



**DISTRICT OF COLUMBIA
WATER AND SEWER AUTHORITY**

Board of Directors

Audit Committee

Thursday, October 24, 2019

9:30 a.m.

- 1. **Call to Order**..... Mr. Floyd Holt, Committee Chairperson
- 2. **Internal Audit Update**..... Dan Whelan, RSM, Auditor General
 - A. FY 2019 Internal Audit Plan Status Update
 - B. Status Update on Prior Audit Findings
 - C. **Contractual Services Assessment**
 - D. Asset Management Assessment
 - E. Hotline Update
 - F. FY 2020 Risk Assessment and Proposed Internal Audit Plan
- 3. **Executive Session*** Mr. Floyd Holt, Committee Chairperson
- 4. **Adjournment**..... Mr. 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 24, 2019



Agenda

- FY 2019 Internal Audit Plan Status Update
- Status Update on Prior Audit Findings
- Report on Completed Audits
 - Contractual Services Assessment
- Hotline Update
- FY 2020 Risk Assessment and Proposed Internal Audit Plan
- Executive Session
 - Active Directory Cloud Migration Security Review
 - CIS Application Security Segregation of Duties (SOD) Review
 - Wifi Security Review

AUDIT PLAN STATUS UPDATE – FY19

Internal Audit Plan Status Update

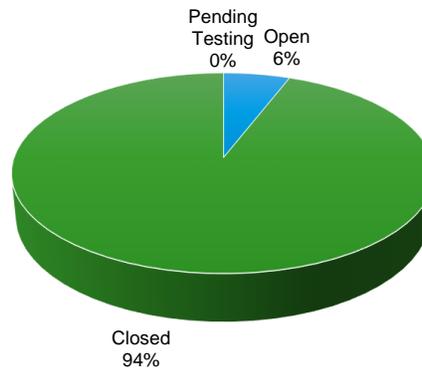
Audit	Status
Permit Operations - Reimbursable Projects Status Update	Report Issued
Mail Room Procedures	Report Issued
Fleet Management	Report Issued
Legal Operations	Report Issued
Occupational Safety and Health	Report Issued
Automated Meter Reading Final Progress Report	Report Issued
Cloud Security Rapid Assessment	Report Issued
Active Directory Cloud Migration Security Review	Report Complete
Purchasing Card Internal Audit	Report Issued
Severance Assessment	Report Issued
Wifi Security Testing	Report Complete
CIS Application Security Segregation of Duties (SOD) Review	Report Complete
Contractual Services	Report Complete
Asset Management Assessment	Reporting in Progress
Physical Security and Social Engineering	Report Issued
Remediation Follow Up Procedures	On-going
Hotline Management	On-going

PRIOR AUDIT FINDINGS – FOLLOW UP STATUS

Status Update on Prior Audit Findings

Audit Report/Subject	Report Issue Date	Corrective Actions			
		Total	Open	Closed	Pending Testing ¹
FY 2016 Audit Findings					
Overtime Audit and Analysis	01/21/2016	3	0	3	0
Contract Compliance and Monitoring Part I	04/28/2016	4	0	4	0
Contract Compliance and Monitoring Part II	07/28/2016	11	0	11	0
ROCIP Savings Analysis	07/28/2016	4	0	4	0
Training, Licensing & Certification	07/28/2016	7	1	6	0
Blue Horizon 2020 Strategic Plan Monitoring	11/18/2016	3	0	3	0
Incident Management and Response Review	11/18/2016	3	0	3	0
Engineering – Contractor Management Phase II	2/14/2017	4	0	4	0
Billing & Collection	2/14/2017	1	0	1	0
Business Development Plan	2/14/2017	10	1	9	0
Annual Budgeting and Planning	4/27/2017	1	1	0	0
	Total	51	3	48	0

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

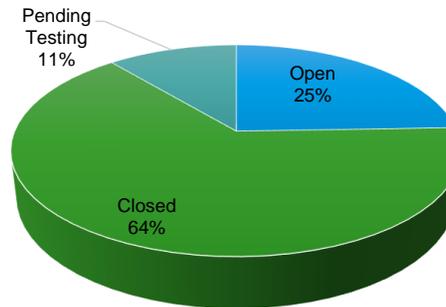


¹ "Pending Testing" indicates that Management represents that the Action Plan is Completed, but Internal Audit has not yet performed testing to validate the status.

Status Update on Prior Audit Findings (continued)

Audit Report/Subject	Report Issue Date	Corrective Actions			
		Total	Open	Closed	Pending Testing ¹
FY 2017 Audit Findings					
DMS Work Order Management (Blue Plains)	4/27/2017	4	0	1	3
HR/Employee Privacy Review	4/27/2017	7	3	4	0
Purchasing Card	4/27/2017	6	0	6	0
Contract Monitoring & Compliance Part 1	7/27/2017	5	0	5	0
Contract Monitoring & Compliance Part 2	7/27/2017	3	0	3	0
Entity Level Assessment	10/26/2017	7	4	3	0
Vulnerability Management and Platform Technical Audit (Windows/UNIX)	10/26/2017	2	1	0	1
Materials Management – Operations and Inventory	10/26/2017	4	1	2	1
Fleet – Accident and Incident Reporting	1/25/2018	4	2	2	0
Construction Plan Review and Permitting	1/25/2018	3	0	3	0
Total		45	11	29	5

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

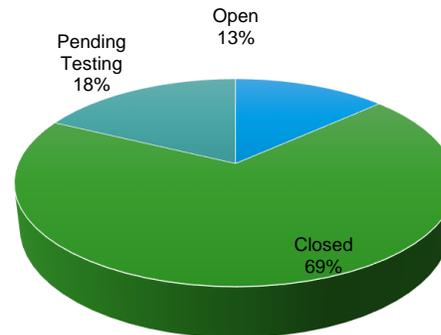


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Status Update on Prior Audit Findings (continued)

Audit Report/Subject	Report Issue Date	Corrective Actions			
		Total	Open	Closed	Pending Testing ¹
FY 2018 Audit Findings					
Recruiting, Selection and On-Boarding	4/26/2018	2	0	2	0
Automated Meter Replacement Update	4/26/2018	1	0	1	0
DB/OS Privileged User	4/26/2018	4	0	4	0
Network Penetration Testing	4/26/2018	13	0	13	0
Contract Monitoring & Compliance	7/26/2018	3	0	1	2
Crisis Management/Business Continuity	7/26/2018	3	3	0	0
Payroll & Timekeeping	10/25/2018	4	1	3	0
Accounts Payable	10/25/2018	5	0	4	1
Integrated Work Order Management	1/24/2019	10	2	3	5
	Total	45	6	31	8

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

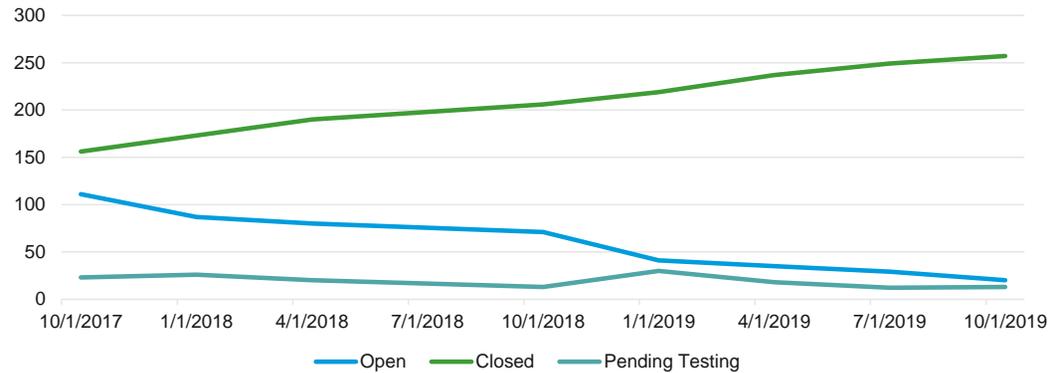


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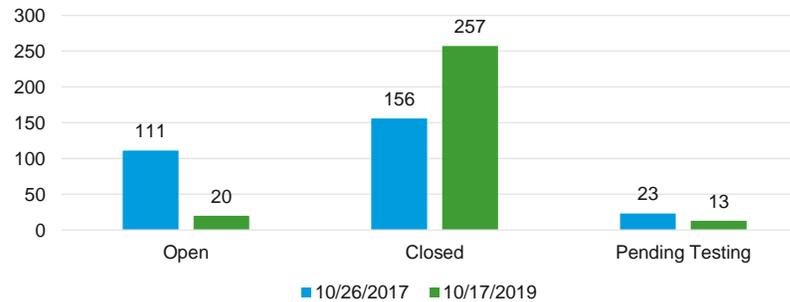
Follow-up Semi-Annual Summary

- For FY14 – FY18 prior audit findings:
 - At the start of FY19, there were:
 - 71 open audit items
 - 206 closed audit items
 - 13 pending testing
 - At the end of FY19, there are:
 - 20 open audit items
 - 257 closed audit items
 - 13 pending testing
- In total, 89% of all prior audit findings from FY14 – FY18 are closed
 - 51 audit items were closed during FY19.

Follow-Up Progress



Follow-Up Progress



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 based on new strategic initiatives. The plan is for old program to sunset this fiscal year, and a new Innovation/IP program will be implemented in the next fiscal year. This is being monitored by the Governance Committee. The prior policy draft will not be finalized, and a whole new process and related policy / SOP will be considered.

CONTRACTUAL SERVICES

Project Scope

Purpose

The purpose of this assessment is to obtain an understanding of how the Authority utilizes contractors across Departments, including focuses on contractual services strategies, spend, and management.

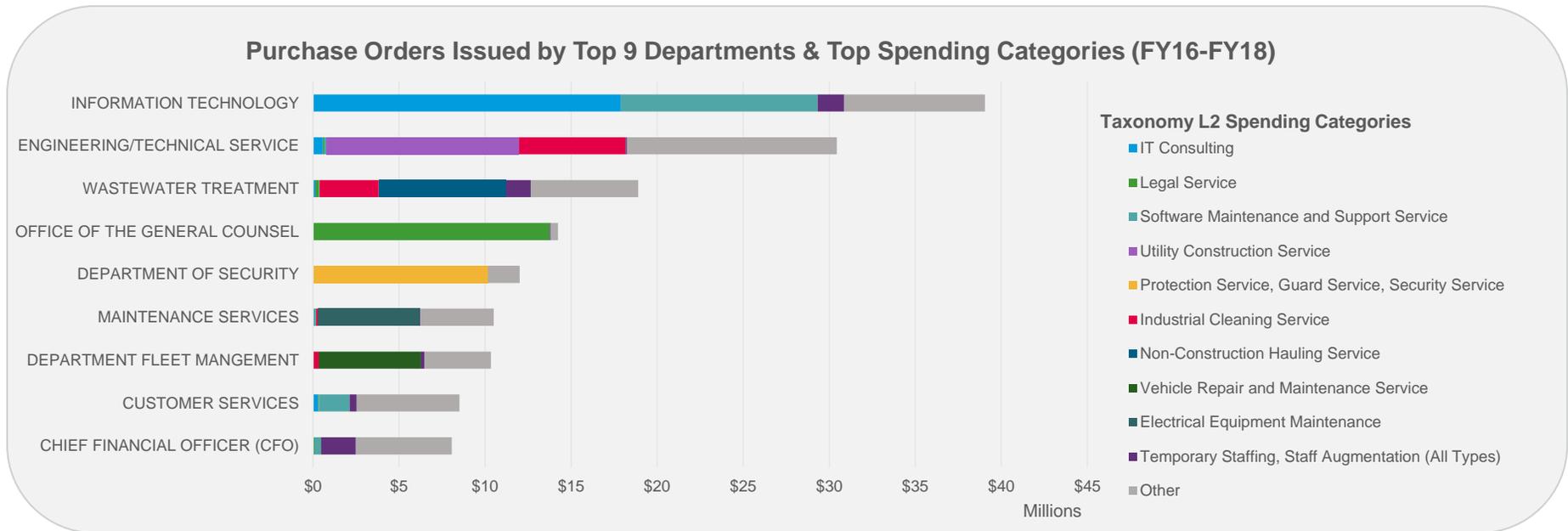
Scope

High level analytics were performed to understand the environment of Authority-wide contractual services spend for the past three fiscal years. Based on this preliminary analysis, the following departments and categories were selected for further examination:

- **Maintenance Services** – Electrical Equipment Maintenance
- **Information Technology** - IT Consulting
- **Finance (CFO)** – Staff Augmentation
- **Wastewater Treatment** – Biochemical Research & Laboratory Testing Services

Departmental Analysis

The top 9 departments illustrated below make up over 78% of total purchase orders issued from FY 2016 to FY 2018.



Notes on analysis

- The data used for our analysis comes from the e-procurement system, and is based on POs issued (not invoice payments) from FY 2016 to 2018
- Spending categories related to construction & CIP were excluded from the scope of this project (see appendix in full report for detail regarding excluded categories)
- E-procurement data comes from Lawson data that is normalized and cleansed for Procurement’s tracking of additional fields (i.e. spend category).

Future Considerations Highlights

Listed below are the future considerations highlighted for each in-scope department.

1

DEPARTMENT OF
MAINTENANCE SERVICES



- DMS should continue to decrease reliance on MC Dean for low-voltage services
- High risk nature of high-voltage power distribution warrants outsourcing
- Technology and training focuses moving forward will support cost mitigation

2

INFORMATION TECHNOLOGY



- WIPRO provides typically outsourced services to DC Water
- Software development will continue to drive IT spend
- Leveraging potential for commercial solutions to recover or avoid software development costs will remain a focus

3

FINANCE



- Staff augmentation vendors fill key roles for seasonal demand
- Unclear lines between temporary (i.e. "seasonal") needs and other accounting & finance needs
- Reducing time to fill FTE vacancies will reduce reliance on staff augmentation contracts

4

WASTEWATER TREATMENT



- Obtaining a NELAP Certification would improve chemicals testing flexibility and reduce risk
- Continue to negotiate student contracts for reduced staff augmentation costs
- Students continue to be the most effective way to drive compelling research projects

HOTLINE UPDATE



Hotline Update

Hotline Calls as of 10/16/19	
Calls Open as of 7/10/19	7
Calls Received	7
Fraud Claims – 3	
Other – 4	
Cases Closed	7
Cases Currently Open	7

Total calls by Fiscal Year:

Year	FY 13	FY 14	FY 15	FY 16	FY 17	FY 18	FY 19
# of calls	10	20	16	36	31	21	30
Action Taken	0	2	7	7	2	0	0

FY 2020 RISK ASSESSMENT



Establishing the audit plan

Internal Audit conducted a Risk Assessment, considering the following:

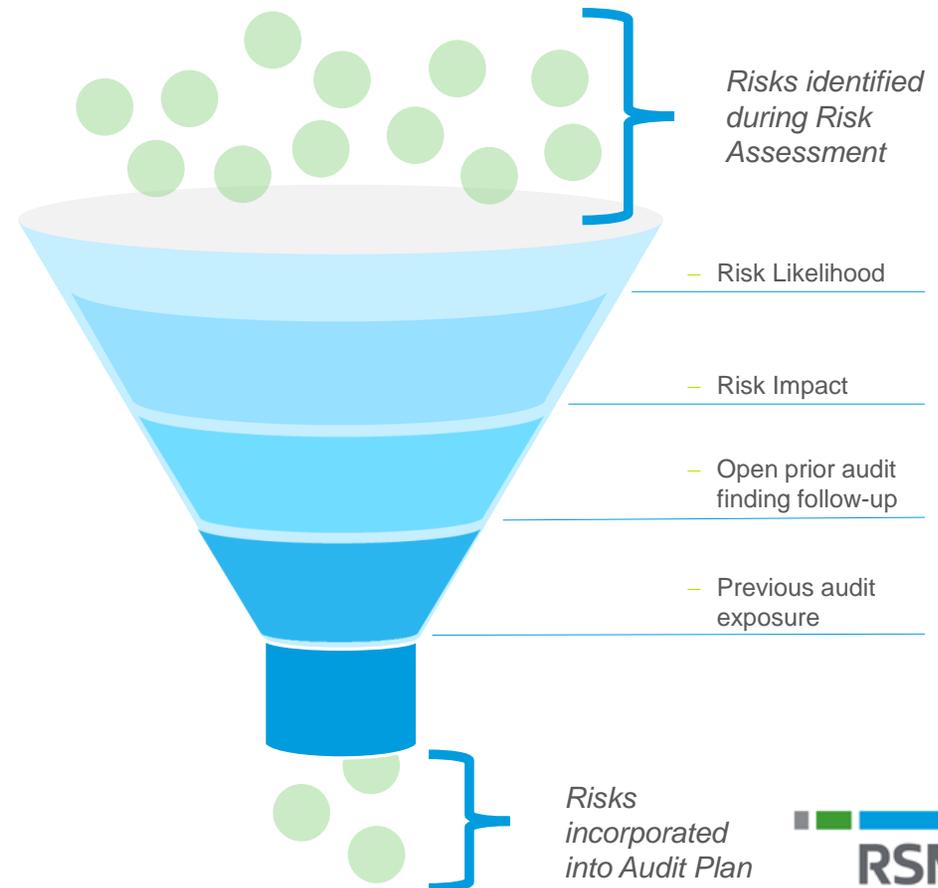
- Interviewed various members of management and the Board
- Distributed a survey to all Board members
- Revisited risks identified in prior year audits
- Considered current DC Water environment (operational, reputational, financial, strategic)
- Considered strategic initiatives at DC Water and industry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

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

- Compiled a risk register of risks identified
- 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.*

18

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Risk assessment interviews

Internal Audit conducted 30 interviews and distributed an anonymous survey to the full Board to inform our risk assessment results.

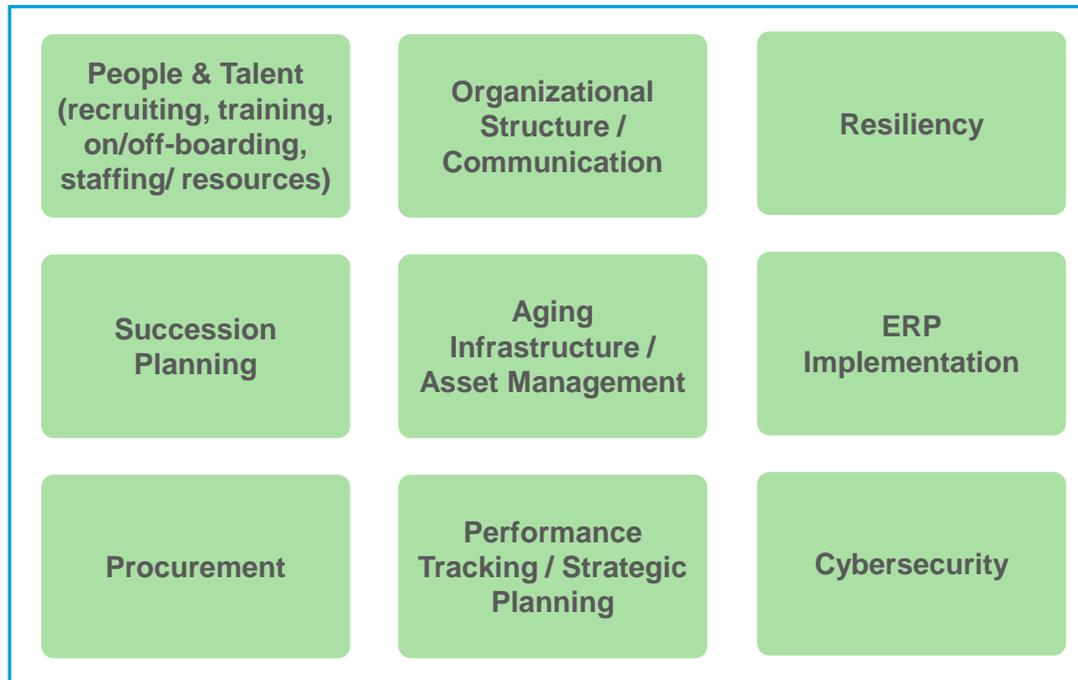
2020 interviewees:

1. David Gadis, CEO
2. Biju George, EVP Operations and Engineering
3. Armon Curd, EVP Customer Experience
4. Matt Brown, EVP Finance and Procurement
5. Maureen Holman, EVP Administration
6. Wayne Griffith, EVP Performance
7. Keith Lindsey, EVP People & Talent (Acting)
8. Gregory Hope, EVP Legal Affairs (Acting)
9. Mustaafa Dozier, Chief of Staff
10. Len Benson, SVP & Chief Engineer
11. Salil Kharkar, SVP Operations and Engineering
12. Tom Kuczynski, VP IT
13. Aklile Tesfaye, VP Wastewater Operations
14. Jason Hughes, Sr Director Water Operations
15. George Porter, Director Safety
16. Lola Oyeyemi, Director Budget
17. John Madrid, Controller
18. George Spears, Director Labor Relations
19. Carolyn Mackool, Director Customer Care
20. Kenrick St Louis, Director Pumping Operations
21. Ivelisse Cassas, Director Security
22. Antron Sutton, Strategic Planning Director
23. Joe Edwards, Director IT Infrastructure
24. Nelson Sims, Information Security Manager
25. Tanya Deleon, Risk Manager
26. Ellen Boardman, Board Member
27. Floyd Holt, Board Member
28. Jed Ross, Board Member
29. Tommy Wells, Board Member
30. Reverend Dr. Kendrick Curry, Board Member

Additionally, Internal Audit distributed a risk assessment survey to all Board members, of which we received 14 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.

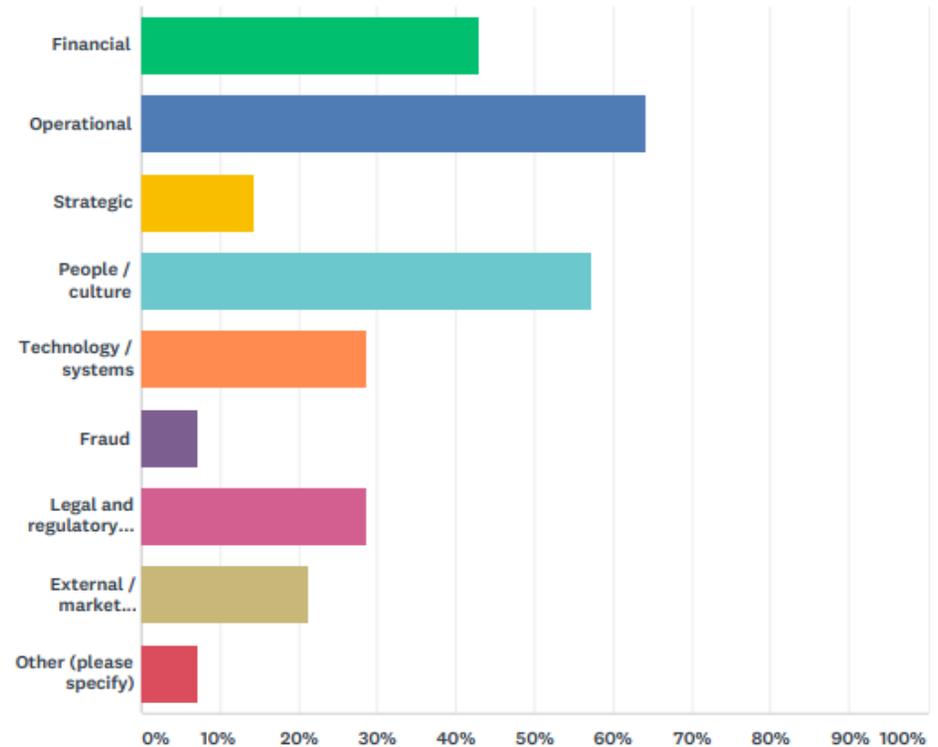


Board Survey Results

Internal Audit distributed a risk assessment survey to all Board members, of which we received 14 responses. Top three **Blueprint strategic plan initiatives** that Board members identified as imperative to DC Water’s success in FY20:

1. **Resiliency:** Asset management
2. **Operational Safety:** Update safety policies
3. **Resiliency:** 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).



FY 2020 Proposed Internal Audit Plan

Ongoing Follow-Up Audits

Hotline Case Management

Open Action Items – Remediation & Follow Up

Authority-Wide Audits

FY 2021 Risk Assessment

Functional Audits

Customer Experience

Phase 2: Physical Security Penetration Testing

Cybersecurity Incident Response Tabletop Exercise

Oracle Embedded Risk Assurance

Administration

Facilities Maintenance Audit

Ops & Engineering

Industrial Control System (ICS) Review

Engineering Planning Assessment

Engineering Change Order Assessment

Finance & Procurement

Procurement Pre-Award & Selection Audit

People & Talent

Benefits and Compensation Audit

Recruiting Alignment Assessment

Quadrants of Internal Audit

The visualization to the right illustrates different focuses of internal audit projects. Below maps our FY20 Audit Plan to the four quadrants of internal audit:

Mission:

- Engineering Planning Assessment
- Procurement Pre-Award & Selection Audit

Resiliency:

- Industrial Control System (ICS) Review
- Phase 2: Physical Security Penetration Testing
- Oracle Embedded Risk Assurance

Culture:

- Cybersecurity Incident Response Tabletop Exercise
- Recruiting Alignment Assessment

Process:

- Facilities Maintenance Audit
- Benefits and Compensation Audit
- Engineering Change Order Assessment





QUESTIONS AND ANSWERS

RSM US LLP

1250 H St NW
Washington, DC 20005

+1 800 274 3978
www.rsmus.com

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DC WATER

Contractual Services Assessment



October 2019

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Project Scope

Purpose

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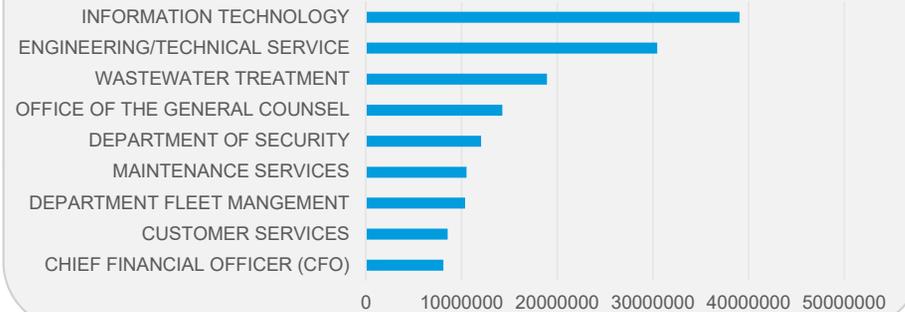
Scoping Procedures

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Departmental Spend

Purchase Order Spend by Department (FY16-FY18)

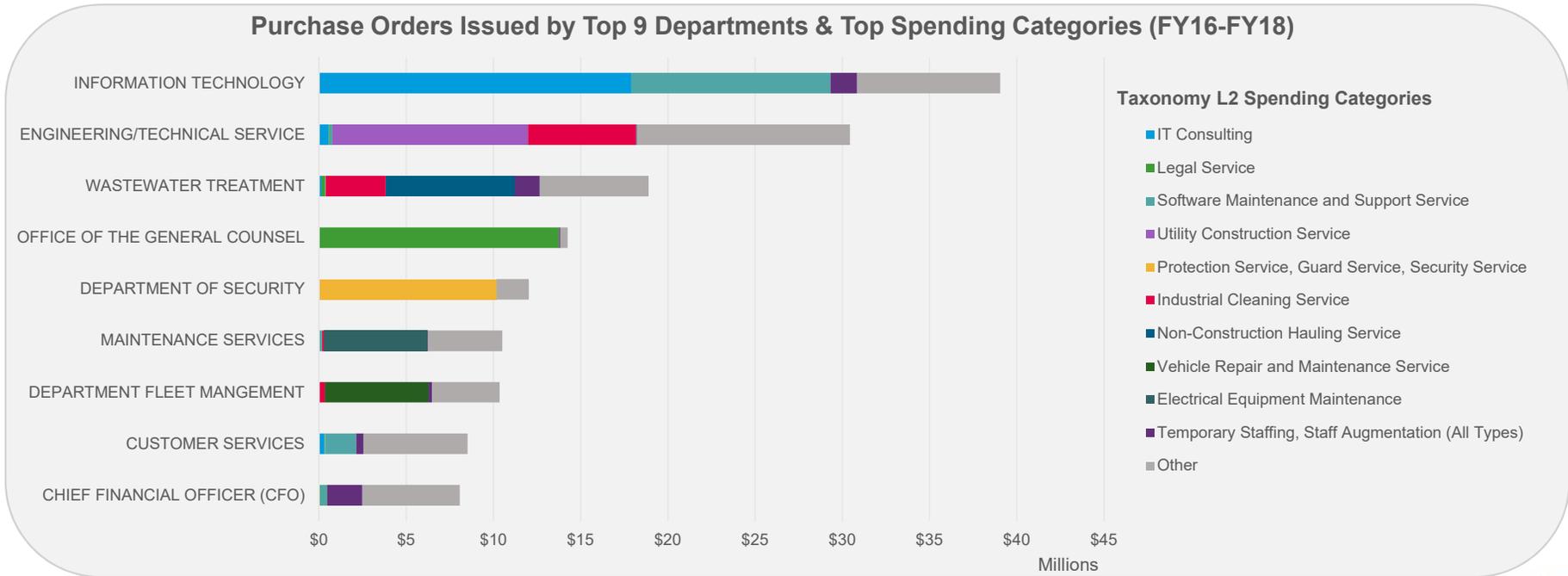


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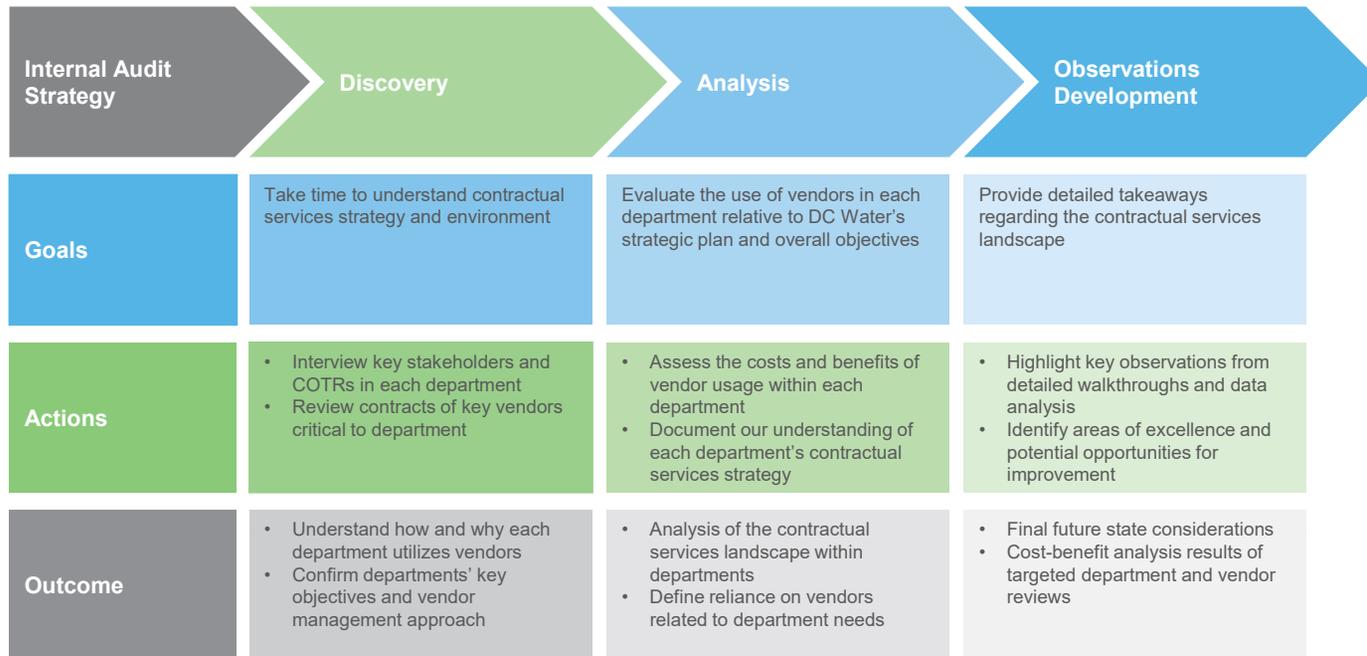


4 *Based on e-procurement data – see appendix for categories included



Project Approach

Below illustrates Internal Audit’s approach to the contractual services assessment with each department selected.





6

MAINTENANCE SERVICES (DMS)



Detailed Department Breakout

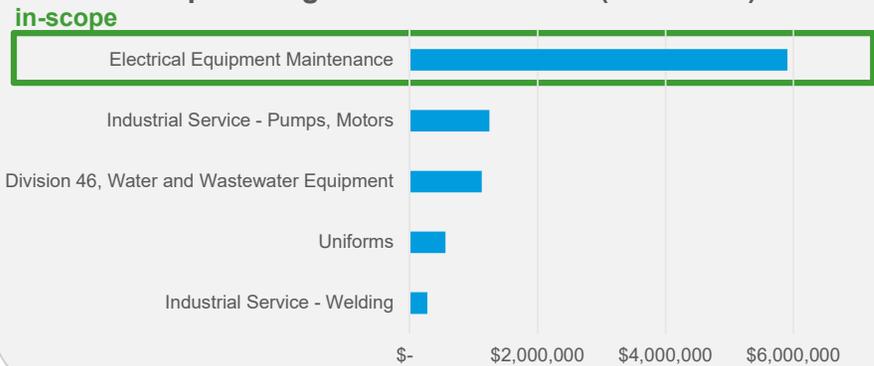
Maintenance Services

Department responsibilities include economically maintaining all mechanical and electrical equipment at the Blue Plains Advanced Wastewater Treatment Plant. These responsibilities are fulfilled through the department's three main functions: Electrical Maintenance, Mechanical Maintenance, and Mechanical Management.

Contractual Services Strategy

- Maintenance Services primarily uses vendors to support specialized aspects of electrical maintenance at the Blue Plains location. Vendors are also leveraged for repairing large motors and pumps, repairing cranes, safety measures, janitorial services, trainings, and software maintenance.
- Maintenance Services has been building the skills of FTEs to take over some traditionally contracted work, and continues to contract out technical expertise needed that cannot be found in-house.

Top 5 Categories in POs Issued (2016-2018)*



*Based on e-procurement data

Current State Considerations – MC Dean

MC Dean has two contracts with DC Water for electrical equipment maintenance – one for **low-voltage** and one for **high-voltage** equipment. Vendor responsibilities are monitored by a DC Water Supervisor that oversees all MC Dean contractors related to both high and low voltage equipment. In the past 12 month as of 8/31, DC Water has spent over \$1,942,103 total for MC Dean, of which the DMS contracts outlined below account for \$1,322,513*. MC Dean also performs work for Department of Pumping Operations, Department of Engineering and Technical Services, and Wastewater Treatment Process Engineering.

High Voltage Maintenance of Distribution Equipment (18-PR-DMS-49)

- High voltage electricity is defined by the DOE Electrical Safety Guidelines as over 600 volts.
- Distribution equipment used for larger industrial plants is typically over 600 volts and requires different levels of technical expertise (and certifications) to use; experience in industrial settings is required to perform this work
- The cost for this contract has been **reduced by approximately 20%** over the past three years due to efficiencies gained from working with MC Dean
- Current FTEs are not qualified to performing high voltage maintenance

Low Voltage Maintenance of Other Electrical Equipment (17-PR-DMS-40)

- This type of service is characterized by electricity *under 600 volts*
- Maintaining this equipment requires a commercial electrician license, and is less technical in nature than working with high voltage distribution equipment; experience in industrial settings is required to perform this work
- The cost for this contract has been **reduced by approximately 50%** over the past three years due to a reduction in MC Dean staff supporting this contract from approximately 7 full-time resources in FY17 to 3 full-time resources in FY19.
- Current FTEs are capable of performing low voltage maintenance. Additional FTEs are required to reduce contract need. DMS currently has 21 Industrial Electrical Journeymen earning approx. \$82k performing low voltage maintenance. DC Water spent approximately \$400k for low voltage resources from MC Dean in FY19.

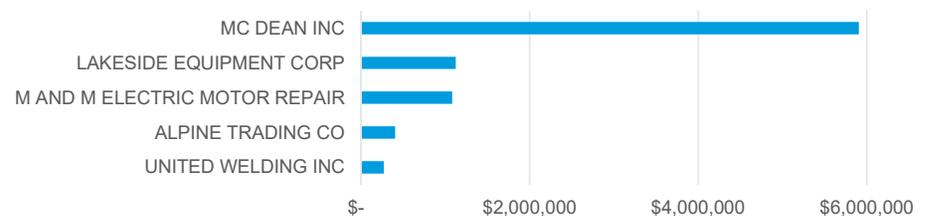
Historical Spending

Over the past three fiscal years (FY16 – FY18), MC Dean has accounted for over

53%

of the over **\$11,050,000** in total POs issued by Maintenance services.**

POs Issued by Vendor (FY16-FY18)**



RSM

Future State Considerations – MC Dean



DMS should continue to reduce reliance on MC Dean for low-voltage services

Over the past few years, the DMS has cut their headcount of MC Dean staff associated with the low-voltage contract, due to additions to DC Water team and more efficient managing of the equipment. We recommend that DMS continue to pursue further cost reductions through continuing to monitor resource usage in this area. If DMS can increase internal headcount and provide additional training to current staff, the low-voltage contract should transition from fixed price hourly rate contract to an IDIQ contract in which contractor assistance is called upon as necessary for required expertise in unexpected maintenance situations.



High risk nature of high-voltage power distribution warrants the outsourcing of this service

Failure of high-voltage maintenance can result in catastrophic failure and an inability to continue DC Water critical operations. High-voltage power distribution has been increasingly outsourced since the 1990s according to a Department of Energy report*. This is due to the extensive experience and technical expertise/licensing required, limited local resources, and high costs to these specialized personnel. Additionally, DC Water transfers the high risk associated with failure of this function when entering into a contract with experienced subject matter experts. Although DC Water does not plan to ever fully support this work with in-house staff, DMS will continue to evaluate specific tasks that may be transferred internally with additional training for current FTEs.



Technology and training focuses moving forward will support cost mitigation for both low and high voltage services

There have already been cost savings associated with enhanced training of staffed electricians, due to their ability to perform services historically provided by contractors.

Additionally, leveraging technologies such as infrared inspections, which support productive maintenance, allows DMS to reduce the time required to perform in-house maintenance.

*U.S. Department of Energy. (2006). *Workforce Trends in the Electric Utility Industry*.



10

INFORMATION TECHNOLOGY (IT)



Detailed Department Breakout

Information Technology (IT)

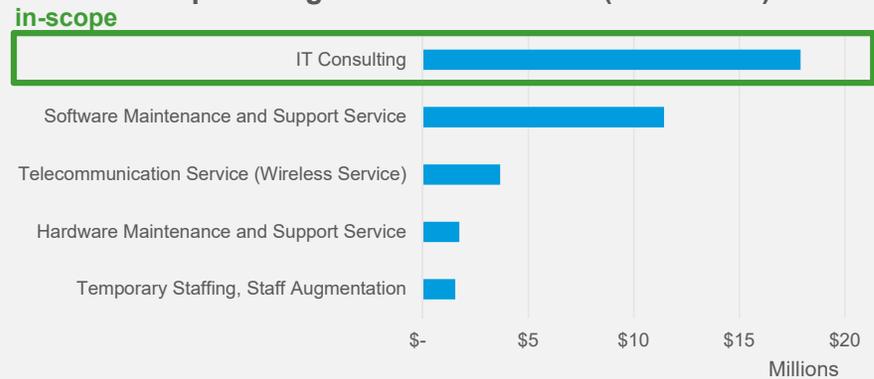
The IT department seeks to identify, define, develop, and support an integrated set of solutions that leverages people, process, and technology to improve reliability, increase efficiency, reduce cost, drive innovation and improve the employee and customer experience. Through these actions, the department attempts to ensure that the Authority's overarching mission is supported by state-of-the-art technology with infrastructure capable of accommodating all traffic and connectivity demands, and a computing environment that encourages efficient business development. All the work IT performs, with the exception of support and maintenance, is approved by the LSC and ESC as part of DC Water's IT project roadmap. Each allocation of funds from the IT project budget requires a signed budget authorization.

Contractual Services Strategy

The IT department uses outside support in three different ways:

- **Staff Augmentation:** This method is used for single purpose resources, which can be either commoditized resources (e.g. Helpdesk) or specialty resources (e.g. senior network engineers) that are difficult to recruit and retain. Additionally, staff augmentation is used for more transient roles like Project Managers, that can be moved in and out as needs and workloads change.
- **Indefinite Delivery / Indefinite Quantity (IDIQ) Process:** The IT Department has established MSAs with a few key vendors. These prequalified vendors are used for projects ranging in the 3-9 month timeline, and are typically the first vendors solicited for a proposal.
- **RFP Process:** This route is taken when there is a large-scale project (typically over one year in length). Additional funding is allocated for these projects, outside of the standard professional services budget, which is capped on a yearly basis. This additional funding is approved by the executive steering committee (ESC) only if the project fits into the scope of the overarching long-term IT strategy for DC Water.

Top 5 Categories in POs Issued (FY16-FY18)



*Based on e-procurement data

Current State Considerations – WIPRO

WIPRO has an IDIQ contract with DC Water to provide two types of services to DC Water. This includes providing support staff for a variety of IT-related roles, and providing software development deliverables through discrete projects. WIPRO responsibilities are monitored by a project manager that is either an internal resource or an outside temporary staff (not employed by WIPRO). WIPRO has accounted for just over \$289,959 in spend over the last 12 months* as of 8/31/19.

Software Development Projects

To utilize the WIPRO contract, DC Water submits requirements to WIPRO for a project, WIPRO gives a quote, and DC Water can choose to move forward with WIPRO, or bid the project out with an RFP if dissatisfied with the quote provided. These projects are planned further in advance in alignment with the prevailing overarching IT strategy, and require the technical expertise of many different resources to execute. Expertise provided by WIPRO covers the following areas: Maximo, GIS, Open Text, Oracle, Primavera, Primavera Contract Management, IBM Maximo Anywhere, Microsoft-Silverlight and .Net, Java and Java Script, HTML 5, Extensible Markup Language (XML), Biztalk, Web Services in a Service Oriented-Architecture (SOA), SQL Experience 2008 or later, Operating in a VM environment (VMware), Microsoft Sharepoint 2010 and 2013 (both on premise and in Office 365), and SAP Business Objects.

For these engagements, WIPRO will utilize their own resources and DC Water’s requirements to develop the software. WIPRO is paid in milestone installments, and separately for the hours worked by technical resources required to maintain and develop. A number of WIPRO projects are specialty solutions that have the potential for commercialization. If DC Water successfully markets these solution, they generate revenue which offsets some of the cost of software development. Examples of WIPRO solutions DC Water is working to market include Pipe Sleuth (uses AI to automatically process video scans to assess pipe quality), HUNA (notifies customers when unusually high usage occurs), and 3PP (automates the tracking and compliance activities for 3rd party service providers).

Spending Highlights**

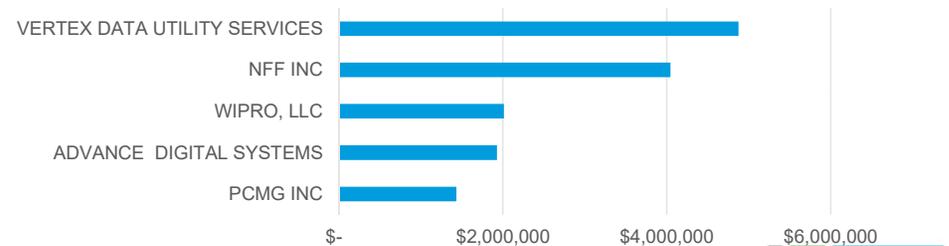
- WIPRO is the **largest IT consulting vendor** in POs issued related to the IT Department, but still only accounts for **around 5% of total IT Consulting POs issued****, as DC Water leverages many IT Consulting vendors.
- There are **36 other vendors** noted as providing “IT Consulting” services to the IT Department over the last three years.

*Based on Lawson data

12 **Based on e-procurement data

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Top 5 Vendors in POs Issued (FY16-FY18)**



Note: As IT consulting is the highest category of overall spend (see previous page), we selected the highest spend IT Consulting vendor, WIPRO, for this assessment. Vertex implemented the new CIS system so the FY16-FY18 data includes large one-time spend. NFF Inc. provides staff augmentation services and network support for DC Water.



Future State Considerations – WIPRO



WIPRO provides services to DC Water that are typically outsourced in the industry

Software application development and extended maintenance performed by software engineers are both commonly outsourced services. In 2017, over 64% of software application development, and 51% of software application maintenance services were outsourced, according to a survey of CIOs and technology leaders conducted by Statista. The benefits for bringing in these services are outweighed by the costs.



Overall spend with the IT Department is strongly driven by software development projects

Software development through IT Consulting had accounted for over \$17 million of IT Department (according to e-procurement data) POs issued over the last three years. It is important for DC Water to be able to tap into the expertise provided by the many technical resources used during these engagements.

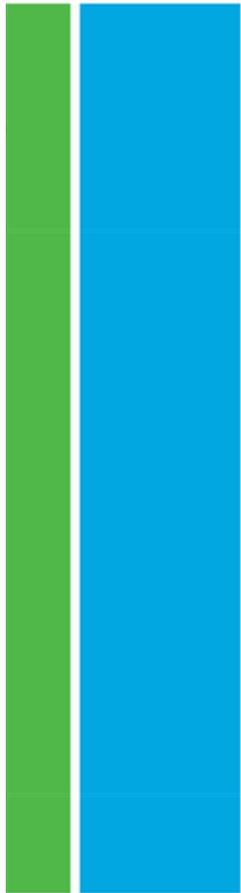


Leveraging potential for commercial solutions to recover or avoid software development costs will remain a focus

IT will continue to evaluate specialty solutions contracted to vendors such as WIPRO that have the potential for commercialization. Through the marketing of commercial solutions, DC Water can continue to generate revenue, offsetting some IT consulting costs.

Additionally, the IT Department has been leveraging a relationship with Microsoft to develop cutting-edge software applications. Large companies like Microsoft will provide services at zero or little cost for the opportunity to work with companies in developing these new technologies.

Leveraging the ability to market solutions externally and continuing outside partnerships to assist in innovative developments for the industry allows DC Water to mitigate costs and stay ahead of technological advancements in the field.



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FINANCE DEPARTMENT



Detailed Department Breakout

Finance

The Finance department is responsible for the financial integrity of the Authority's assets and liabilities, funds acquisition, budget execution, and management and planning of expenditure for all programs and initiatives. These responsibilities are divided amongst the core five functions of the finance department, being Finance & Administration, Accounting, Financial Systems & Controls, Budget, and Rates & Revenue.

Contractual Services Strategy

Contractual services leveraged by the Finance department primarily fall into three categories:

- Outside expertise (rates verification, external audit, and internal audit)
- Responding to peak demands
- Filling staffing shortages

For the last two categories, **staff augmentation services** are leveraged across a variety of finance and accounting related functions. DC Water solicits resources from multiple vendors to fill such needs.

When a resource gap is identified in the department, a business case is submitted to budget to illustrate the need for additional funding. If this business case is approved, then the department can send out the relevant job description requests to staff augmentation vendors.

The department interviews qualified candidates that the vendors propose, and Finance makes the ultimate decision whether to issue a task order for a candidate to fill a temporary need. See additional staff augmentation details on the following slide.

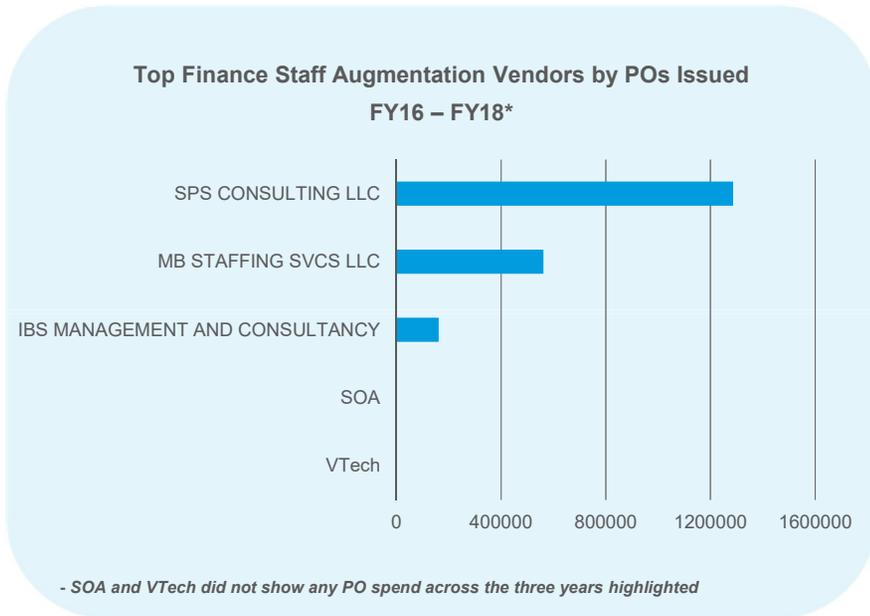
Top 5 Categories in POs Issued (2016-2018)*



*Based on e-procurement data

Current State Considerations – Staff Augmentation Vendors

Finance currently has five **staff augmentation vendors** with labor hour contracts, awarded at \$0 and approved by the Board for one base year and two option years, to leverage as needed. Finance sends requirements for a position to at least three vendors any time there is a need. The vendors provide potential candidates, and if Finance selects a candidate the vendor puts forward, DC Water issues a task order for the resource. Note that MB Staffing has other temporary staffing contracts with DC Water in which numerous contractors work with various departments throughout the Authority.



2017-2019 Detailed Spending Analysis**

There has been a decrease in long-term reliance on staff augmentation in the past two fiscal years.

SPS Consulting

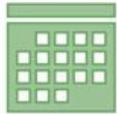
- One **financial analyst** worked approx. 2500 hours over 16 months (October 2017 – January 2019) at the contractual rate (\$70.81). This equated to an annualized spend of approx. \$133k. This same financial analyst was hired into DC Water in January 2019.
- One **accounting subject matter expert** supports DC Water part-time year-round for technical support related to Ceridian Dayforce.
- In the past two years, a number of other positions have been and continue to be filled for 3 – 5 month periods due to **short-term or seasonal needs**.

MB Staffing

- One **staff accountant** worked approx. 3200 hours across 22.5 months (February 2017 – November 2018) at the contractual rate (\$53.71). This equated to an annualized spend of approx. \$91k.
- One **staff accountant** worked full time for 9.5 months (March 2017 - December 2017) at the contractual rate (\$53.71).
- One **staff accountant** worked full time for 5 months (October 2017 – March 2018) at the contractual rate (\$53.71) to provide support during fiscal year-end and close out.
- **There have been no Finance staff augmentation costs associated with MB Staffing since November 2018.** Two staff accountants have been hired in 2019 which further supports Finance's reduced reliance on the augmentation services contract.

16 *Based on e-procurement data
**Based on Lawson data

Future State Considerations – Staff Augmentation Vendors



Staff augmentation vendors fill key roles for seasonal demand

The Finance department utilizes these contracts to address seasonal demands in their department. These needs will continue to arise in the future, and do not warrant bringing in-house due to the limited hours required. The costs associated with a FTE hired for seasonal needs do not outweigh the benefits of a full-time staff.



Unclear lines between temporary (i.e. “seasonal”) needs and other accounting & finance needs

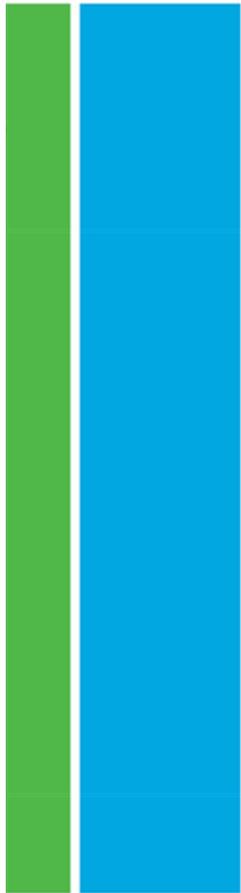
Individual contractors are used in both seasonal roles, and regularly scheduled roles (i.e. one temp is listed on a task order for a seasonal role, and at the same time on a task order for filling a staffing shortage), which may indicate a consistent need throughout the year. The department may consider a business case for a permanent position.



Reducing time to fill FTE vacancies will reduce reliance on staff augmentation contracts

Finance had two vacancies during the majority of FY19. Because the department was understaffed, it increased the need to bring in temporary staffing to assist with normal workload. Historically, it has taken months for Recruiting to fill Finance positions, whereas staff augmentation contractors are able to supply candidates more immediately.

The temporary staff that are contracted to assist in backfilling responsibilities related to vacancies are eligible to apply to the position being recruited, but must compete for the position against all other applicants. Internal Audit plans to review the recruiting process as part of the FY20 audit plan. As People & Talent continue to improve internal recruiting practices and enhance department recruiting resources, Finance can reduce reliance on staff augmentation contracts that fill ongoing department needs.



WASTEWATER TREATMENT DEPARTMENT

18



Detailed Department Breakout

Wastewater Treatment (WWT)

The Wastewater Treatment department operates the Advanced Wastewater Treatment Plant at Blue Plains in order to produce treated effluent that meets stringent Federal Clean Water Act and local water quality requirements. This is ensured through treating wastewater delivered to Blue Plains from the collection system of the District of Columbia and surrounding jurisdictions in Maryland and Virginia and maintaining compliance with local and federal standards.

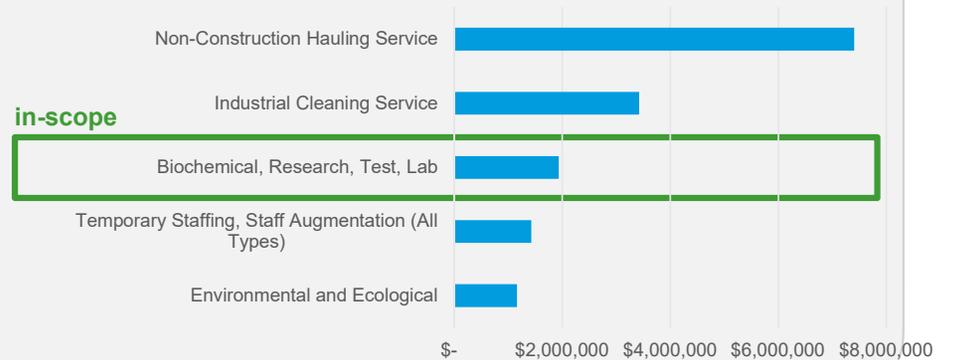
Contractual Services Strategy

WWT contractual services relate primarily to support of their operations at the Blue Plains treatment plant. Many of their highest costs are associated with biosolids hauling services and industrial cleaning. The industrial cleaning contract is used for specialized cleaning events, and projects are assigned to the vendor as needed, and the vendor leverages varying specialists based on the type of event. The hauling contractors are responsible for labor, supervision, equipment, materials, insurance, maintaining permits, etc. for loading, storing, and hauling loads required by DC Water.

The remaining major spend categories reviewed within the scope of this assessment include those related to research & development, and lab testing procedures. These two categories are utilized in the following ways:

- **Research & Development (Biochemical, research, test, lab; temporary staffing):** WWT utilizes university students to perform research for their Blue Plains treatment plant. These personnel are utilized through various contract vehicles.
- **Laboratory Testing Services:** Lab testing services are necessary to measure water quality risks and demonstrate compliance with various local and federal regulations.

Top 5 Categories in POs Issued (2016-2018)*



*Based on e-procurement data



Current State Considerations – Laboratory Testing Services

One vendor was selected for the assessment of Wastewater Treatment’s departmental spend through contractual services, **ALS for laboratory testing services**. ALS is one of multiple providers of testing services. In FY18, DC Water spent \$65,715* on ALS laboratory testing.

Laboratory Testing Services

The WWT Department engages in multiple testing methods to satisfy requirements with varying frequencies, ranging from daily to annually. Certain tests are performed on site by DC Water, while there are other tests that require outside commercial labs to perform, due to the Authority’s lack of certain equipment and resources internally, or lack of NELAP (National Environmental Laboratory Accreditation Program) certification.

NELAP certification requirements are achievable for DC Water to obtain for specific analyses if WWT addresses the requirements listed in the box below. However, DC Water would not attempt to pursue certification for all analyses contracted for Blue Plains. If a test is only performed a few times a year, does not require short turnaround time, and requires additional capabilities beyond what currently exists in-house, the cost to invest in certification (additional resources, space, equipment) would outweigh the benefits.

NELAP Requirements

There are four main areas of requirements for obtaining a NELAP certification:

- The standard requires a **Quality Manager** that has certain experience qualifications, and **monitors standards of performance in quality control** and quality assurance, reporting outside of the organizational structure of the lab
- **On-Site Assessments** are required, and any necessary corrective action reports must be prepared in accordance with the standards
- **Proficiency Testing Samples** must be up to the appropriate federal and local standards
- The entity must **exhibit appropriate accountability** for the required analytical standards

The summary above was derived from the 2003 NELAC standard

20 *Based on Lawson data

Current State Considerations – Student Research & Development

Two vendors were selected for the assessment of Wastewater Treatment’s departmental spend through contractual services on student research and development services – **University of Maryland (UMD) and MB Staffing**. UMD is not the sole university through which research is contracted, but accounted for the largest amount in the FY16 – FY18 period. In FY18, DC Water spent \$242,785* on University of Maryland research resources.

Research & Development

DC Water leverages university students, primarily masters and PhD candidates, to conduct research projects each year. Students are subject to stringent requirements tied to graduation or professor review, and are more cost effective than bringing full-time research staff in-house. Additionally, the 2 – 4 year standard lifecycle for each student at the Authority encourages fresh perspective and variety in project types.

Wastewater and Solids Treatment: Within the department, there are three FTEs supporting wastewater and solids treatment research. The Program Manager of Research oversees student research project, acting as a co-advisor to the students, performing quality review, and ensuring project alignment with DC Water objectives. The Program Manager of Process Development is responsible for providing technical support to students through developing process system concepts and building pilot systems, along with providing safety oversight and facilities assistance. A Research Specialist supports R&D projects and operations, including conducting special sampling and experimentation outside of individual research projects. All other wastewater and solids treatments resources are based on available budget for students each year.

Resource Recovery: Resource recovery research can require additional review through professors on university contracts. Funding comes from a rebate from the biosolids reuse contract that must be applied towards biosolids research contractually. The budget for students is determined based on the projected rebate from the contract each year. The resource recovery group proposes projects to professors to align with the appropriate student support.

Research Contracting Vehicles

- *Through Internships and Universities*: Research and development services are performed primarily by students through summer internships and university contracts. University contracts establish the cost of the student, along with various overhead costs such as the related professor’s review time or other administrative fees based on the capacity of the DC Water team available to assume those responsibilities.
- *Through MB Staffing*: Staff augmentation agreements are negotiated when a student is not matriculating (lag between masters and PhD, closing out research directly following graduation, etc.). MB Staffing performs all administrative functions, such as background checks, time sheets, paycheck distribution and benefits requirements. Rates negotiated with MB Staffing by DC Water have allowed these costs to stay relatively aligned with spend on interns, and avoid administrative burden. Additionally, MB Staffing is used to contract with a matriculating student to understand their capabilities prior to contracting them to a long-term university research position.

21 *Based on Lawson data

Future State Considerations



Obtaining a NELAP Certification would improve chemicals testing flexibility and reduce risk

If WWT gets approval for a Data Quality Manager position to assume required quality assurance functions, then DC Water could be eligible for a NELAP certification for select analyses already performed at Blue Plains. This position has been requested by the department and is pending approval. Obtaining a NELAP certification would have minimal impacts on cost savings, but would allow WWT flexibility and mitigate water quality risk through an increase the strength of internal reporting.



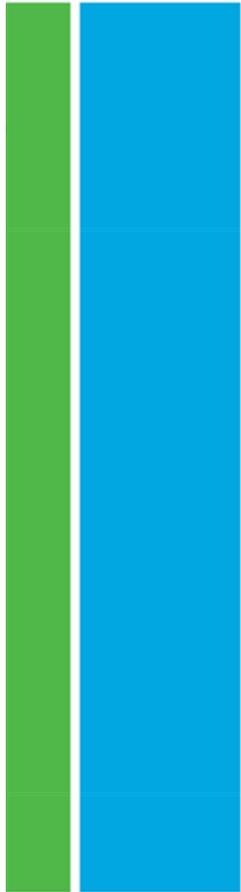
Continue to negotiate student contracts for reduced staff augmentation costs

DC Water leverage staff augmentation contracts Authority-wide, especially to assist in recruiting efforts. As WWT does not leverage MB Staffing for recruiting needs, and rather only administrative functions after a candidate has been identified, WWT should continue to work with Procurement when a staff augmentation contract is needed to negotiate the best rates for research.



Students continue to be the most effective way to drive research at DC Water

Interns and students hired through university contracts are continuously used by DC Water due to their fresh perspective, variety in project types, and consistent willingness to learn. Cycling students through DC Water's research and development projects has benefited DC Water through increased levels of innovative thinking and scrutiny.



FUTURE CONSIDERATIONS SUMMARY

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Future Considerations Highlights

Listed below are the key future considerations highlighted for each in-scope department.

1

DEPARTMENT OF
MAINTENANCE SERVICES



- DMS should continue to decrease reliance on MC Dean for low-voltage services
- High risk nature of high-voltage power distribution warrants outsourcing
- Technology and training focuses moving forward will support cost mitigation

2

INFORMATION TECHNOLOGY



- WIPRO provides typically outsourced services to DC Water
- Software development will continue to drive IT spend
- Leveraging potential for commercial solutions to recover or avoid software development costs will remain a focus

3

FINANCE



- Staff augmentation vendors fill key roles for seasonal demand
- Unclear lines between temporary (i.e. "seasonal") needs and other accounting & finance needs
- Reducing time to fill FTE vacancies will reduce reliance on staff augmentation contracts

4

WASTEWATER TREATMENT



- Obtaining a NELAP Certification would improve chemicals testing flexibility and reduce risk
- Continue to negotiate student contracts for reduced staff augmentation costs
- Students continue to be the most effective way to drive compelling research projects



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APPENDIX



Appendix – L2 Categories included in PO’s Issued Analysis

TAXONOMY_L2 INCLUDED		
Security, Fire, Safety, Emergency Work, Safety	Testing and Calibration	Division 23, Heating, Ventilating and Air Conditioning (HVAC)
Membership, Subscription, Association, Conference	Vehicle Repair and Maintenance Service	Industrial Service - Pumps, Motors
Management Strategy and Advisory Consulting	Landscaping and Ground Maintenance	Industrial Service - CCTV - Underground, Tunnel, Pipe Inspection
Environmental and Ecological	Laboratory Testing Service	Division 25, Integrated Automation
Planning and Design	Financial Service, Audit Service	Industrial Service - Instrumentation
Protection Service, Guard Service, Security Service	Property Asset Management	Utility Construction Service
Training, All Types (Classroom, Online, Seminars)	Administration	Industrial Service - SCADA
Temporary Staffing, Staff Augmentation (All Types)	HR Service, Recruitment, Executive Search	Industrial Service - Communications
Application Development, Programming, Designing, Database Management, Web Design Service	Tree Root Treatment, Removal, Root Control Treatment	Electrical
Biochemical, Research, Test, Lab	Financial Service, Custodial Service	Telecommunication Service (Wireless Service)
Software Maintenance and Support Service	Meter (Water) Installation, Maintenance and Repair	Division 46, Water and Wastewater Equipment
Legal Service	Industrial Hygiene Consulting and Laboratory Sampling Service	Industrial Service - Electrical Power Generation and Transmission
Hardware Maintenance and Support Service	HR Service, Payroll Service	Industrial Service - Process Heating, Cooling and Drying Equipment
Industrial Cleaning, High Pressure Washing/Vacuum, IT Consulting	Professional License and Certification	Industrial Service - Measuring Instruments
Business Process Outsourcing	Financial Service, Banking and Investment	Industrial Service - Welding
HR Service, Employee Benefits and Compensation	Communication and Media	Division 42, Process Heating, Cooling and Drying Equipment
Data Research	Safety	Division 14, Conveying System, Elevator, Lifts, Escalators, Moving Walkways
Pest Control Service	HR Service, Health Screening and Assessment Service	Utility Marking
Emergency Management, Planning and Risk Assessment	Vehicle Fueling Service	Division 22, Plumbing
Financial Service, Accounting and Bookkeeping Service	Trash Removal, Recycling Service (Non Hazardous Waste)	Industrial Service - Utility Equipment and Parts
Advertisement, Media Printing, Mass Mailing, Social Media	Insurance Consulting	Telecommunication Service (Landline)
Advisory Service	Non-Construction Hauling Service	Division 16, 26, Electrical
Industrial Cleaning Service	Car, Bus Hire	Brokerage Service
Building and Structure (Fabricated and Prefabricated)	General Contractor	Outsourcing
Cabling Service	Janitorial Service	Industrial Service - Water and Wastewater Equipment
Fire Hydrants	Snow Removal	Industrial Service - Process Gas and Liquid Handling, Purification and Storage Equipment
Vehicle Rental or Lease	Hazardous Waste Removal	Telecommunication Service (Landline, Internet)
Window Cleaning Service	Marketing	Industrial Service - Pollution and Waste Control Equipment
Cleaning and Removing	Real Estate Service	Division 21, Fire Suppression
	Laundry and Dry Cleaning Service	Industrial Service - Industry-Specific Manufacturing Equipment

Appendix – L2 Categories excluded in PO’s Issued Analysis

TAXONOMY_L2 EXCLUDED		
Industrial Supplies - Pumps, Motors	Industrial Supplies - Measuring Instruments	Industrial Supplies - Welding
Network Hardware	Compounds and Mixtures, Acids, Alcohol, Methanol	Lease or Rent Of Property or Building
Vehicles (Car, SUV, Van, Truck, Trailer, Golf Cart, ATV, Specialty, All Types)	Lubricants, Oil, Grease, Industrial (Not Automotive)	Vehicle Tires, Parts, Accessories and Supplies
Plumbing Equipment, Tools, Fixtures and Supplies	Gases	Sand, Gravel and Top Soil
Pesticides and Chemicals (Industrial)	Pipes and Valves (All Types and Sizes Including Accessories Such as Joints, Fitting)	Air Cargo, Freight Forwarding, Ocean, Rail Cargo, Road Cargo
Laboratory Equipment and Supplies	Warehousing and Storage Equipment, Supplies and Parts	Filtration Media (Anthracite, Media)
Fees, Claims, Compliance, Permit	Material Processing and Handling Equipment (Conveyor, Forklift, Warehousing, Pallets, Storage)	Spraying Equipment and Parts
Software and SaaS (All Types)	Paint and Paint Equipment/Tools	Bases and Acids (Sodium Hydroxide, Calcium Hydroxide, Lime (Slurry, Granular, Powder), Sulfuric Acid)
Industrial Supplies - Tanks, Mobile, Stationary, Underground (All Materials)	Electrical Components, Parts and Supplies (Circuit Breakers, Terminations, Fuses, Battery)	Printer, Copiers
Life and Health and Accident Insurance	Mechanical Hardware (Fasteners, Nuts, Bolts, Washers and Other Hardware)	Non-It Office Supplies
Division 45, Industry-Specific Manufacturing Equipment	Mechanical and Hardware Supplies (Nuts, Bolts, Screws, Fasteners)	Conference Service (Audio, Video)
Adhesive	Industrial Supplies - Process Gas and Liquid Handling, Purification and Storage Equipment	Audio/Video Equipment, Projector, Parts and Accessories
Industrial Supplies - Instrumentation	Industrial Supplies - Process Heating, Cooling and Drying Equipment	Corrosion Inhibitors
Cleaning and Janitorial Supplies	Odor Control Media (Activated Carbon, Media, With Potassium Permanganate)	Architectural and Engineering Service
Shop Equipment, Tools and Supplies	Power, Electricity	Construction - Electronic Safety and Security
Polymer (Blended Sludge, Dewatering, Dry, Emulsion, Polyurethane, Primary, Secondary)	Gas (Chlorine, Hydrogen Sulfide, Methane, Natural Gas, Nitrogen, Oxygen, Sulfur Dioxide)	Division 07, Roofing (Water Proofing and Insulation)
Bases and Acids (Sodium Hydroxide, Calcium Hydroxide, Lime (Slurry, Granular, Powder), Sulfuric Acid)	Industrial Supplies - Water and Wastewater Equipment	Division 32, Exterior Improvements (Pavements, Roads, Parking Lot, Site Improvements, Fences, Gates, Screening, Planting, Landscaping)
Salts (Ferric Chloride, Ferrous Chloride, Alum, Aluminum Sulfate, Ferrous Sulfate, Sodium Bisulfite, Sodium Hypochlorite, Sodium Chloride)	Flags, Poles, Banners and Accessories	Division 09, Finishes (Wall, Ceiling, Floor, Paint)
Fire Protection Equipment and Supplies	Industrial Tools, Parts and Supplies (All Kinds)	Division 35, Waterway and Marine Construction
Computer Accessories and Parts (Keyboard, Cables, Disks)	Telecommunication Equipment, Desk and Mobile Phones, Radio, Parts and Accessories	Division 08, Doors and Windows
Meter Transmission Unit (MTU) (Water)	Testing Apparatus and Instruments	Division 33, Utilities
Meter Lids (Water)	Surveying Equipment	Division 05, Metals (Steel Framing, Metal Guard Rails)
Industrial Supplies - SCADA	Internet, Cable TV	Construction - Communications
Builder's Supplies (All Types)	Surplus or Obsolete Sale or Auction	Construction - Electrical Power Generation and Transmission
Industrial Supplies - Industry-Specific Manufacturing Equipment	CCTV Cameras, Barriers, Gates, Cameras, Surveillance, Monitoring	Division 06, Carpentry, Wood, Plastics and Composites (House Framing)
Meters (Water and Wastewater, All Types and Sizes)	Antifoam, Defoam	Construction - Utility Equipment and Parts
Material Processing and Handling Equipment, Conveyor	Concrete - Manhole, Piers, Slabs	Division 04, Masonry (Concrete Block and Brick Work)
Computer Equipment (PC, Laptops)	Dye (Fluorescent Dye, Uranine Dye)	Division 03, Concrete (Footings)
Electrical Supplies (Battery, Cable, Wire, Cord, Fuse, Conduit, Outlets, Testers, Tools)	Construction Hauling Service	