9th day past due.



### Disconnects

A disconnection notice is mailed and a disconnection call is generated on the 9th day past due for balances over \$200. Disconnect service orders are created and sent to the field for processing if the receivable is still outstanding at the 24th day past due. Note that disconnections do not pertain to multi-family or impervious only accounts.



### Liens

An intent to lien notice is mailed and intent to lien call is generated on the 35th day past due for balances over \$200. 15 days after the intent to lien is sent, a lien is triggered by VertexOne and the Collections team is notified to create the image and process the lien.



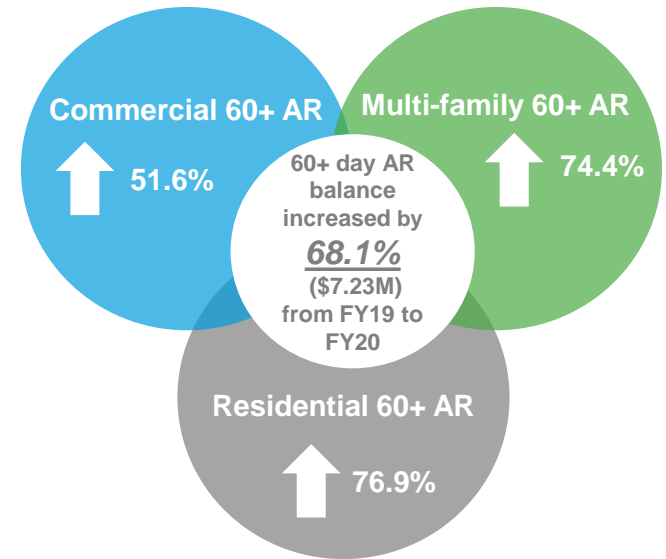
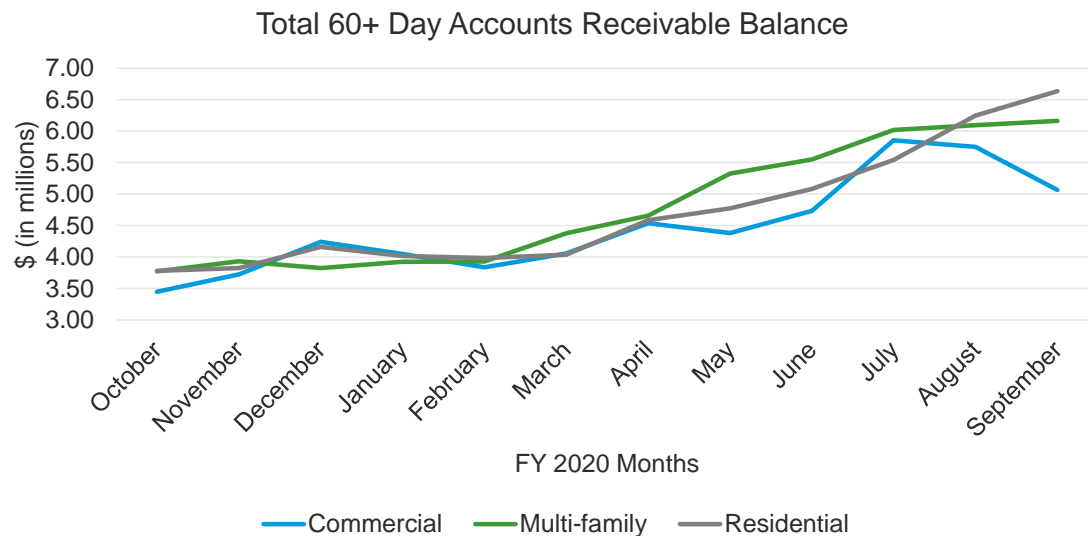
### Tax Sale

On an annual basis, the AR report is assessed against tax sale criteria to determine candidates eligible for submission to the Office of Tax and Revenue. All tax sale accounts are maintained within the internal "Tax Sale List" excel workbook for record keeping and tracking purposes. On a weekly basis, the Collections Coordinator manually updates accounts' statuses in VertexOne based on payments collected.

18

# Customer Billing and Collections Audit

The financial strain of COVID-19 on ratepayers coupled with the suppression of collections activities has had a significant impact on the Authority’s AR aging balance. From FY19 to FY20, there has been a \$7.23M (68.1%) increase in 60+ day AR.



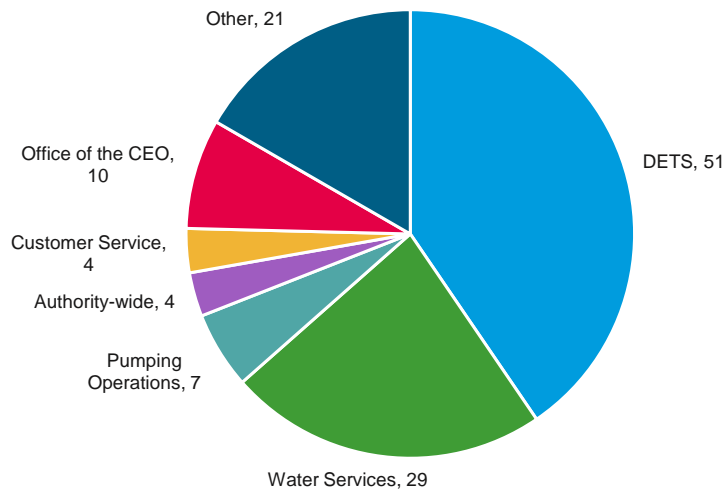
**No high risk findings to report. One moderate risk and two low risk findings are included in the full report.**

# HOTLINE UPDATE AND SEMI-ANNUAL ANALYSIS

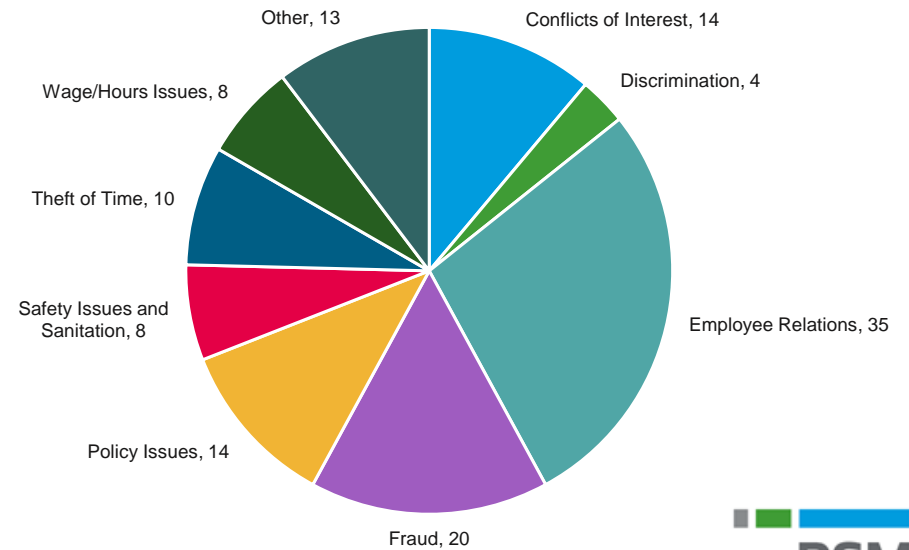
# Hotline Call Analysis

We conducted an analysis of the 126 hotline calls that have been received since FY 2016 to date, to determine if there are any trends, evaluate the quantity of calls (allegations) that were substantiated, and other matrices. The following charts represent the breakdown of calls by Department and case type.

**Calls by Department**

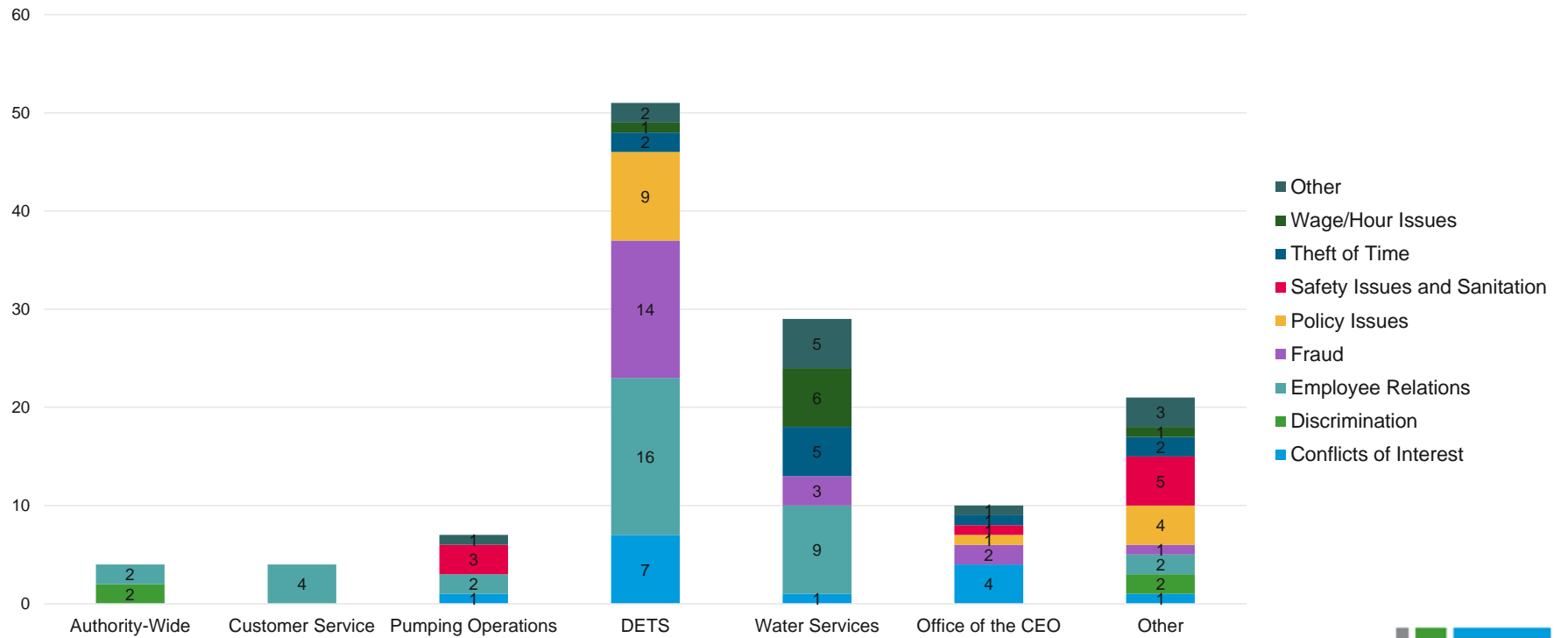


**Calls by Case Type**



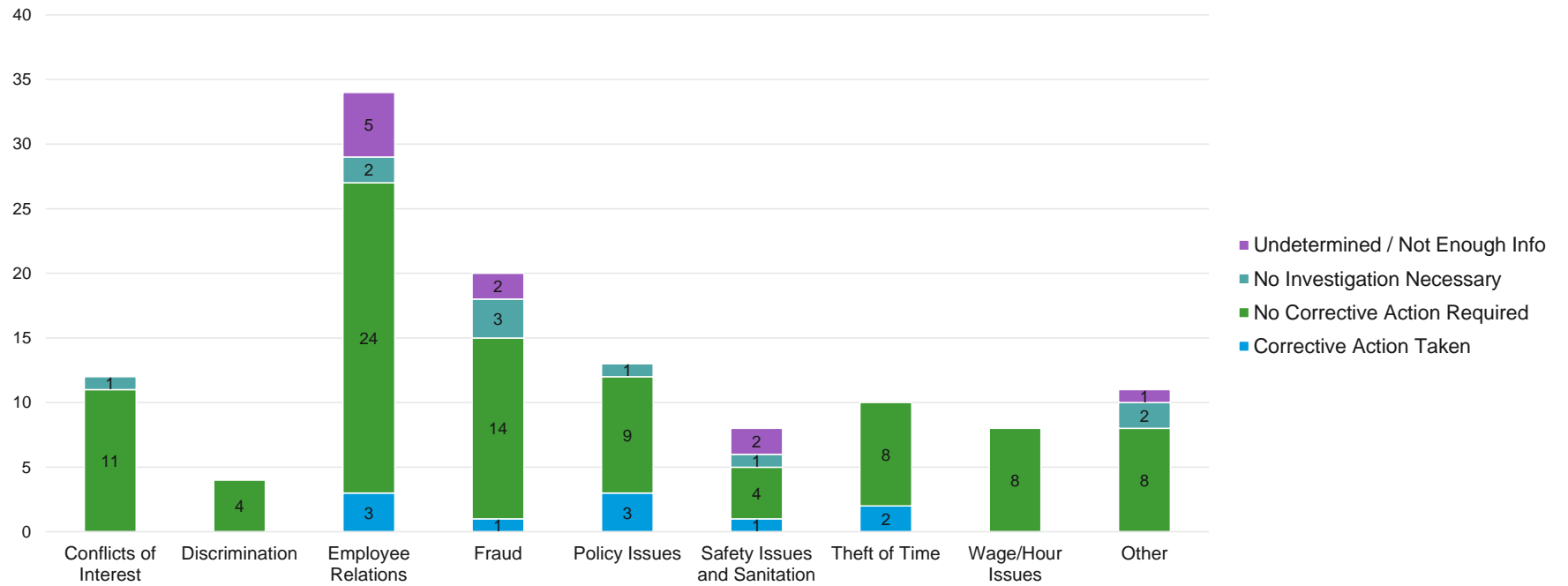
# Hotline Call Analysis (continued)

### Calls by Type and Department



# Hotline Call Analysis (continued)

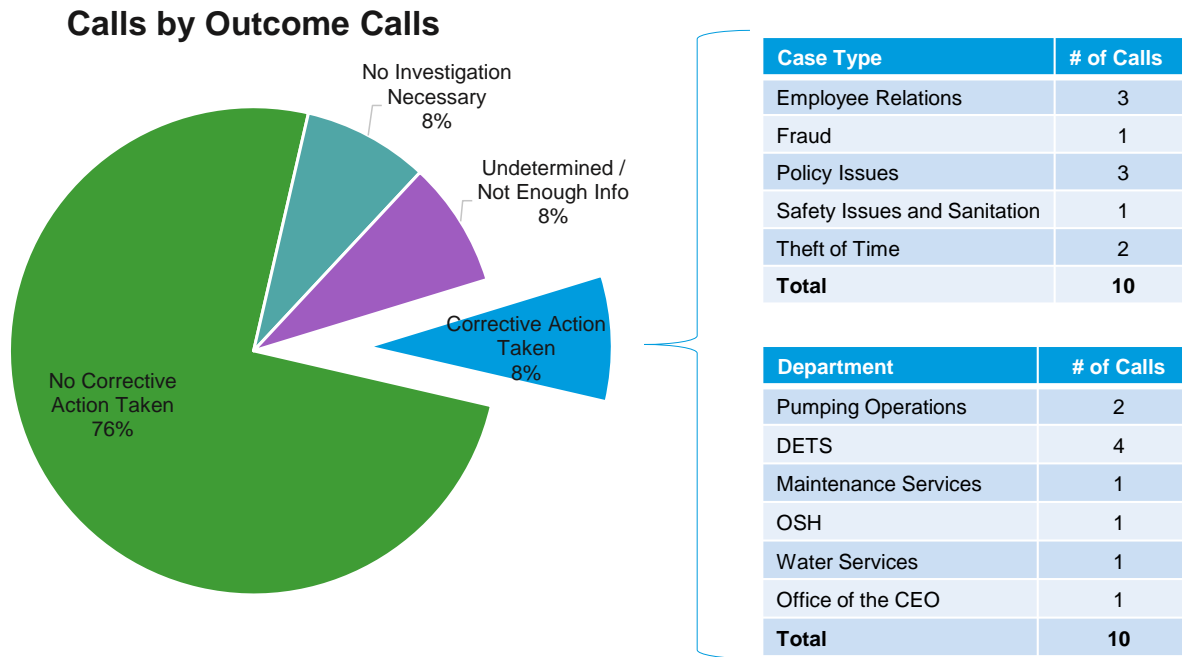
**Calls by Type and Outcome**





## Hotline Call Analysis (continued)

The following tables represent the breakdown of hotline calls that were substantiated and required corrective action. Of the 120 cases closed, 8% or 10 calls resulted in corrective action.



# Hotline Update

As of 10/8/2020:

FY 20 Hotline Call Summary	
FY 20 Calls Received	10
FY 20 Cases Closed	8
FY 20 Calls Open	2
FY 20 Open Call Breakdown	
Open Fraud Claims:	
<i>Safety &amp; Sanitation Issues</i>	1
<i>Theft of Time/Materials</i>	1

FY 19 Hotline Calls	
FY19 Calls Received	28
FY19 Calls Closed	25
FY19 Calls Open	3
FY 19 Open Call Breakdown	
Open Fraud Claims:	
<i>Conflicts of Interest</i>	3

Total calls by Fiscal Year:

Year	FY 13	FY 14	FY 15	FY 16	FY 17	FY 18	FY19	FY20
# of calls	10	20	16	36	31	21	28	10
Action Taken	0	2	7	7	2	0	1	0

# FY21 RISK ASSESSMENT

## Risk Assessment approach

### Internal Audit conducted a Risk Assessment, considering the following:

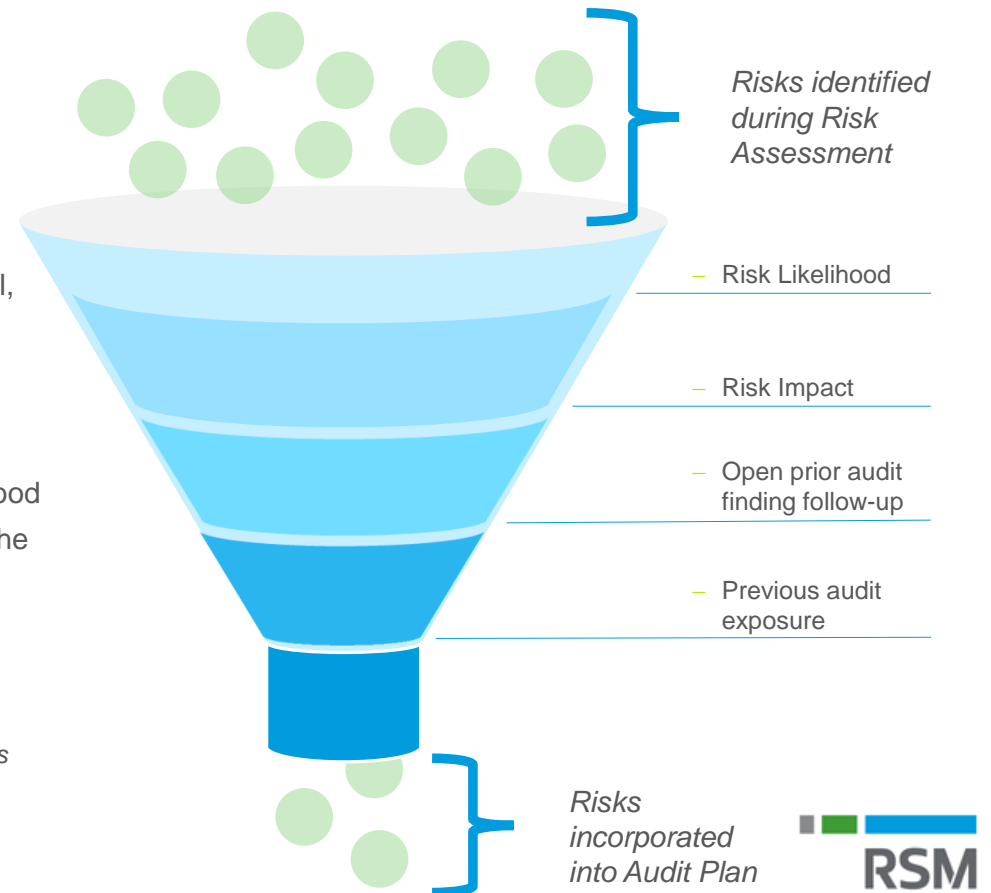
- Interviewed various members of management and the Board
- Distributed a survey to all Board members (see next slide)
- Revisited risks identified in prior year audits
- Considered current DC Water environment (operational, reputational, financial, strategic)
- Considered strategic initiatives at DC Water and industry trends

### Based on the results of the Risk Assessment, Internal Audit performed the following:

- Compiled a risk register of risks identified, rated by impact and likelihood
- Considered open prior audit finding follow-up that management is in the process of remediating
- Considered each process' previous audit exposure
- Prioritized risks where internal audit can provide value
- Created an audit plan based on top priority risks for the year
- *Note: Internal Audit is a finite resource – Internal Audit cannot incorporate all risks discussed during Risk Assessment interviews into the Audit Plan. Risks are prioritized based on the factors listed above.*

27

© 2019 RSM US LLP. All Rights Reserved.



## Risk Assessment interviews

Internal Audit conducted 25 interviews and distributed an anonymous survey to the full Board to inform our risk assessment results.

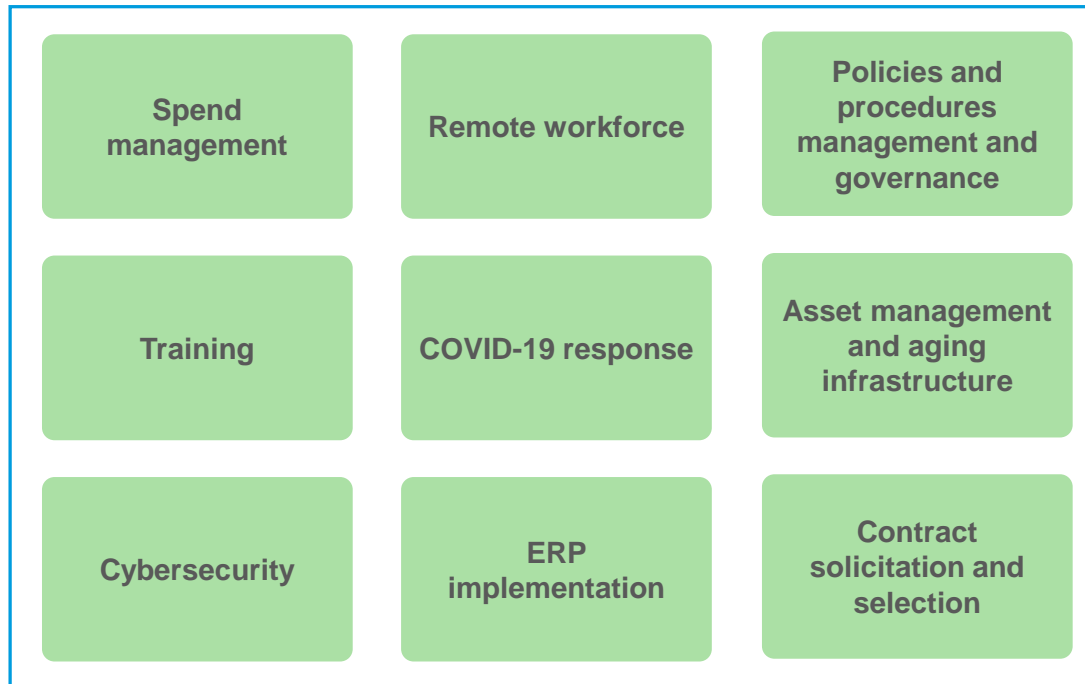
### 2021 interviewees:

1. David Gadis, CEO
2. Kishia Powell, COO
3. Matt Brown, EVP Finance and Procurement
4. Maureen Holman, EVP Administration
5. Lisa Stone, EVP People & Talent
6. Wayne Griffith, EVP Performance
7. Marc Battle, EVP Legal Affairs
8. Biju George, EVP Operations and Engineering
9. Salil Kharkar, SVP Operations and Engineering
10. Tom Kuczynski, VP IT
11. Keith Lindsey, VP Sr Advisor to the CEO
12. Aklile Tesfaye, VP Wastewater Operations
13. Jason Hughes, VP Water Operations
14. Kenrick St Louis, VP Pumping and Sewer Operations
15. Dan Bae, VP Procurement and Compliance
16. Genes Malasy, Controller
17. Dusti Lowndes, Director Emergency Management
18. Lola Oyeyemi, Director Budget
19. Syed Khalil, Director Rates and Revenue
20. Carolyn Mackool, Director Customer Care
21. Joe Edwards, Director IT Infrastructure
22. Nelson Sims, Sr Advisor Information Security
23. Floyd Holt, Board Member
24. Jed Ross, Board Member
25. Tony Giancola, Board Member

Additionally, Internal Audit distributed a risk assessment survey to all Board members, of which we received 13 responses. Due to the anonymity of the survey responses, there could be overlap with the list above.

## Risk themes

Below are the top risk themes that emerged during the risk assessment.

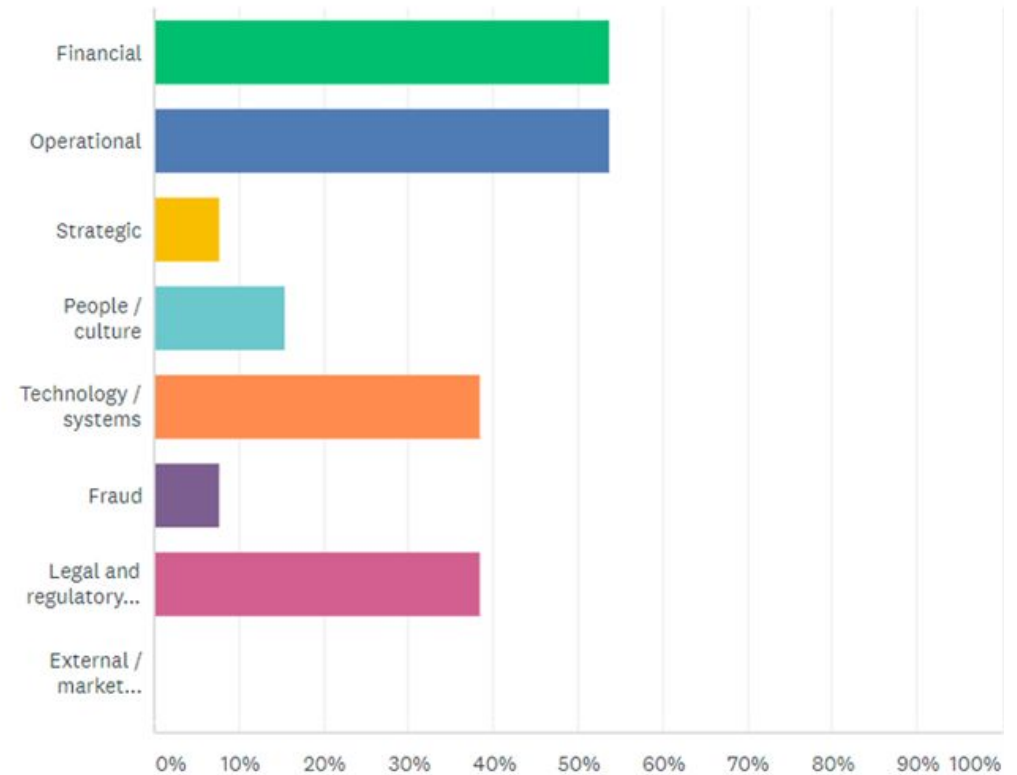


## Board survey results

Internal Audit distributed a risk assessment survey to all Board members, of which we received 13 responses. Top three **Blueprint strategic plan initiatives** that Board members identified as imperative to DC Water’s success in FY21:

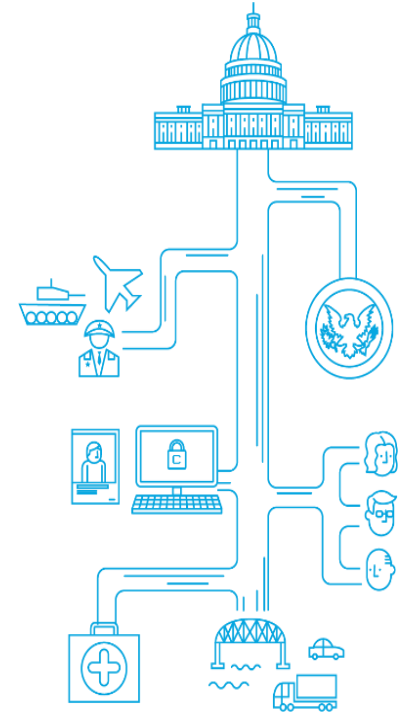
1. **Resilience:** Asset management
2. **Resilience:** Prepare for climate change impact
3. **Resilience:** Establish early warning notification system of contamination to drinking water

The chart on the right represents where Board members identified the highest degree of exposure to the Authority (i.e. could potentially pose a threat or disruption to productivity, effectiveness or achievement of strategic objectives).



## Internal Audit structure

- Audit Projects:
  - Conduct 5 – 7 **cycle audits** per year based on highly transactional processes that have elevated risk exposure across the industry
  - Conduct 4 – 6 **ad hoc audits** per year based on current year risk themes to increase Authority-wide audit coverage
- Audit Approach:
  - For each audit conducted, Internal Audit evaluates the design and operating effectiveness of the internal control environment (draft process flowcharts, establish risk and control matrix, conduct sample-based transactional testing, issue audit report)





# Proposed FY21 Internal Audit Plan

<b>Ongoing Follow-Up Audits</b>	<b>Ops &amp; Engineering</b>
Hotline Case Management	Work Order Management - DMS
Open Action Items – Remediation & Follow Up	Penetration Testing - PCS
<b>Authority-Wide Audits</b>	<i>Permit Operations</i>
FY 2022 Risk Assessment	<b>Customer Experience</b>
<b>Functional Audits</b>	Remote Workforce Security Assessment
<b>Finance &amp; Procurement</b>	<i>Incident Response Tabletop</i>
Procurement Pre-Award and Selection	<b>Performance</b>
Contract Compliance	Strategic Plan Monitoring
<i>Materials Management</i>	<i>Oracle Embedded Assurance Phase 2</i>
<b>People &amp; Talent</b>	
Succession Planning	

*\*Proposed plan based on full Internal Audit budget. As a result of COVID-19 budget constraints, the four projects in red initially proposed for FY21 will need to be deferred.*

# Proposed FY21 Internal Audit Plan – project justification

Auditable entity	Project justification
<p><b>Procurement</b></p>	<p>DC Water has a detailed Procurement Manual to align the purchasing function to the best interests of the Authority. The solicitation, evaluation, and selection processes promote competition, ethical award, optimal dollar value, and fraud prevention. Adequate Procurement controls is critical to Authority-wide spend management.</p> <p><i>Risk themes addressed: Spend management, policies and procedures management and governance, COVID-19 response, ERP implementation, contract solicitation and selection</i></p>
<p><b>Contract Compliance</b></p>	<p>To evaluate individual contracts from departments throughout the Authority. Internal Audit will evaluate for compliance with contract terms and conditions, contract monitoring best practices, and invoice payment controls. Internal Audit will look for Authority-wide themes regarding reliance on and engagement with contractors that may emerge consistently in year-over-year reviews.</p> <p><i>Risk themes addressed: Spend management, policies and procedures management and governance, contract solicitation and selection</i></p>
<p><b>Work Order Management (DMS)</b></p>	<p>Maximo work orders facilitate all maintenance of DC Water assets. The controls surrounding appropriate workflow, data capture, and overall utilization of the system are critical to the Authority's ability to quantify the effectiveness of asset management and execute on data-driven strategic decisions.</p> <p><i>Risk themes addressed: Policies and procedures management and governance, asset management and aging infrastructure</i></p>
<p><b>Strategic Plan Monitoring</b></p>	<p>To evaluate the controls in place regarding the creation, updating, enforcing, monitoring, validating, and reporting out on strategic plan initiatives. Blueprint provides the foundation for the Authority to execute in a way that is aligned with strategy decided on by leadership and the Board. A lack of control effectiveness can result in operations misaligned with long-term strategy.</p> <p><i>Risk themes addressed: Policies and procedures management and governance, asset management and aging infrastructure, cybersecurity, training</i></p>

# Proposed FY21 Internal Audit Plan – project justification

Auditable entity	Project justification
<p><b>Succession Planning</b></p>	<p>DC Water has an aging workforce that carries a large volume of institutional knowledge, with weak controls around policies, procedures, and SOPs Authority-wide. The successful adoption of succession planning is important to identifying critical positions and knowledge gaps that expose the Authority to risk upon employee termination.</p> <p><i>Risk themes addressed: Training, COVID-19 response, policies and procedures management and governance</i></p>
<p><b>Penetration Testing - PCS</b></p>	<p>To validate preventative and detective technology control effectiveness. Annual penetration testing is considered a best practice activity to identify critical vulnerabilities and to identify technology control gaps.</p> <p><i>Risk themes addressed: Cybersecurity, asset management and aging infrastructure</i></p>
<p><b>Remote Workforce Security</b></p>	<p>With increased reliance on a remote workforce during COVID-19, there has been increased use of remote technologies, including Citrix and VPN, as well as usage of mobile device usage and third-party apps. Internal audit will evaluate the technologies employees have been using during DC Water's declared remote work period (since March 2020) and evaluate their adherence to cybersecurity policies and identify potential areas of threat.</p> <p><i>Risk themes addressed: Remote workforce, cybersecurity, COVID-19 response</i></p>
<p><b>Oracle Embedded Assurance Phase 2</b> (DEFERRED – COVID-19 budget constraints)</p>	<p>DC Water is in the process of implementing a new ERP system, Oracle Fusion. Internal Audit will use this assessment to continue the work of Phase 1 of the Oracle Embedded Risk Assurance Project started in 2020 (which ended at SoD and ITAC) to then focus on IT General Controls (ITGCs), and Business Continuity Planning (BCP). Note: Phase 1 was completed in 2020 (Phase 2 deferred to 2021 due to COVID-19).</p> <p><i>Risk themes addressed: ERP implementation, cybersecurity, remote workforce, policies and procedures management and governance, spend management</i></p>

# Proposed FY21 Internal Audit Plan – project justification

Auditable entity	Project justification
<p><b>Incident Response Tabletop</b> (DEFERRED – COVID-19 budget constraints)</p>	<p><i>The operability of DC Water systems and processes are mission critical - as a result, Internal Audit will evaluate DC Water's overall incident response plan and failover strategy by simulating cyber attack scenarios with key stakeholders in a tabletop. Given the recent infrastructure changes and deployment of new technologies, this will also look to evaluate how DC Water's overall incident response capabilities have adapted to the changing technology environment. This was deferred from the FY20 Audit Plan.</i></p> <p><i>Risk themes addressed: Cybersecurity, remote workforce, COVID-19 response, policies and procedures management and governance</i></p>
<p><b>Permit Operations</b> (DEFERRED – COVID-19 budget constraints)</p>	<p><i>To evaluate the control environment surrounding the public-facing permit processes. All residents, private companies and government agencies must obtain approval from DC Water prior to performing any work that directly or indirectly affects the public water and/or sewerage systems. The Permit Operations Department is the starting point for all of DC Water's permit services.</i></p> <p><i>Risk themes addressed: Policies and procedure management and governance, asset management and aging infrastructure</i></p>
<p><b>Materials Management</b> (DEFERRED – COVID-19 budget constraints)</p>	<p><i>To evaluate appropriateness of warehouse operations controls to capture all materials management movement at the Authority, the safety and security of warehouses, the recording of materials movement, order processing, and disposal of assets. The control environment at DC Water warehouses has a direct impact on the safeguarding, tracking, and financial impacts of parts.</i></p> <p><i>Risk themes addressed: Spend management, policies and procedures management and governance, COVID-19 response, ERP implementation, asset management and aging infrastructure</i></p>

# Illustrative 5 Year Audit Plan

**Legend:**

- Business Process Cycle Audit
- IT Cycle Audit
- Business Process Ad Hoc Audit
- IT Ad Hoc Audit
- Ongoing IA Activity

Year 1	Year 2	Year 3	Year 4	Year 5	Frequency
<b>Internal Audit Projects</b>					
<b>Administration</b>					
	Physical Security - HQO		Physical Security - BP & Bryant St	WOM Facilities	every 2 years (rotating locations)
		Safety	Office of Emergency Mgmt Assessment	Fleet Management	every 1 year (rotating depts - other depts in Engineering & Ops)
					Ad hoc
<b>Finance &amp; Procurement</b>					
	Payroll & Timekeeping		Payroll & Timekeeping	Accounts Payable	every 2 years
	Accounts Payable				every 3 years
Contract Compliance	Contract Compliance	Pcard / Tcard			every 3 years
Procurement		Contract Compliance	Contract Compliance	Contract Compliance	every 1 year
		Procurement		Procurement	every 2 years
Materials Management		Budgeting & Planning			Ad hoc
<b>People &amp; Talent</b>					
	Training		Training		every 2 years
Succession Planning	HR Systems Onboarding/Offboarding Review			Recruiting Alignment	Ad hoc
<b>Customer Experience</b>					
		Billing and Collections			every 3 years
Remote Workforce Security Assessment	AMI Program Review	Application Mapping and Inventory Assessment	Software & IT Asset Management Review	Records Management Audit	Ad hoc
Incident Response Tabletop	Cyber Threat Intelligence Assessment	Threat & Vulnerability Mgmt. Assessment	Information Security & Threat Management	IT Contract Mgmt. & Service Provider Review	Ad hoc
		IT Governance Assessment		IT Risk Management & Compliance	Ad hoc
<b>Performance</b>					
Strategic Plan Monitoring			Strategic Plan Monitoring		every 3 years
Oracle Embedded Assurance Phase 2					Ad hoc
<b>Ops &amp; Engineering</b>					
WOM DMS	WOM DSO	WOM DWO	WOM DPO		every 1 year (rotating departments)
Pen Testing PCS	Pen Testing Mobile Web Application	Pen Testing external network	Pen Testing SCADA	Pen Testing Social Engineering	every 1 year (rotating systems)
Permit Operations	Business Development Plan Subcontractor Assessment		Asset Management	Construction Design Review	Ad hoc
<b>Legal Affairs</b>					
			Legal Operations Case Management		Ad hoc
<b>Ongoing Internal Audit Activity</b>					
Remediation of Open Findings	Remediation of Open Findings	Remediation of Open Findings	Remediation of Open Findings	Remediation of Open Findings	Ongoing
Hotline Monitoring	Hotline Monitoring	Hotline Monitoring	Hotline Monitoring	Hotline Monitoring	Ongoing
Risk Assessment	Risk Assessment	Risk Assessment	Risk Assessment	Risk Assessment	every 1 year

© 2019 RSM US LLP. All Rights Reserved.

\*\*Projects in red proposed to be deferred due to COVID-19 budget decrease for FY21

# APPENDIX

## Prior audits performed

### FY 2015

Intellectual Property  
 SCADA/PCS Review  
 Procurement Pre-Award Selection Process  
 Retail Rates Pre-Implementation Monitoring  
 Engineering - Vendor / Contractor Monitoring & Project Administration - Phase I  
 Timekeeping  
 IT Vendor Risk Management / Compliance and Monitoring  
 Information Security Policy Review  
 Network Penetration Testing (Corp/SCADA/Wifi)

### FY 2016

Blue Horizons - Strategic Monitoring  
 Contract Monitoring & Compliance Review  
 Business Development Plan  
 Customer Billing & Collections  
 Retail Rates Post-Implementation Monitoring  
 Training, Certification and Licensing  
 Engineering - Construction Management Phase 2  
 Overtime  
 Annual Budgeting & Planning  
 Rolling Owner Controlled Insurance Program (ROCIP)  
 IT Incident Management & Response Review  
 Enterprise Project Governance Maturity Assessment

38

© 2019 RSM US LLP. All Rights Reserved.

### FY 2017

Contract Monitoring & Compliance Review  
 Entity-Level Assessment  
 Work Order Management (Maintenance Services)  
 Materials Management - Operations and Inventory  
 Purchasing Cards (PCard Program)  
 Automated Meter Reading (AMR) Implementation  
 MTU Implementation Review  
 Fleet - Accident and Incident Reporting  
 Engineering - Construction Management Phase 3  
 Intermunicipal Agreement  
 IT Human Resource/Employee Data Privacy Review  
 Vulnerability Management Review and Platform Technical Audit (Windows/UNIX)

### FY 2018

Recruiting, Selection, and On-Boarding  
 Automated Meter Replacement (AMR) Implementation Progress Update  
 Office of Emergency Management Review  
 DB/OS Privileged User  
 Network Penetration Testing  
 Affordability Programs  
 Contract Monitoring & Compliance Review  
 Crisis Management/Business Continuity  
 Integrated Work Order Management (DWS, DSS, DDCS)  
 CIS Post-Implementation Review  
 Payroll & Timekeeping  
 Accounts Payable

### FY 2019

Permit Operations - Reimbursable Projects  
 Mail Room Procedures  
 Fleet Management  
 Legal Operations  
 Occupational Safety and Health  
 Automated Meter Reading Implementation Progress Update  
 Cloud Security Rapid Assessment  
 Active Directory Cloud Migration Security Review  
 Purchasing Card Internal Audit  
 Severance Assessment  
 Wifi Security Testing  
 CIS Application Security Segregation of Duties (SOD) Review  
 Contractual Services  
 Asset Management Assessment  
 Physical Security and Social Engineering

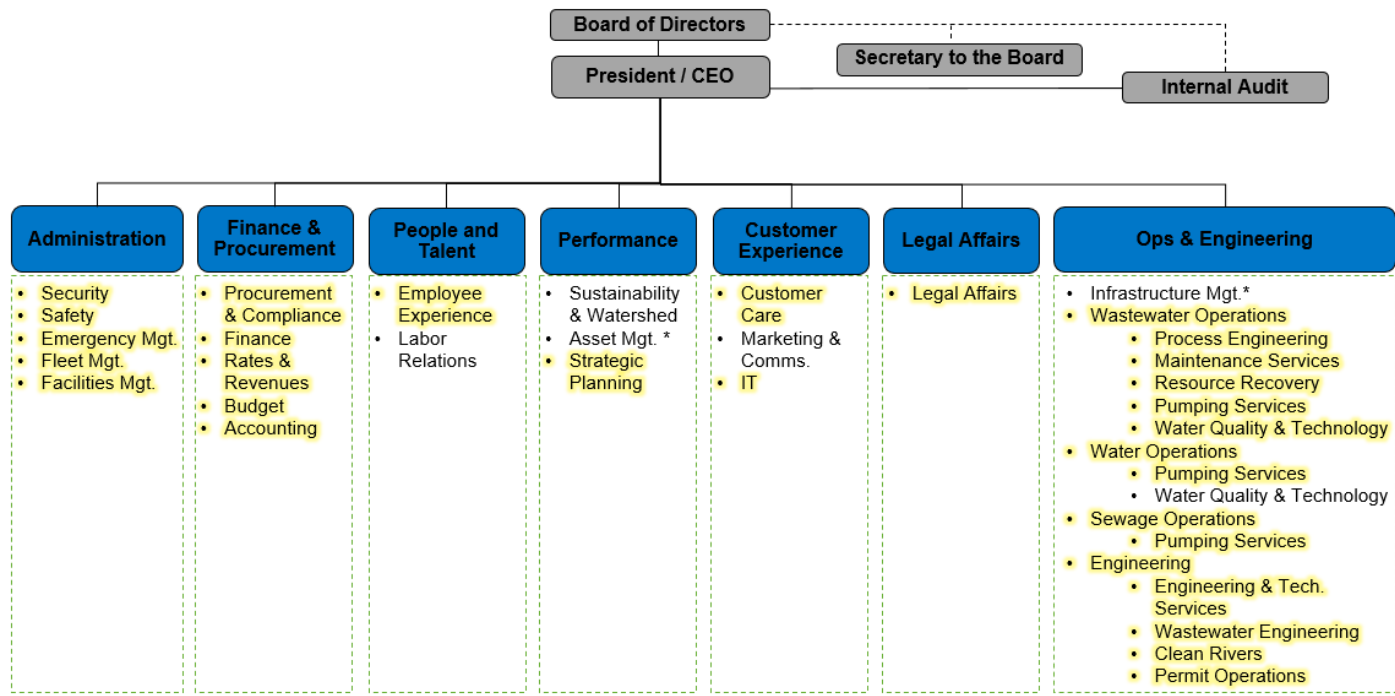
### FY 2020

Work Order Planning Assessment  
 Phase 2: Physical Security Penetration Testing  
 Facilities Management Audit  
 Benefits and Compensation Audit  
 Engineering Change Order Assessment  
 Industrial Control System (ICS) Review  
 Customer Billing and Collections Audit  
 Oracle Embedded Risk Assurance Phase 1



# Internal Audit Coverage

The highlighted departments represent all departments that have been reviewed through internal audit projects since inception (FY 2015):







# QUESTIONS AND ANSWERS

**RSM US LLP**

1250 H St NW  
Washington, DC 20005

+1 800 274 3978  
[www.rsmus.com](http://www.rsmus.com)

This document contains general information, may be based on authorities that are subject to change, and is not a substitute for professional advice or services. This document does not constitute audit, tax, consulting, business, financial, investment, legal or other professional advice, and you should consult a qualified professional advisor before taking any action based on the information herein. RSM US LLP, its affiliates and related entities are not responsible for any loss resulting from or relating to reliance on this document by any person. Internal Revenue Service rules require us to inform you that this communication may be deemed a solicitation to provide tax services. This communication is being sent to individuals who have subscribed to receive it or who we believe would have an interest in the topics discussed.

RSM US LLP is a limited liability partnership and the U.S. member firm of RSM International, a global network of independent audit, tax and consulting firms. The member firms of RSM International collaborate to provide services to global clients, but are separate and distinct legal entities that cannot obligate each other. Each member firm is responsible only for its own acts and omissions, and not those of any other party. Visit [rsmus.com/aboutus](http://rsmus.com/aboutus) for more information regarding RSM US LLP and RSM International.

RSM, the RSM logo and *the power of being understood* are registered trademarks of RSM International Association.

© 2019 RSM US LLP. All Rights Reserved.



# DC WATER

## Engineering Change Order Internal Audit Report



October 2020

# Table of Contents

---

- Executive Summary and Objectives
- Background
- Approach
- Observations and Recommended Action
- Appendices
  - A Flowcharts
  - B Risk Rating Definitions

# EXECUTIVE SUMMARY, BACKGROUND AND APPROACH

3

© 2019 RSM US LLP. All Rights Reserved.



# Executive Summary

## Objective and Scope

The purpose of this review was to obtain an understanding of Engineering Change Order operations and processes, including the policies and procedures, and controls in place, to assess whether the system of internal controls are adequate and appropriate, at the department- and Authority-level. The audit scope was based on the following objectives:

- Reviewed documented policies and procedures, organizational charts, and any other key process information available to further our understanding of the function;
- Conducted interviews with key personnel to obtain a detailed understanding of Engineering change order processes to assess the design of the control environment;
- Obtained and analyzed change order data at the program level, and using a risk-based approach, identified sample projects / change orders for control testing;
- Performed detailed testing over the control environment to validate compliance with relevant policies, operating procedures, and key performance indicators (as applicable) for the following areas:
  - Change order intake
  - Change order scope and entitlement review
  - Change order cost / estimate review
  - Change order negotiations (as applicable)
  - Change order approval;
- Identified process improvement opportunities and recommend internal control enhancements to improve the overall process; and,
- Worked with management to develop action plans to remediate identified control gaps.

Fieldwork was performed May 2020 – July 2020.

## Overall Summary and Highlights

The three (3) observations identified during our assessment are outlined on pages 13 - 23:

1. Change orders adversely impacting initial project plan or schedule
2. User access review
3. PCO summary submission timeliness

These observations are described in the detailed observation section of the report. We assigned relative risk or value factors to each observation. Risk ratings are the evaluation of the projected 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.

### Summary of Observation Ratings

(See Appendix for risk rating definitions)

Number of Observations by Risk Rating		
High	Moderate	Low
-	2	1

## Background

A change order occurs when there needs to be a change within the scope of work that was originally agreed upon by a contractor and the owner (DC Water) within a contract. It is recognized that construction will inherently involve changes to scope during the execution and that some changes are good for the project. These changes can result in adding, or removing, work from the original scope agreed upon by the contractor and the owner. Change orders are commonly grouped into five main categories: differing site condition, owner requested, scope change, errors and omissions and administrative. Dating back to the beginning of FY17 (October 1, 2016), 178 change orders have been processed. Individual changes to project scope are processed at the Proposed Change Order (“PCO”) level, which are often bundled together to constitute one Change Order. The new SharePoint system is optimized to combine three PCO’s into one change order for expediency.

During 2019, the CIP Infrastructure Management team within Engineering proactively looked to enhance the previous paper based change order review and approval process. A team led by the Senior Manager of CIP Program Services developed an automated process to consolidate all change order development, review and approval progressions within a SharePoint based workflow. This electronic format went live in October 2019. The process transformation and enhancements are outlined below.

### OLD PAPER BASED SYSTEM

#### MANUAL & PAPER BASED

All documents were paper-based and were distributed by hand via routing slips for review.

#### ACCESS TO DOCUMENTS

Document access was only limited to the document security efforts by the individual in possession of the documents.



### CURRENT SHAREPOINT BASED WORKFLOW

**NO LOOSE PAPERS** as all documents maintained within SharePoint site.

**STANDARDIZED FORMS/TEMPLATES** to streamline requests, review and approval.

**AUTOMATED MESSAGES** via Outlook to key personnel when they are required to complete a task.

**AUTOMATED BUSINESS ESCALATION** processes if a task is not completed timely.

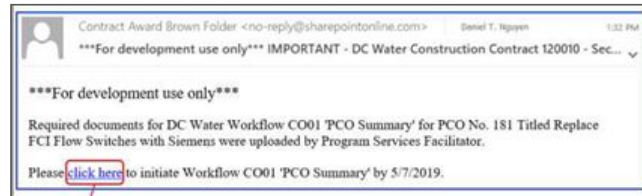
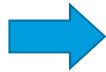
**ENHANCED SECURITY** as access to documentation requires DC Water network account information, as well as change order workflow permissions.

**ELECTRONIC SIGNATURE** capability has supplemented remote working needs.



## Background (continued)

The SharePoint workflow is utilized to submit requests for PCOs, review necessary documents, and apply approvals at the various steps though the process. The images below depict the initial submission, automated alerts corresponding to submission and subsequent required tasks, fields requiring completion, and required supporting documentation.







# Change Order Approval Process

The Change Order process consists of multiple steps and involves several parties. Each step requires a variety of documents to move to the following step in the process. The process details continue on the following page.

Process Step	Involved Parties	Details
<b>PCO Submission</b>	<ul style="list-style-type: none"> <li>Project Manager (PM)</li> <li>PM Supervisor</li> <li>Construction Branch Manager</li> </ul>	<ul style="list-style-type: none"> <li>The Project Manager develops a Proposed Change Order (PCO) to summarize the scope of the change and complete all fields in SharePoint to formally submit and create the Proposed Change Order (PCO) for review and approval. This submission/creation of the PCO must be done within 15 business days after the negotiation has been completed and agreed upon by DC Water and Contractor. The recently revised SharePoint system now require the PCO to be initiated within 5 business days after negotiation.</li> <li>PM Supervisor and Construction Branch Manager reviews and approves the PCO submission after validating sufficiency of required supporting documentation.</li> </ul>
<b>Change Order Creation</b>	<ul style="list-style-type: none"> <li>Project Manager (PM)</li> <li>PM Supervisor</li> <li>Construction Branch Manager</li> <li>Senior Manager, CIP Program Services</li> <li>VP/OPS and Eng. Director</li> <li>Procurement Capital Programs Director</li> <li>Contractor</li> <li>Office of Legal Affairs</li> <li>Procurement Capital Programs Director (Execution) (CO &lt;\$500K)</li> <li>VP, Procurement and Compliance (CO &gt; \$500K)</li> <li>CEO and General Manager (CO &gt;\$500K)</li> </ul>	<ul style="list-style-type: none"> <li>The Project Manager is required to take an action to either create the Change Order or Work Change Directive within 7 days after the PCO Summary has been approved.</li> <li>The Change Order is routed for review, approval, and execution through nine (9) to eleven (11) DC Water staff from Construction, Infrastructure Management/Program Services, Capital Procurement, Office of Legal Affairs, and CEO and General Manager.</li> </ul>
<b>Fact Sheet Creation</b>	<ul style="list-style-type: none"> <li>Project Manager (PM)</li> <li>Program Analyst</li> <li>Senior Manager, CIP Program Services</li> <li>PM Supervisor</li> <li>Construction Branch Manager</li> <li>VP/OPS and Eng. Director</li> <li>Manager Budget</li> <li>Director Budget</li> <li>SVP, CIP Project Delivery/VP Operations</li> <li>VP Procurement and Compliance</li> <li>EVP Finance and Procurement</li> <li>Board Secretary [2 Step Process]</li> <li>CEO and General Manager</li> </ul>	<ul style="list-style-type: none"> <li>A Fact Sheet that includes the details of the change for presentation to the Board of Directors is required for change orders greater than \$500k and where cumulative total value changes in excess of \$1M (e.g. initial contract is \$800k; \$200k change order requires a Fact Sheet and Board approval). The Fact Sheet for cumulative change orders in excess of \$1M is a recent requirement per the February 6, 2020 Delegation of Procurement Authority by the CEO and General Manager.</li> <li>The Fact Sheet is jointly created by the Project Manager and Program Analyst in SharePoint.</li> <li>The Fact Sheet is thoroughly reviewed and approved by thirteen (13) DC Water staff from Construction, Infrastructure Management/Program Services, Project Delivery, Office of Legal Affairs, Procurement and Compliance, Budget, Finance and Procurement, Board Secretary, and CEO and General Manager.</li> <li>Once presented and approved by the Board, the Board Secretary routes the Fact Sheet via SharePoint to be electronically signed by the CEO and General Manager</li> </ul>

## Change Order Approval Process (continued)

Further process steps following the creation of the PCO, Change Order, and Fact Sheet (if needed) are detailed below.

Process Step	Involved Parties	Details
<b>Legal Sufficiency &amp; Leadership Approval</b>	<ul style="list-style-type: none"> <li>Office of Legal Affairs</li> <li>Procurement Capital Programs Director (Execution) (for CO &lt;\$500K)</li> <li>CEO and General Manager (for CO &gt;\$500k)</li> </ul>	<ul style="list-style-type: none"> <li>The Office of Legal Affairs must review all Change Order's and provide a Legal Sufficiency Memo to validate the change is sufficient and suitable for execution.</li> <li>The legal sufficient memo is provided/uploaded to SharePoint and available for the Procurement Capital Program Director or CEO and General Manager to view before executing the Change Order instrument.</li> </ul>
<b>Execution of Change Order</b>	<ul style="list-style-type: none"> <li>Procurement Capital Programs Director (for CO &lt;\$500K)</li> <li>CEO and General Manager (for CO &gt;\$500k)</li> </ul>	<ul style="list-style-type: none"> <li>Once the Change Order has been reviewed by all DC Water staff listed in the Change Order Creation, the Change Order is routed to either the Procurement Capital Program Director or CEO and General Manager depending the value of the Change Order for execution via Adobe Sign.</li> </ul>
<b>Purchase Order Processing</b>	<ul style="list-style-type: none"> <li>Procurement Category Manager</li> <li>Procurement Capital Programs Director</li> </ul>	<ul style="list-style-type: none"> <li>The SharePoint system will email the Procurement Category Manager the fully executed Change Order to prepare the revised Purchase Order through the Procurement department.</li> <li>The Procurement Category Manager will forward the executed Change Order and revised Purchase Order to the PM/CM, Program Services, and Contractor for their records.</li> </ul>
<b>Change Order Review, Approval, and Execution Status</b>	<ul style="list-style-type: none"> <li>Senior Manager, CIP Program Services</li> </ul>	<ul style="list-style-type: none"> <li>The development of the SharePoint Change Order process included a Dashboard where the status, in real-time, of all PCO, CO, and WCD can be viewed to assist staff follow-up with the current reviewer/approver.</li> </ul>

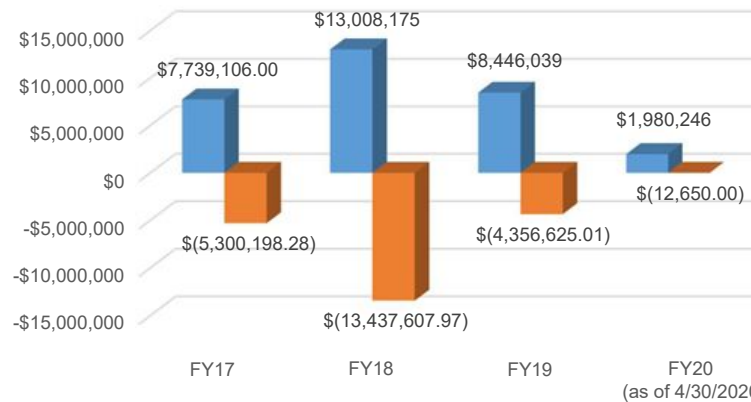
## Change Order Data Analysis

Historical change order data is illustrated in the tables to the right, including the total value of change orders (that increased the initial contract value) and the total number of change orders broken down by their impact on initial contract value.

The variation in total change order value year to year is related to normal ebb and flow of projects and the unplanned circumstances that trigger changes.

Note: Only half of FY20 was complete at the time this data was gathered. Total change order value and total change orders have likely increased since the data was gathered.

Total Value of Change Orders by Fiscal Year  
(Increases & Credits to Initial Contract Value)



Fiscal Year	Total Change Orders	Change Orders Increasing Contract Value	Change Orders with No Impact to or Decreasing Contract Value	Cumulative Value of Total Changes (Increases & Credits)
FY17	52	42	10	\$2,438,908
FY18	73	53	20	(\$429,433)
FY19	41	19	22	\$4,089,414
FY20	11	9	2	\$1,967,596

## Change Order Data Analysis

Below illustrates the ten (10) contractors with the highest percentage change of initial contract value of all contracts between 10/1/2016 – 4/30/2020. Four (4) contractors had over a 10% increase in their contract values during this time, for a total change order value of \$10,514,309. It should be noted that the average change order rate dating back to 10/1/2016 is 3.24%.

Highest % Change of Initial Contract Value (10/1/2016 - 4/30/2020)				
Contractor	Total Changes (Increase in Contract Value)	Cumulative Change Order Value	Initial Value of All Contracts	% Change of Initial Contract Value
SAK Construction, LLC	9	\$2,406,382.60	\$8,248,749.00	29.17% <sup>1</sup>
American Contracting & Environmental (ACE) Services, Inc.	20	\$6,321,196.86	\$28,182,000.00	22.43% <sup>2</sup>
Flippo Construction Co., Inc.	16	\$1,271,393.29	\$5,810,915.00	21.88% <sup>3</sup>
Marine Technologies, Inc.	2	\$515,337.08	\$2,500,000.00	20.61% <sup>4</sup>
Skanska USA Building Inc.	24	\$6,562,167.00	\$71,058,002.00	9.23%
E.E.Cruz & Company, Inc.	1	\$4,375,785.00	\$53,452,275.00	8.19%
W.M. Schlosser Co.,Inc.	6	\$1,207,839.00	\$15,678,000.00	7.70%
Capitol Paving of D.C., Inc.	2	\$932,783.00	\$14,079,200.00	6.63%
Ulliman Schutte Construction, LLC	10	\$2,344,891.00	\$57,960,000.00	4.05%
Judlau Contracting, Inc.	3	\$579,995.79	\$17,468,893.00	3.32%

<sup>1</sup>Changes were related to another contractor's inability to perform their contract scope specified for partially blocked pipe, sections missing a pipe invert and point repair work required at various locations and that scope being transferred to this contract/contractor.

<sup>2</sup>Changes were related to project delay costs paid out to the contractor due to unavoidable and exigent circumstances by DC Water at no fault of the contractor.

<sup>3</sup>The most significant changes contributing to Flippo's high change rate were related to scope changes related to differing site conditions encountered by the contractor during excavation & construction for valve locations.

<sup>4</sup>The most significant changes contributing to Marine's high change rate were to evaluate the structural condition of the North East Boundary Trunk Sewer (NEBTS) to produce a final structural report outlining the condition of the sewer and areas of concern.



## Change Order Data Analysis

The table below illustrates the top ten (10) individual contracts from 10/1/2016 – 4/30/2020 in terms of largest percentage increase of initial contract value. Context related to those exceeding an increase of 20% are included to provide additional context. It should be noted that the average change order rate dating back to 10/1/2016 is 3.24%.

Cumulative Change % of Initial Contract Value – Top 10 Contracts (10/1/2016 – 4/30/2020)					
Contract #	Contract Title	Contractor	Initial Contract Value	Cumulative Changes	% Increase of Initial Contract Value
140160	G 100 Local Sewer Rehabilitation 1	SAK Construction, LLC.	\$5,250,125	\$2,406,382	45.83% <sup>1</sup>
130060	Potomac Pumping Station Rehabilitation Phase III	American Contracting & Environmental (ACE)	\$9,450,000	\$3,956,297	41.87% <sup>2</sup>
140070	Large Valve Replacement Contract 11R	Flippo Construction Co., Inc	\$3,935,950	\$1,292,774	32.85% <sup>3</sup>
160030	Inspection of Northeast Boundary Trunk Sewer	Marine Technologies, Inc.	\$2,500,000	\$515,337	20.61% <sup>4</sup>
120010	Secondary Treatment Facility Upgrades ENR-North	Ulliman Schutte Construction, LLC	\$57,960,000	\$7,239,331	12.49%
150030	Raw Wastewater Pump Station 2 Upgrades	American Contracting & Environmental	\$18,732,000	\$2,245,771	11.99%
140060	New Headquarters Building	Skanska USA Building Inc.	\$60,091,527	\$6,555,986	10.91%
130090	Division Z-Poplar Point Pumping Station Replacement and Main Outfall	E.E. Cruz & Company, Inc.	\$53,452,275	\$4,375,785	8.19%
110020	Final Dewatering Facilities Second Contract	PC Construction Company	\$78,081,000	\$6,334,115	8.11%
130170	for St Elizabeth Water Tower and Large Diameter Transmission Mains	Ulliman Schutte Construction, LLC	\$13,390,000	\$1,034,538	7.73%

<sup>1</sup>Changes were related to another contractor's inability to perform their contract scope specified for partially blocked pipe, sections missing a pipe invert and point repair work required at various locations and that scope being transferred to this contract/contractor.

<sup>2</sup>Changes were related to project delay costs paid out to the contractor due to unavoidable and exigent circumstances by DC Water at no fault of the contractor.

<sup>3</sup>The most significant changes contributing to Flippo's high change rate were related to scope changes related to differing site conditions encountered by the contractor during excavation & construction for valve locations.

<sup>4</sup>The most significant changes contributing to Marine's high change rate were to evaluate the structural condition of the North East Boundary Trunk Sewer (NEBTS) to produce a final structural report outlining the condition of the sewer and areas of concern.



## Approach

### CHANGE ORDER FUNCTION UNDERSTANDING

- Reviewed policies and procedures, organizational charts, and any other key process information available to further our understanding of the function.
- Conducted interviews with key personnel to obtain a detailed understanding of Change Order policies and procedures, operating functions, and key performance indicators.

### PROJECT MANAGEMENT INTERVIEWS<sup>2</sup>

- Conducted Project Management interviews for a sample of ten (10) change orders from 5/1/2019 – 4/30/2020.
- Discussed the origin of each proposed (and ultimately processed) change order based upon PM feedback and identified possible control breakdowns.
- Identified process improvement opportunities and recommended internal control enhancements to improve the overall process.

### CHANGE ORDER TESTING<sup>1</sup>

- Selected a sample of 6 (six) change orders to perform testing related to:
  - - Change Order intake
  - - Change Order scope review and approval
  - - Change order documentation
  - - Change Order timeliness
- Reviewed sample documentation to evaluate the operating effectiveness of the controls identified during walkthroughs.

<sup>1</sup>Transactional testing: Due to the introduction of the change order SharePoint site in October 2019, RSM performed transactional testing on six (6) change orders processed within the new site between 10/1/2019 and 4/30/2020.

<sup>2</sup>RSM also conducted project manager interviews for the six change orders detailed in the previous note. Further, we selected four (4) additional change orders processed from 5/1/2019 – 9/30/2019 (pre-SharePoint implementation) to conduct additional project manager interviews. In total, project manager interviews were conducted for ten (10) change orders from 5/1/2019 – 4/30/2020.



# OBSERVATIONS AND RECOMMENDED ACTION

© 2019 RSM US LLP. All Rights Reserved.



## Observation 1: Change orders adversely impacting initial project plan or schedule

**Risk Rating: Moderate**

**Observation:** Per review of contract documentation, as well as interviews conducted with project managers, for twenty (20) proposed change orders, we noted nine (9) of these changes adversely impacted the initial project plan and/or schedule. The detail of all twenty PCOs is shown below and on the following two pages.

In-Scope PCO: Basis for Change			
Basis (Total Cumulative \$ Value)	Dollar Value of PCO	Details	Adverse impact to project plan or schedule?
<b>Project Delays</b> \$4,375,275	\$4,375,275	Related to a 598 calendar day time extension to the date of Substantial completion and an 840 calendar day extension to the date of Final Completion. The substantial time extension was due to a myriad of issues related to differing site conditions and failure of the contractor to fulfill its duties.	Yes
<b>Scope Change</b> \$1,260,466	\$467,783	Additional work was added to the scope of the project related to replacement of a water main at Florida Avenue NW.	No
	(\$100,000)	Removal of painting requirements specified in the Gravity Thickener pipe gallery.	No
	(\$14,500)	Delete ten (10) flow switches on Reactor Feed Pumps, and Dilution Water Pumps as detailed in PAF-034 including all associated pipe taps, conduit and wire, and associated PCS programming.	No
	(\$47,215)	Delete the work required to provide permanent pavement in the areas where temporary patching is used at trench excavations in the CMF Parking Area.	No
	\$461,687	Provide a one hundred four (104) calendar day extension to the contract completion date of which 98 calendar days are compensable. This was related to implementation of the control system during construction.	Yes
	\$408,000	Provide a ninety-eight (98) calendar day time extension to the contract completion date of which 85 calendar days are compensable due to the impacts of the concurrent delays to rehabilitation of raw wastewater pumps and fabrication and delivery of instrumentation and electrical equipment.	Yes
	\$84,711	Install lintels to hold up existing masonry above doorways.	Yes



## Observation 1: Change orders adversely impacting initial project plan or schedule

### Observation:

In-Scope PCO: Basis for Change			
Basis (Total Cumulative \$ Value)	Dollar Value of PCO	Details	Adverse impact to project plan or schedule?
<b>Error/Omission</b> \$726,255	\$279,920	Construct access platform as per the revised design including revised design of platform supports bearing on the pump casing and a material change from aluminum to 316 stainless steel.	Yes
	\$11,433	Perform field modifications to the siphon vent piping for use with the redesigned pipe supports.	Yes
	\$434,902	Additions to certain bid items due to original contract not including replacement of all service lines as part of the scope of work.	Yes
<b>Differing Site Conditions</b> \$452,629	\$446,600	Provide a one hundred eighty (180) calendar day time extension of which 93 calendar days are compensable due to the impacts of the delay of approval of the MCCs.	Yes
	\$6,229	Provide labor, material and equipment to protect uncovered 4" HDPE gas line according to procedures directed by Washington Gas.	No
<b>Owner Requested for Change</b> \$246,231	(\$9,295)	Provide a credit to change the pipe material for Air Release Drain piping from 316 St Stl to Ductile Iron for FIP 1- 10 at the Filtration and Disinfection Facility.	No
	(\$97,355)	Provide a credit to reuse and repair exiting grating in lieu of replacing grating at elevation 21.75 of the FIP Motor Room at the Filtration and Disinfection Facility.	No
	(\$18,000)	Negotiate transfer of ownership of the Vendor training trailer from DC Water to the contractor. Contract utilized trailer and remove it at final completion.	No
	\$370,881	Provide labor, materials, equipment and incidental to supply progressing cavity pumps with rotors that have a tungsten carbide coating.	Yes

## Observation 1: Change orders adversely impacting initial project plan or schedule

**Observation:**

In-Scope PCO: Basis for Change			
Basis (Total Cumulative \$ Value)	Dollar Value of PCO	Details	Adverse impact to project plan or schedule?
<b>Administrative</b> \$143,969	\$94,000	Compensate Contractor for all cost associated with updated wage rates as of August 16, 2019.	No
	\$49,969	Incorporate the effective Wage Rate General Decision into existing Contract.	No
	\$0	Transfer funding from certain bid items to others, which did not impact the value of the contract.	No

Cumulative PCO Value	CO Rate (Impact to Initial Contract Value)	
In-Scope PCOs Adversely Impacting Project Plan/Schedule	In-Scope PCOs Adversely Impacting Project Plan/Schedule	All PCOs (10/1/2016 – 4/30/2020)
\$6,873,209	2.92%	3.24%

**Root Cause Analysis:** Specific causes cited during our interviews with project managers related to the change orders adversely impacting the project plan or schedule included the following:

- Limited engagement from identified stakeholders during design review;
- Limited coordination between design and construction teams;
- Length of time between design and construction; and,
- Error and omission in initial design.

**Impact Analysis:** Conditions as noted above can cause further change orders adversely impacting construction project plans and schedules, leading to financial impact, extended projects, and dissatisfaction of District residents impacted by construction.



## Observation 1: Change orders adversely impacting initial project plan or schedule

---

**Recommendation:** To address the concerns identified during our review, we recommend DC Water:

- Conduct training for all relevant internal stakeholders (including facilities, maintenance, safety, etc.) to educate personnel on their roles and responsibilities related to the following processes:
  - Stakeholder identification and engagement
  - Design review, escalation, and resolution; and,
- Perform analysis to review the transition and coordination between design and construction teams of major projects to identify possible areas of process improvement.

## Observation 1: Change orders adversely impacting initial project plan or schedule

**Management Action Plan:** In response to the 2017 Internal Audit titled " Internal Audit Report of Construction Plan Review and Permitting Oct 2017", 4 SOPs were created, and training conducted to improve stakeholder identification and engagement including design review, escalation and lock in. The four SOPs that were implemented in May 2018 are:

- 3005 Stakeholder Identification and Engagement
- 3070 Design Review, Escalation and Resolution
- 3100 Design Lock -In
- 4040 Pre-Advertisement Certification

A certain number of the change orders included in the observation were from projects designed prior to implementation of these SOPS and before the stakeholder engagement process improvements were realized.

Using the previously created training curriculum materials we will conduct refresher\* training, to all Design, Construction, and Operations stakeholders on the use and compliance of the following SOPs:

- SOP 3005 Stakeholder Identification and Engagement
- SOP 3070 Design Review, Escalation and Resolution

\*Training on SOPs 3005 and 3070 was first conducted in August 2018 through September 2018 to a total of 67 staff.

We will perform the recommended analysis to review the transition between design and construction teams. The analysis will be based on a review of the transition and coordination between design and construction teams for DC Water construction contracts that were awarded between 10/01/2019 and 9/30/2020, following which, a summary will be prepared including observations, findings and recommendations for process improvements, if any.

**Responsible Party:** Daniel Nguyen Senior Manager, CIP Program Services (Refresher Training); Kathleen Kharkar Senior Manager, CIP Risk and Change Management (Design to Construction Analysis)

**Target Date:** March 30<sup>th</sup>, 2021

© 2019 RSM US LLP. All Rights Reserved.



## Observation 2: User access review

---

### Risk Rating: **Moderate**

**Observation:** Appropriate user access within an electronic work flow validates that only the personnel required to read, write, and/or delete information have the ability to do so. Due to the introduction of the SharePoint work flow to submit, review, and approve proposed change orders, user access and permissions are exceedingly important to maintain the integrity of the change order work flow.

Per inquiry with the Senior Manager, CIP Program Services, a process for periodic review of user access and permissions does not currently occur. Without a periodic review, as new users are added or current users change roles, previously provisioned access may become inappropriate.

**Root Cause Analysis:** Due to the recent introduction of the SharePoint work flow, a periodic user access review process had yet to be developed.

**Impact Analysis:** If user access becomes inappropriate, change order proposals or supporting documentation may be altered or deleted. Additionally, change order proposals may be approved by individuals no longer maintaining the appropriate level of authority to do so.

**Recommendation:** Implement a quarterly access review process in which the Senior Manager, CIP Program Services reviews the listing of users and their access levels. If any inappropriate users still have access, these users should be removed as part of this process, and documented as such. The Program Services Manager should note his review via sign-off.

## Observation 2: User access review (continued)

---

**Management Action Plan:** On a quarterly basis, we will review the SharePoint listing of users and access levels with representatives from Office of Legal Affairs (OLA) and Capital Procurement (CP) to confirm roles and responsibilities and appropriate access levels. We will prepare an access level certification signed by OLA, CP, and CIP Program Services to document the review.

**Responsible Party:** Daniel Nguyen Senior Manager, CIP Program Services

**Target Date:** January 31<sup>st</sup>, 2021

## Observation 3: PCO summary submission timeliness

---

### Risk Rating: Low

**Observation:** The PCO Summary submission initiates the change order work flow process following the contract modification determination. Once submitted, a PM Supervisor can conduct their review and the subsequent steps towards the approval of the change order can be performed.

Per discussion with the Senior Manager, CIP Program Services, the expectation is that the PCO Summary is submitted within 15 calendar days after the contract modification determination. While this is an expectation, the timeliness of this submission is an important aspect of the overall process.

We reviewed six (6) change orders, which included a total of ten (10) PCOs, with the following results related to PCO Summary submissions:

- Nine (9) out of ten (10) PCO summaries were submitted past the 15 day expectation for submission. Specifically, the breakdown for submission timing was as follows:
  - 1 PCO was submitted after 17 days.
  - 1 PCO was submitted after 31 days.
  - 1 PCO was submitted after 35 days.
  - 3 PCOs were submitted after 44 days.
  - 3 PCOs were submitted after 60 or greater days.

## Observation 3: PCO summary submission timeliness (continued)

---

**Root Cause Analysis:** The submission timeliness is not a requirement, rather an expectation. Accountability placed upon this aspect of the process is inadequate.

**Impact Analysis:** Delayed submissions of PCO summaries can impact the overall timing of the change order process, delaying the required work and ultimately the project itself. Due to these delays, contractors may have reason to submit claims for loss and expense.

**Recommendation:** We recommend implementing specific requirements within the SharePoint work flow around the timeliness of PCO submissions. If a PCO is not submitted within the identified time period, the work flow should notify the direct Supervisor of the individual responsible for the PCO summary regarding the delay. Policy and procedure related to the SharePoint work flow should be updated to include these elements of submission as requirements, rather than expectations.



## Observation 3: PCO summary submission timeliness (continued)

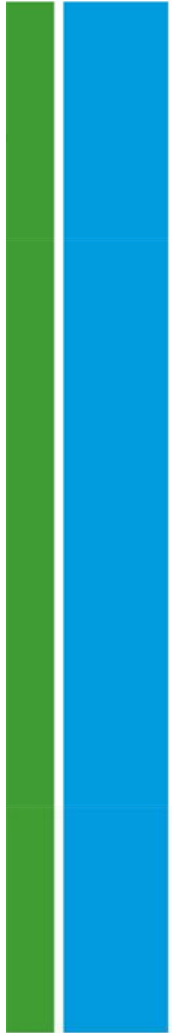
---

**Management Action Plan:** We will prepare a memorandum from SVP, CIP Project Delivery requiring all staff to initiate a Proposed Change Order (PCO) in SharePoint within fifteen (15) calendar days following completion of PCO Negotiation. A monthly report will be generated from SharePoint to notify SVP, CIP Project Delivery, Engineering Department Directors and Construction Branch Managers of the PCO initiation timeliness in SharePoint to allow prompt corrective action, if necessary.

**Responsible Party:** Daniel Nguyen Senior Manager, CIP Program Services

**Target Date:** January 31st, 2021

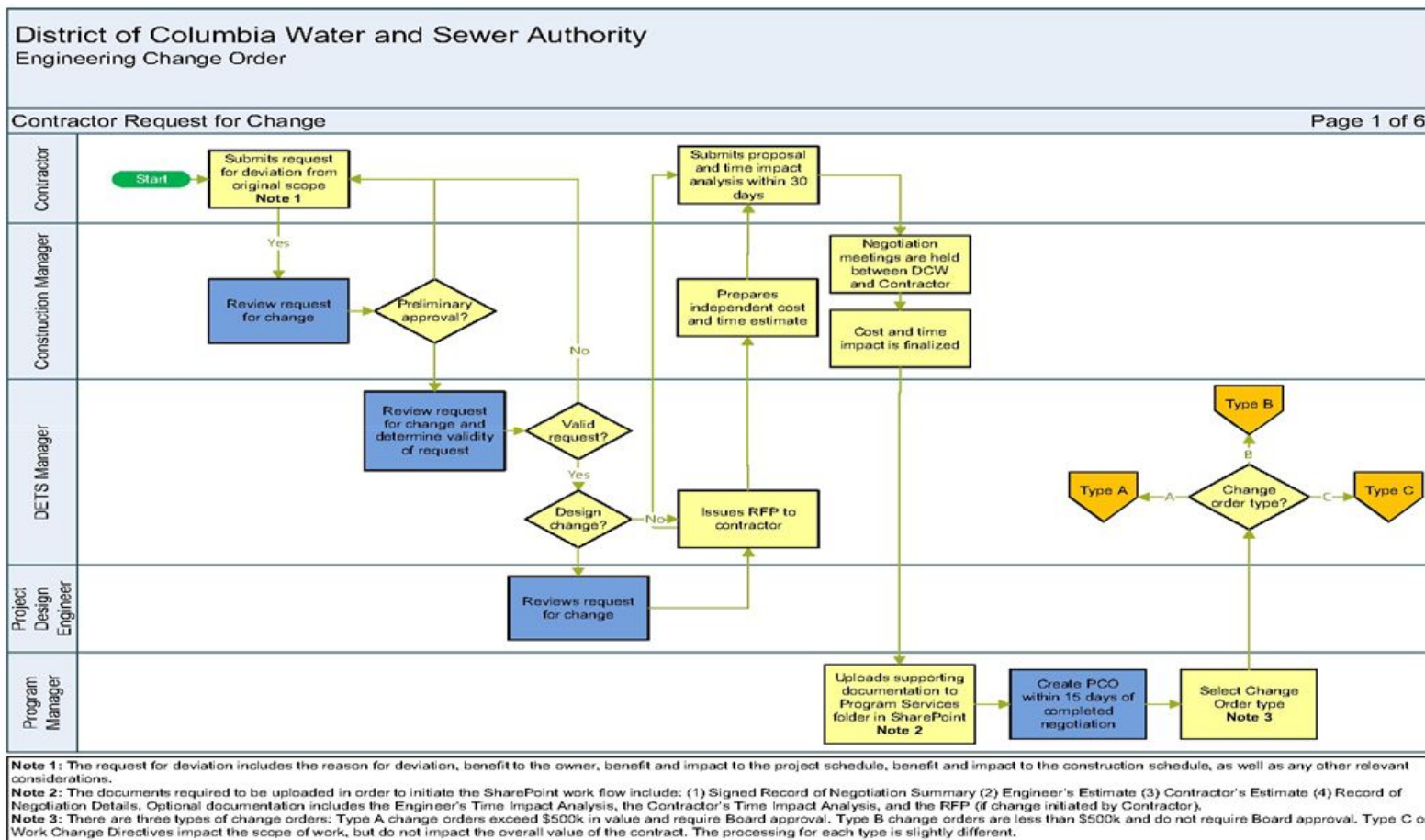
# APPENDICES



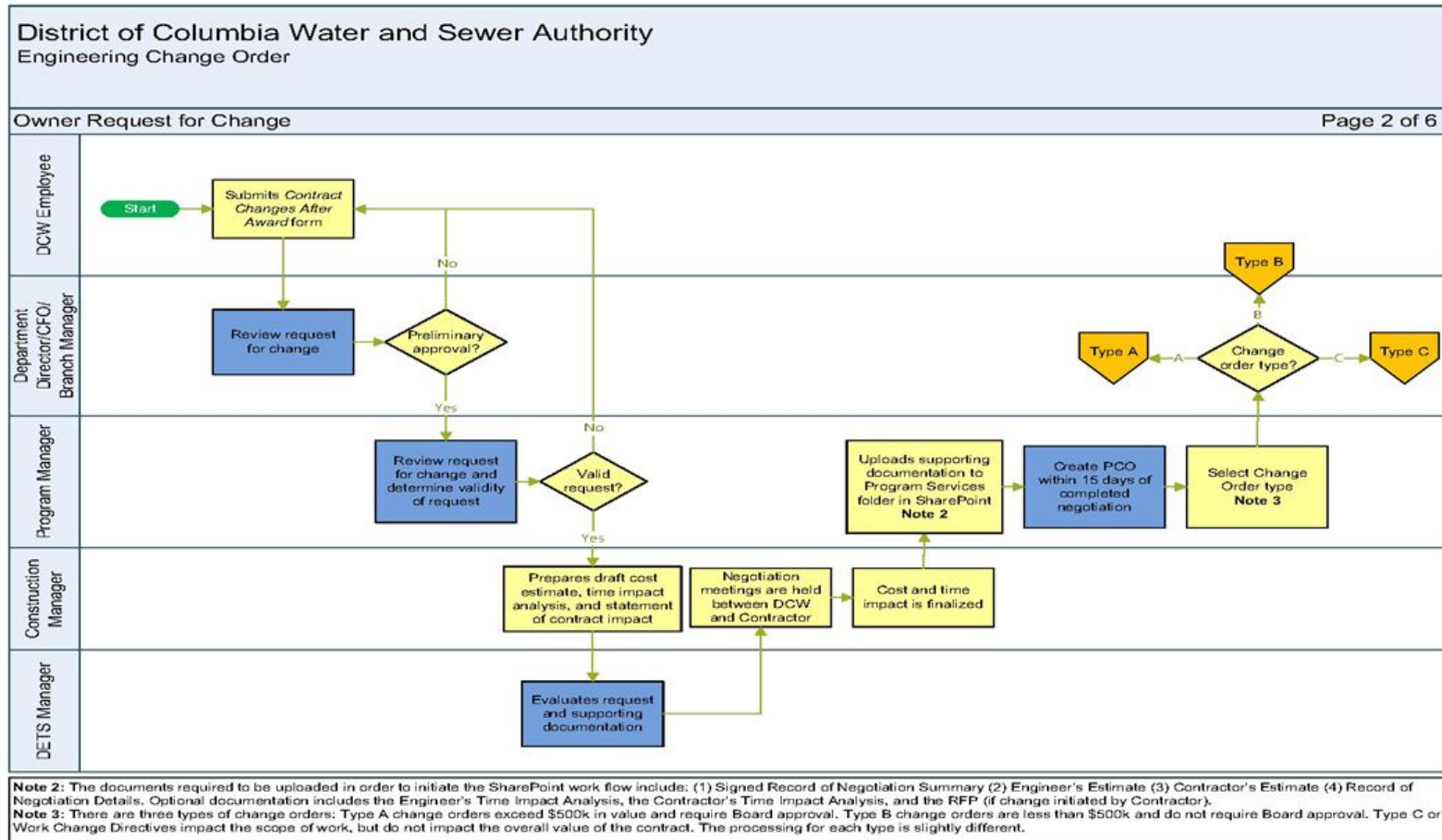
© 2019 RSM US LLP. All Rights Reserved.



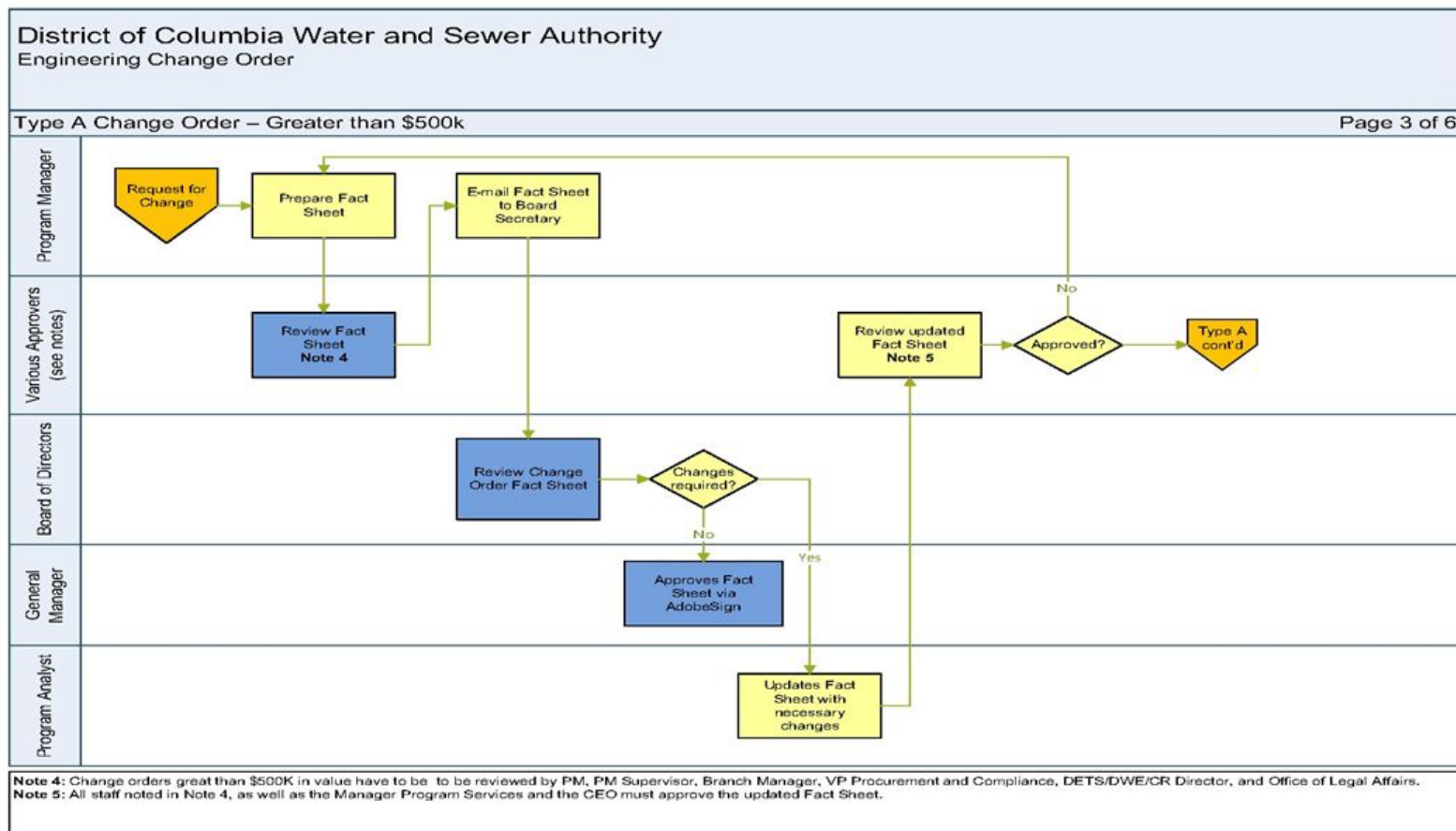
## Appendix A – Current State Change Order Process Flowchart



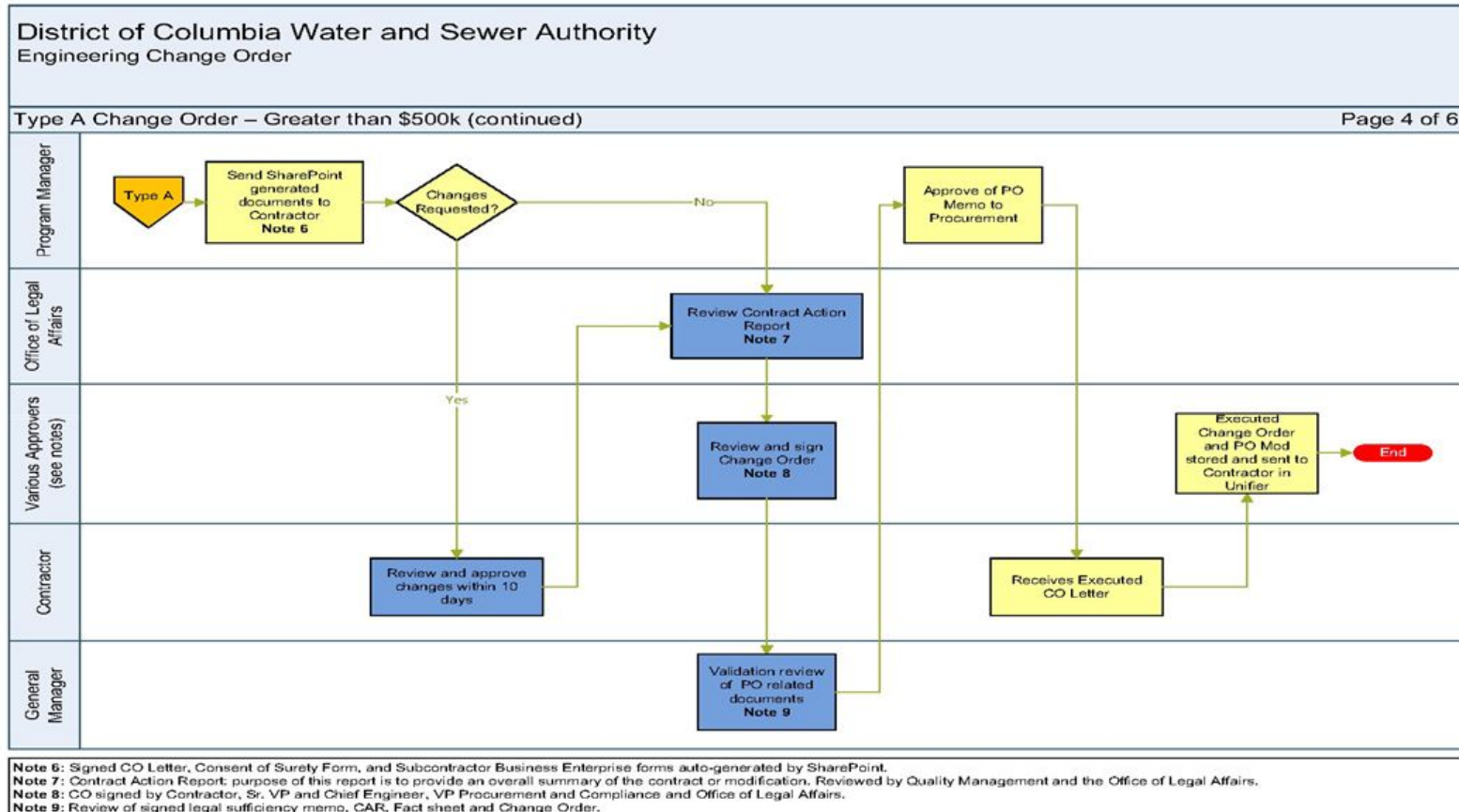
## Appendix A – Current State Change Order Process Flowchart



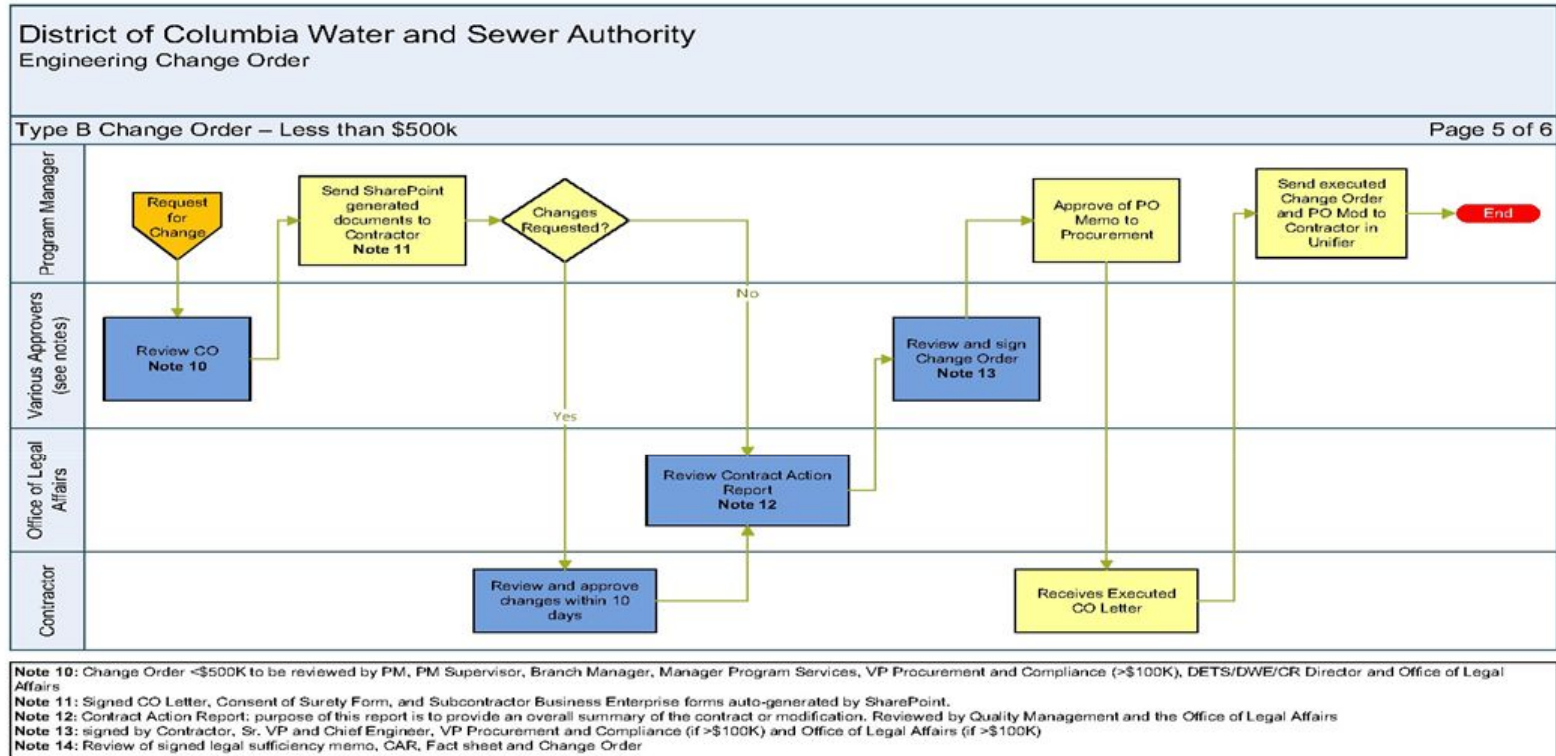
## Appendix A – Current State Change Order Process Flowchart (continued)



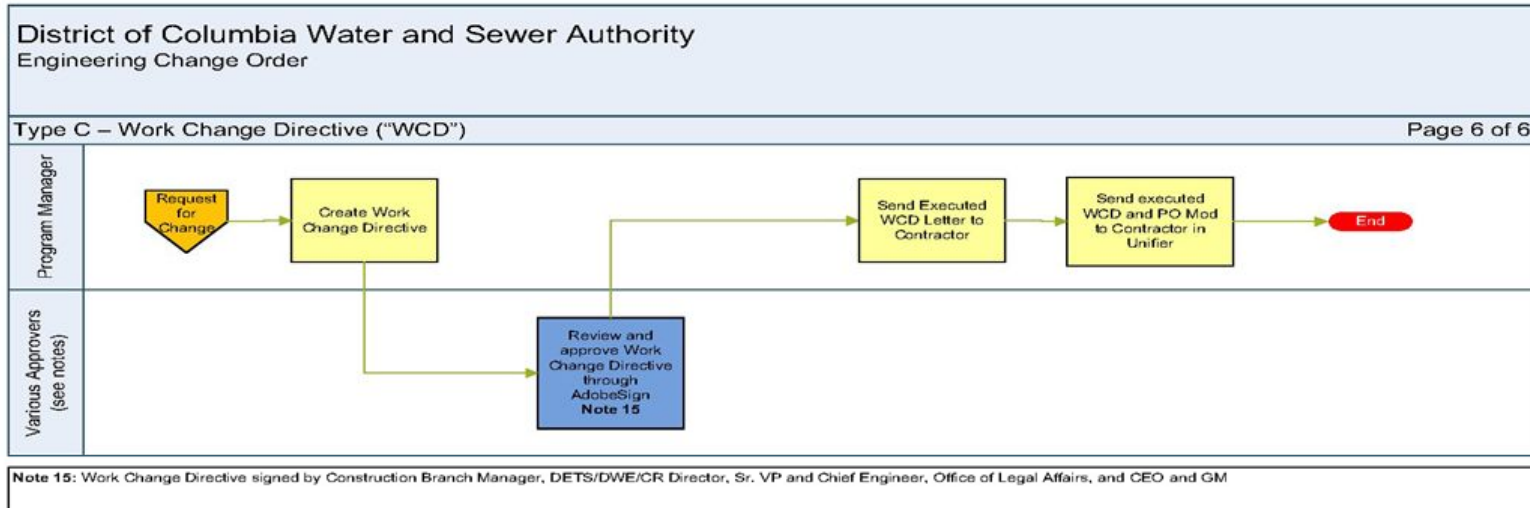
## Appendix A – Current State Change Order Process Flowchart (continued)



## Appendix A – Current State Change Order Process Flowchart (continued)



## Appendix A – Current State Change Order Process Flowchart





## Appendix D – Rating Definitions

RSM defined observations based on the following risk rating definitions:

Observation Risk Rating Definitions	
Rating	Definition
Low	Observation presents a low risk (i.e., impact on financial statements, internal control environment or business operations) to the organization for the topic reviewed and/or is of low importance to business success/achievement of goals. Action should be taken within <b>12 months</b> (if related to external financial reporting, must mitigate financial risk within two months unless otherwise agreed upon).
Moderate	Observation presents a moderate risk (i.e., impact on financial statements, internal control environment or business operations) to the organization for the topic reviewed and/or is of moderate importance to business success/achievement of goals. Action should be taken within <b>nine months</b> (if related to external financial reporting, must mitigate financial risk within two months).
High	Observation presents a high risk (i.e., impact on financial statements, internal control environment or business operations) to the organization for the topic reviewed and/or is of high importance to business success/achievement of goals. Action should be taken immediately, but in no case should implementation exceed <b>six months</b> (if related to external financial reporting, must mitigate financial risk within two months).

**RSM US LLP**

1250 H St NW  
Washington, DC 20005

+1 800 274 3978  
[www.rsmus.com](http://www.rsmus.com)

This document contains general information, may be based on authorities that are subject to change, and is not a substitute for professional advice or services. This document does not constitute audit, tax, consulting, business, financial, investment, legal or other professional advice, and you should consult a qualified professional advisor before taking any action based on the information herein. RSM US LLP, its affiliates and related entities are not responsible for any loss resulting from or relating to reliance on this document by any person. Internal Revenue Service rules require us to inform you that this communication may be deemed a solicitation to provide tax services. This communication is being sent to individuals who have subscribed to receive it or who we believe would have an interest in the topics discussed.

RSM US LLP is a limited liability partnership and the U.S. member firm of RSM International, a global network of independent audit, tax and consulting firms. The member firms of RSM International collaborate to provide services to global clients, but are separate and distinct legal entities that cannot obligate each other. Each member firm is responsible only for its own acts and omissions, and not those of any other party. Visit [rsmus.com/aboutus](http://rsmus.com/aboutus) for more information regarding RSM US LLP and RSM International.

RSM® and the RSM logo are registered trademarks of RSM International Association. *The power of being understood®* is a registered trademark of RSM US LLP.

© 2018 RSM US LLP. All Rights Reserved.



# DC WATER

## Customer Billing & Collections Internal Audit



October 2020

# Table of Contents

---

**Executive Summary and Objectives**

**Background**

**Approach**

**Observations and Recommended Action**

**Process Improvement Opportunities**

**Appendix – Risk Rating Definition**

# EXECUTIVE SUMMARY, BACKGROUND AND APPROACH



3

© 2019 RSM US LLP. All Rights Reserved.



# Executive Summary and Objectives

## Objective and Scope

The purpose of this review was to obtain an understanding of how the Authority executes and monitors the billing and collections processes. Our testing period covered July 2019 to June 2020. The audit scope was based on the following objectives:

- Conducted walkthroughs with responsible personnel within Customer Care to assess the design of the billing and collections control environment (pre-COVID-19 environment, current environment, and intended future state environment);
- Reviewed future state customer outreach plan post-COVID-19 public health emergency;
- Performed detailed testing over the following processes to assess the effectiveness of the billing and collections control environment:
  - Billing: Mass market (commercial, multi-family, and residential) billing, mass market exception reporting and review (implausible, bill out sort, and invoice out sort), mass market cancel rebill process, collective billing processes (design assessment only), periodic reporting (as applicable);
  - Collections: Inbound and outbound collections communication with customers, escalation to disconnects, liens, receivership, or tax sale (pre-COVID environment), write-offs, installment plan adjustments, periodic reporting (as applicable);
- Reviewed status of open prior audit findings related to segregation of duties and system permissions in eCIS to determine whether access to billing and collections data is properly restricted in order to maintain integrity and confidentiality of the data, where applicable;
- Identified strong practices and areas of excellence, as well as potential opportunities for process improvement or control gaps and underlying root causes; and
- Worked with management to develop action plans to remediate identified control gaps.

*\*Note the AML and metering processes were out of scope for this audit.*

Fieldwork was performed July through September 2020.

## Overall Summary and Highlights

There are no high risk observations to report. The three observations identified during our assessment are outlined on pages 10-16:

1. Delayed issuance of liens
2. Delayed resolution of manual invoice processing
3. Lack of Receivership for multi-family delinquent accounts

These observations are described in the detailed observations section of the report. We assigned relative risk or value factors to each observation. Risk ratings are the evaluation of the projected severity of the concern and the potential impact on the operations of each item. Three process improvement opportunities have also been included in the report for management's consideration. Only observations will require management action plans with estimated completion dates that will be included in the routine follow up of internal audit observations.

### Summary of Observation Ratings (See Appendix for risk rating definitions)

Number of Observations by Risk Rating		
High	Moderate	Low
0	1	2

# Background

## Billing:

The Billing team’s responsibilities include producing timely and accurate invoices, processing bill exceptions, ensuring new accounts are set-up with correct customer information, as well as generating reporting for extended and “catch up” billing events.

The Authority’s operating revenue base is very diverse, including established customers such as the Federal government, the District government, surrounding jurisdictions in Maryland and Virginia, and commercial and residential customers within the District. Operating revenues by source is illustrated in the chart below.

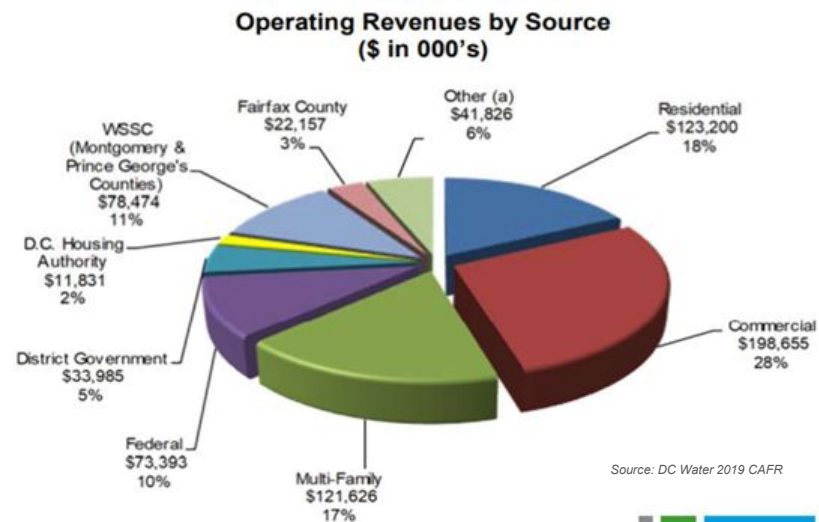
### Mass Market Billing Process:

Commercial, residential, and multi-family customers are billed based upon consumption and current rates by premise classification. Leveraging the billing cycle calendar, customer invoices are generated and billed monthly.

Meter readings and estimates feed into the Authority’s eCIS system, VertexOne, where the system automatically reviews and validates data collected from meters and automatically generated bills to check for unexpected period-over-period variances in usage or charges prior to bill job processing. If unable to validate, the system automatically flags the account as “implausible”. Bills not flagged automatically go to bill print. Those flagged as “implausible” require manual review by the billing team prior to processing.

### Collective Invoicing Process:

DC Water has a group billing process in place for customers who own and/or manage a large quantity of premises such as universities and municipalities. One group (collective) bill is generated for all premises included in the customer’s portfolio. Group bills generally follow the standard monthly billing process; however, The Federal Group Bill is generated two years in advance based upon estimates and paid quarterly.



Source: DC Water 2019 CAFR



## Background (continued)

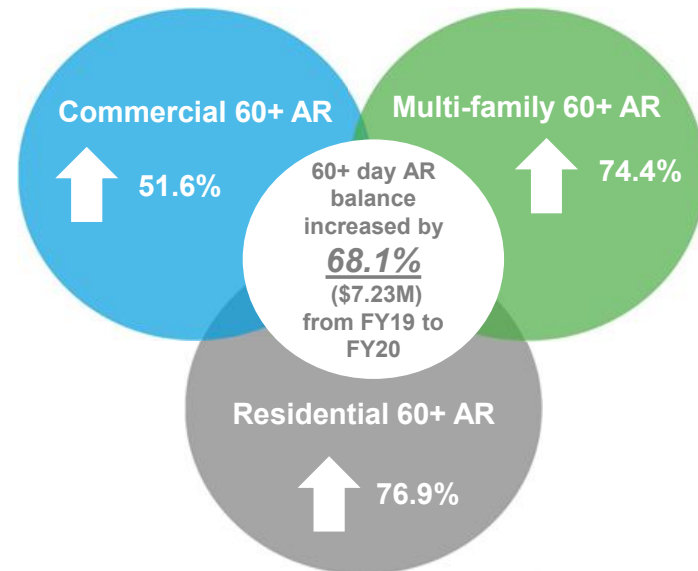
### Collections:

The Collections team's responsibilities include producing accounts receivable (AR) reporting, reviewing AR trends, processing account adjustments, updating account information, promoting and communicating affordable payment options and payment arrangements, placing liens on delinquent balances, working with various teams to complete the disconnect process, executing outbound collection calls, writing-off uncollectible balances, and submitting accounts to tax sale.

VertexOne plays a major role in the day-to-day collections processes. In addition to acting as the main information repository for customer accounts and their respective receivables, VertexOne is constantly updated to reflect various account statuses that may result from collection efforts (i.e. tax sale, lien, etc.). The eCIS is also leveraged in all operations related to inbound/outbound customer communication, write-offs, and past due collection activities.

### COVID-19 response:

Beginning March 12, 2020, DC Water suspended all system collection activity in response to the growing coronavirus pandemic until completion of operational telework deployment. Suppressed collection activity included: Reminder Notices, Disconnect Notices, Disconnect Work Orders, Late Payment Fees, Interest Fees, Intent to Lien Notices, Lien Placement, Final Bill Calls, and Default Unenrollment for customer selected services including installment plans, budget billing, and SPLASH. Fees for Unauthorized Service, Disconnect/Reconnect, and Manual Meter Read were also suspended. For the purpose of maintaining collection integrity, some activity resumed following telework deployment, including: Intent to Lien Notices, Lien Placement, and Final Bill Calls. However, all lien activity was suspended again in light of public interest and changing legislation regarding the Public Health Emergency.





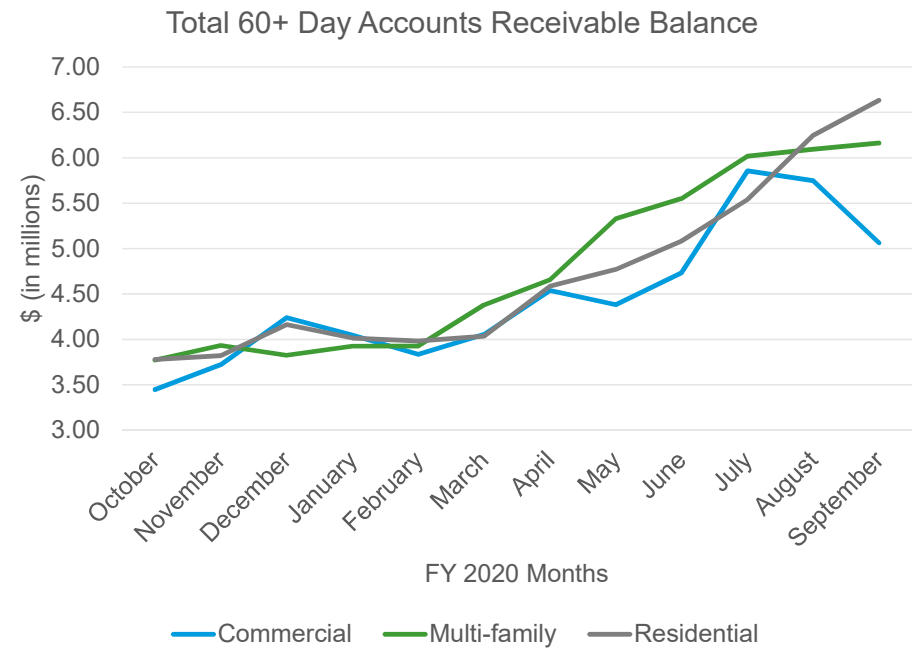
## Background (continued)

### 2020 Collection Trend Analysis:

The financial strain of COVID-19 on ratepayers coupled with the suppression of collections activities has had a significant impact on the Authority's AR aging balance. From FY19 to FY20, there has been a \$7.23M (68.1%) increase in 60+ day AR.

The chart below details 60+ day AR aging balances and accounts by bill class from FY2019 to FY2020. The graph to the right illustrates month-over-month 60+ day AR aging balances by bill class during FY20.

Bill Class	FY 2019		FY 2020		60+ AR \$ % Variance
	60+ AR (\$)	# of 60+ AR Accounts	60+ AR (\$)	# of 60+ AR Accounts	
Commercial	\$3,341,002.15	886	\$5,064,120.60	1,390	51.6%
Multi-family	\$3,533,098.61	772	\$6,161,973.97	1,140	74.4%
Residential	\$3,748,993.19	7,086	\$6,633,184.67	11,241	76.9%



## Background (continued)

### Past Due Collections Activity:



#### Late Fee

On the 1st day past due, a 10% late fee is applied to the current charges of the delinquent invoice.



#### Reminder

Reminder notices are mailed on the 1st day past due to the customer's billing address. Reminder calls are generated on the 4th day past due for balances over \$80. For impervious only customers, there is a second reminder notice mailed on the 9th day past due.



#### Disconnects

A disconnection notice is mailed and a disconnection call is generated on the 9th day past due for balances over \$200. Disconnect service orders are created and sent to the field for processing if the receivable is still outstanding at the 24th day past due. Note that disconnections do not pertain to multi-family or impervious only accounts.



#### Liens

An intent to lien notice is mailed and intent to lien call is generated on the 35th day past due for balances over \$200. 15 days after the intent to lien is sent, a lien is triggered by VertexOne and the Collections team is notified to create the image and process the lien.



#### Tax Sale

On an annual basis, the AR report is assessed against tax sale criteria to determine candidates eligible for submission to the Office of Tax and Revenue. All tax sale accounts are maintained within the internal "Tax Sale List" excel workbook for record keeping and tracking purposes. On a weekly basis, the Collections Coordinator manually updates accounts' statuses in VertexOne based on payments collected.

## Approach

### BILLING:

1. Conducted walkthrough interviews with the Billings team to gain an understanding of controls in place for billing processing throughout the year;
2. Evaluated the design of the billings control environment for gaps;
3. Selected a representative sample of mass market invoices;
4. Selected a representative sample of implausibles;
5. Selected a representative sample of cancel rebills;
6. Reviewed sample documentation to evaluate the operating effectiveness of the controls identified during walkthroughs.

*\*Note the AMI and metering processes were out of scope for this audit.*

### COLLECTIONS:

1. Conducted walkthrough interviews with the Collections team to gain an understanding of controls in place for collection processing throughout the year;
2. Evaluated the design of the collections control environment for gaps;
3. Selected a representative sample of past due accounts;
4. Selected a representative sample of write-offs;
5. Selected a representative sample of tax sale accounts;
6. Reviewed sample documentation to evaluate the operating effectiveness of the controls identified during walkthroughs.

Reporting: At the conclusion of this audit, we summarized our observations and have reviewed the results of our testing with management.



# OBSERVATIONS AND RECOMMENDED ACTION

© 2019 RSM US LLP. All Rights Reserved.



## Observation 1: Delayed issuance of liens

---

**Risk Rating: MODERATE**

### **Observation:**

VertexOne automatically triggers an intent to lien notice and call at 35 days past due (if the past due amount is greater than \$200). DC Water is then able to issue a lien 15 days after intent is issued. However, liens are created manually, and it may take multiple weeks for the team to generate and send out the lien. If the team finds that any of the data included in the automatically-processed intent to lien was inaccurate (i.e. owner name or address), then a corrected intent to lien must be issued and DC Water must wait another 15 days prior to issuing the lien.

### *Root Cause Analysis:*

Liens may take multiple weeks to generate based on bandwidth and workload of the collections team, given that the lien process requires manual verification and generation. Additionally, VertexOne does not require manual validation prior to generating an intent to lien, and therefore identification of data inaccuracies is delayed until at least 15 days after the intent to lien was triggered.

### *Impact Analysis:*

DC Water delays the likelihood of collecting against delinquent accounts through all means available to the Authority. During the public health emergency, many collections processes have been suppressed (including intent to lien and lien placement). There has been an uptick in delinquent accounts, so we anticipate an influx in required lien activity (and all collections activity) post-public health emergency. Given the increase in workload expected, the collections team may not have the bandwidth to place liens timely under the current manual process.

## Observation 1: Delayed issuance of liens

---

### **Recommendation:**

DC Water is in the process of automating the lien process. Internal Audit recommends that the Authority continue to explore automation opportunities to eliminate the delayed turnaround time of lien placement.

If DC Water is unable to implement the automated process before the public health emergency is lifted, Internal Audit recommends that DC Water identify additional temporary resources to assist the collections team during the anticipated influx when collections activities are no longer suppressed. If possible, the collections team should work to train the additional resources prior to the influx of collections activity.

### **Management Action Plan:**

**Response:** The following system enhancements to VertexOne and the recordation process will be ready at the end of October 2020. The lien process, however, will continue to remain inactive until the conclusion of the public health emergency.

- Automate creation of the lien and lien release image
- Automate recordation with Recorder of Deeds via Corporation Service Company
- Move forward the validation of customer information from the lien step to the intent to lien step

The validation of the VertexOne customer information against the Office of Tax and Revenue customer data will continue to be performed manually by Collections staff until a system is identified to automate this process and only require manual review for mismatches. This enhancement is slated for FY 2021, with a tentative go-live of March 2021.

**Responsible Party:** Sarah Mandli, Manager Center of Excellence

**Target Date:** Phase 1 system enhancements – October 31, 2020; Phase 2 system enhancement – March 31, 2021

## Observation 2: Delayed resolution of manual invoice processing

**Risk Rating: LOW**

### **Observation:**

VertexOne automatically reviews and validates data collected from meters and automatically generates bills to check for unexpected period-over-period variances in usage or charges prior to bill job processing. If unable to validate, the system automatically flags the account as “implausible”. The billing team generates an unbilled report twice daily to facilitate the review and investigation of all “implausible” accounts. Internal Audit tested 50 billing samples that were processed between 7/1/19 – 6/30/20. Of the 50 samples tested, there were seven samples that were not automatically flagged by VertexOne as “implausible”, all seven of which were processed within the team’s five day target guideline. However, Internal Audit tested 43 “implausible” samples, of which 32 exceeded the five day target.

For “implausibles” that were flagged as a result of prior estimated read higher than actual current meter read, the average time from cycle upload to invoice processing for our exception samples was 56 days. For “implausibles” that were flagged as a result of any other reason (missing read, billing outsort, billing block, missing read order, etc.), the average time from cycle upload to invoice processing for our exception samples was 28 days.

### *Root Cause Analysis:*

DC Water brought the billing exception review process in-house with the implementation of VertexOne in January 2018. The team is tracked against a KPI of processing 97.5% of billing within five days of cycle upload. The billing team has struggled to meet the 97.5% target processing metric since inception due to lack of adequate staffing for the team. In FY20, the billing team did not achieve 97.5% or greater until Q3, when four vacancies were filled on the billing team. In Q1 and Q2, the team averaged 95.35%.

## Observation 2: Delayed resolution of manual invoice processing

---

### *Impact Analysis:*

Prior to Q3 of FY20, there was consistently a backlog of accounts for manual review. The backlog and inability to meet the team's KPI of processing 97.5% of billing within five days of cycle upload resulted in delayed billing to customers. When billing is delayed, the Authority is unable to collect payment timely, impacting revenue. *Note that this risk impact has been mitigated since the audit testing period through the addition of four new billing staff in March 2020.*

### **Recommendation:**

Management has remediated this observation since the audit testing period by filling four vacancies on the billing team. Internal Audit recommends that DC Water continue to consistently track the backlog of invoices missing the five day target in order to evaluate appropriateness of staffing levels.

### **Management Action Plan:**

**Response:** N/A – management has remediated this observation since the audit testing period by filling four vacancies on the billing team.

**Responsible Party:** N/A

**Target Date:** N/A



## Observation 3: Lack of Receivership for multi-family delinquent accounts

---

**Risk Rating: Low**

### **Observation:**

Receivership is a court order for a Receiver to collect a percentage of rent from multi-family properties for payment of delinquent water charges. Receivership was introduced by DC Council as an alternative to disconnecting multi-family properties, allowing DC Water to collect on delinquent charges through other means. However, DC Water did not leverage the receivership process for all of FY19 and FY20.

### *Root Cause Analysis:*

DC Water did not have a court-appointed Receiver for multi-family accounts for all of FY19 and FY20.

### *Impact Analysis:*

DC Water is not able to maximize the likelihood of collecting against delinquent multi-family accounts. Note that during FY19 and FY20, the collections team considered all accounts that would have been eligible for receivership for the annual tax sale process instead. *Note that the Authority has approved funding for a post-COVID-19 multi-family assistance program, which will decrease the number of multi-family delinquent accounts and further mitigate this risk.*

### **Recommendation:**

DC Water secured a Receiver for multi-family accounts (not classified as condominiums or cooperatives) in January 2020. However, receivership has been put on hold due to COVID-19. Internal Audit recommends that DC Water identify customer accounts that will be candidates for receivership, and deploy the Receiver when the public health emergency is lifted.

## Observation 3: Lack of Receivership for multi-family delinquent accounts

---

### **Management Action Plan:**

**Response:** The process to engage a Receiver occurred July – October 2019. DC Water currently has an active Receiver contract through March 2021. Receivership is a process initiated through the Legal department as coordination with the Courts and legal representation is required Receiver services are anticipated to commence with the end of the Public Health Emergency, any related legislation that limits court-related collection activity, and any current suspension of internal DC Water collection activity.

**Responsible Party:** Geneva Parker, Manager CS in coordination with Office of Legal Affairs

**Target Date:** TBD – dependent on the end of Public Health Emergency

Two vertical bars, one green and one blue, are positioned on the left side of the slide.

# PROCESS IMPROVEMENT OPPORTUNITIES

© 2019 RSM US LLP. All Rights Reserved.



## Process Improvement Opportunities

---

1. **Tax Sale Tracking Process:** DC Water has the ability to submit delinquent customer accounts to the District's Office of Tax & Revenue (OTR) for tax sale based on regulations set forth by the District of Columbia for the property-owning customer. The OTR files a certificate of delinquency with the Recorder of Deeds, constituting a continuing lien against the real property for the current full amount of the unpaid water bill. The OTR may enforce the lien if any charges remain unpaid for more than 180 days from bill date, and the real property may be sold for the unpaid water charges. Proceeds from the sale may then be claimed by DC Water.

On an annual basis, Collections reviews the Accounts Receivable report to assess for any tax sale eligible accounts, which are then submitted to the OTR. Upon submission, a member of the Collections team maintains an excel spreadsheet to track the status of all submitted accounts. On a weekly basis, a member of the Collections team visits the OTR website to determine if payment has been made at OTR. If so, DC Water must then request payment to the Authority for eligible water charges from OTR.

The tracking process is manual, and requires weekly action by the Collections team in order to collect payment from OTR. Internal Audit recommends exploring opportunities to receive automated notification of status change, or automate the information feed from OTR to DC Water.

2. **Mission Critical Vacancies:** The backlog in billing outlined in Observation #2 was further exacerbated by the vacancy to position posting process. The billing team had budgeted positions vacant, however, there was a delay in People & Talent's posting of available positions for hiring. The Authority has an opportunity review how mission critical vacancies are reviewed and posted. Internal Audit has proposed a Recruiting Alignment Assessment for a future audit to further review.

3. **VertexOne Exception Reporting:** Although the billing team has filled four vacancies and worked through the backlog as detailed in Observation #2, the billing team has an opportunity to perform a review of VertexOne's exception reporting threshold configurations. Specifically, focusing on recurring month-over-month outsorts that should no longer require manual review moving forward and determining if thresholds and bill class configurations need to be revised can potentially reduce exception volume further.

# APPENDIX

© 2019 RSM US LLP. All Rights Reserved.



## Appendix – Rating Definitions

RSM defined observations based on the following risk rating definitions:

Observation Risk Rating Definitions	
Rating	Definition
Low	Observation presents a low risk (i.e., impact on financial statements, internal control environment or business operations) to the organization for the topic reviewed and/or is of low importance to business success/achievement of goals. Action should be taken within <b>12 months</b> (if related to external financial reporting, must mitigate financial risk within two months unless otherwise agreed upon).
Moderate	Observation presents a moderate risk (i.e., impact on financial statements, internal control environment or business operations) to the organization for the topic reviewed and/or is of moderate importance to business success/achievement of goals. Action should be taken within <b>nine months</b> (if related to external financial reporting, must mitigate financial risk within two months).
High	Observation presents a high risk (i.e., impact on financial statements, internal control environment or business operations) to the organization for the topic reviewed and/or is of high importance to business success/achievement of goals. Action should be taken immediately, but in no case should implementation exceed <b>six months</b> (if related to external financial reporting, must mitigate financial risk within two months).

**RSM US LLP**

1250 H St NW  
Washington, DC 20005

+1 800 274 3978  
[www.rsmus.com](http://www.rsmus.com)

This document contains general information, may be based on authorities that are subject to change, and is not a substitute for professional advice or services. This document does not constitute audit, tax, consulting, business, financial, investment, legal or other professional advice, and you should consult a qualified professional advisor before taking any action based on the information herein. RSM US LLP, its affiliates and related entities are not responsible for any loss resulting from or relating to reliance on this document by any person. Internal Revenue Service rules require us to inform you that this communication may be deemed a solicitation to provide tax services. This communication is being sent to individuals who have subscribed to receive it or who we believe would have an interest in the topics discussed.

RSM US LLP is a limited liability partnership and the U.S. member firm of RSM International, a global network of independent audit, tax and consulting firms. The member firms of RSM International collaborate to provide services to global clients, but are separate and distinct legal entities that cannot obligate each other. Each member firm is responsible only for its own acts and omissions, and not those of any other party. Visit [rsmus.com/aboutus](http://rsmus.com/aboutus) for more information regarding RSM US LLP and RSM International.

RSM® and the RSM logo are registered trademarks of RSM International Association. *The power of being understood®* is a registered trademark of RSM US LLP.

© 2018 RSM US LLP. All Rights Reserved.

