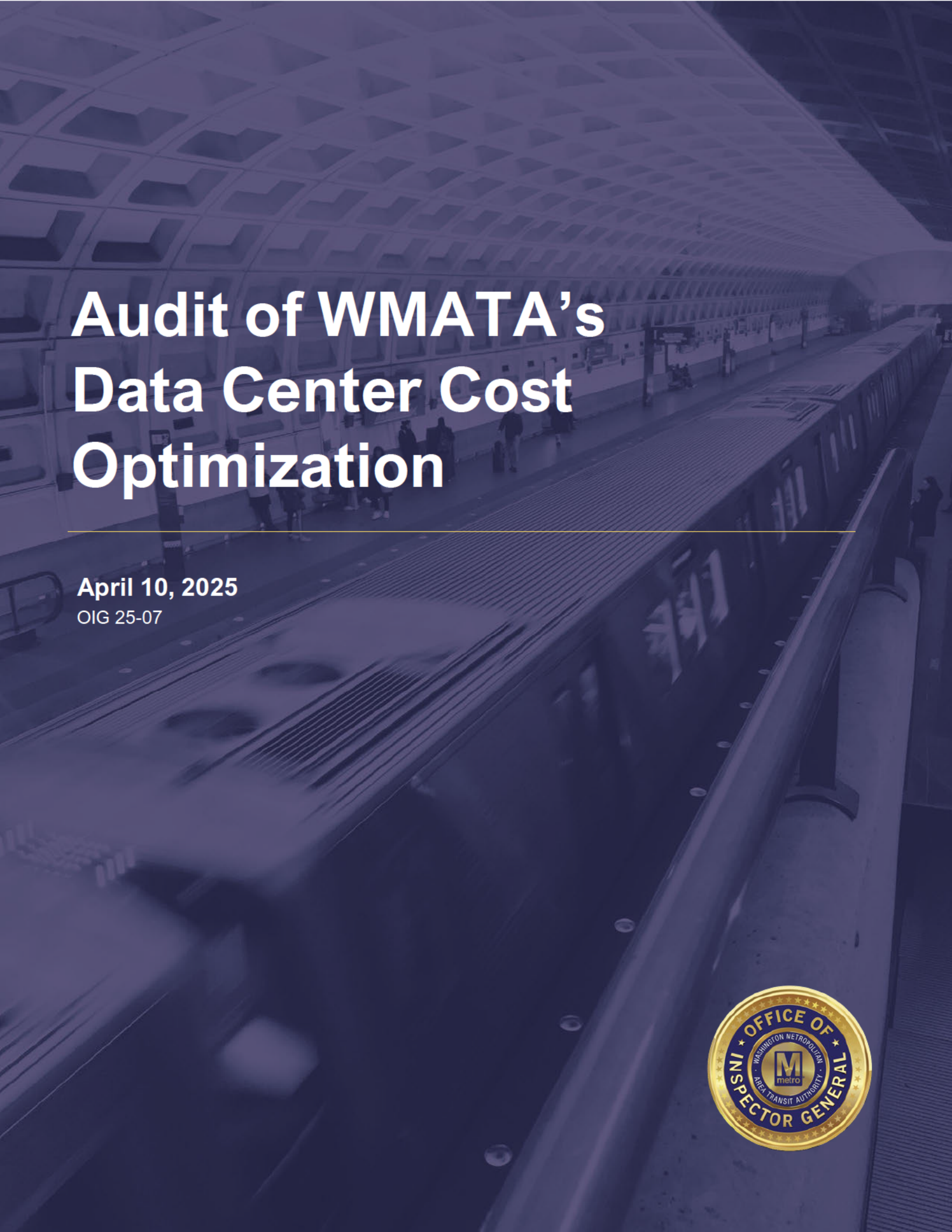

Audit of WMATA's Data Center Cost Optimization

April 10, 2025

OIG 25-07

Results in Brief

Audit Report of WMATA's Data Center Cost Optimization

Audit Objective

The audit objective was to determine whether the Washington Metropolitan Area Transit Authority (WMATA) has implemented reasonable data center cost reduction initiatives or strategies.

Why We Did the Audit

- WMATA's data center infrastructure has significantly changed as part of MetroMoves. For example, WMATA moved out of the Jackson Graham Building (JGB), built a new data center at Eisenhower, leased space from Equinix data center, and planned to migrate applications to the cloud.
- Evaluating WMATA's data center practices is critical to determining whether they are aligned with organizational objectives, including strategic planning, cost management, and operational efficiency. This is especially true given the evolving technology landscape and increasing reliance on data-driven decision-making.
- This audit was included in the Office of Inspector General's (OIG's) Fiscal Year (FY) 2024 Annual Audit and Evaluation Plan because the replacement of the JGB data center introduces significant operational, financial, legal, and reputational risks for WMATA.
- The Infrastructure Investment and Jobs Act (IIJA) requires OIG to assess the effective use of funding for major capital improvement projects. The data center project falls within this required assessment.

Recommendations

OIG identified 19 recommendations for WMATA's Digital Modernization (DM) department to optimize cost savings across WMATA's data centers. By addressing the recommendations outlined in this report, WMATA can improve cost tracking and monitoring, optimization strategies, and data center operations.

What OIG Found

OIG found significant deficiencies in WMATA's data center cost management and operational practices. These deficiencies could result in unplanned costs to WMATA and hinder cost optimization and operational efficiency.

Specifically, OIG found:

1. DM did not conduct necessary comprehensive cost and technology assessments before designating Equinix as the new permanent primary data center.
2. WMATA invested approximately $44.8 million to build a new data center at Eisenhower that is significantly underutilized.
3. DM has not implemented a risk management process for its data center operations.
4. DM does not have a data center strategy that addresses cost optimization and operational efficiency.
5. DM did not effectively manage its data center asset inventory.
6. DM does not monitor key data center metrics.

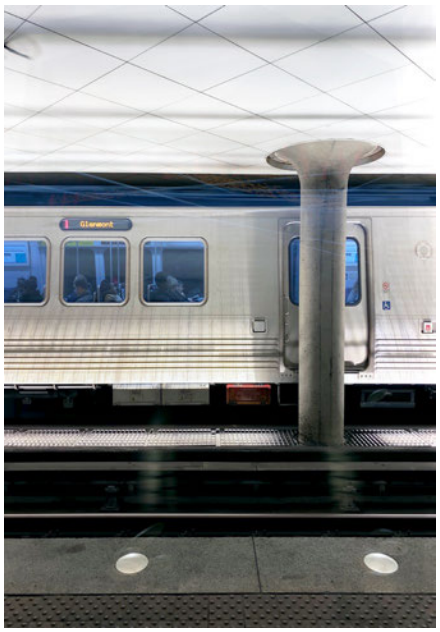

Table of Contents

Background

A data center is a physical facility that houses computing and networking equipment. WMATA's data centers serve as the central hub for storing, processing, and delivering data and applications critical to operations.

WMATA's Data Center Replacement Project

In 2019, WMATA "identified a need for building a flexible, secure, resilient, and highly available data center as one of the key strategic initiatives in its IT [information technology (IT)] Strategic Plan for FY 2019 to FY 2024."[1] The new data center, intended to replace the existing JGB data center in Washington, D.C. (DC), would be located at the new administrative building at Eisenhower in Alexandria, Virginia (VA). The MetroMoves-IT Project Charter for Enterprise Data Center described the purpose of the new data center:

> This program involves building out a next-generation data center that blends emerging technologies with [WMATA]'s existing capabilities to provide continually improving and scalable services to [WMATA's] riders, customers, and partners. An intuitive data center architecture with scalable capacity along with compliance certification and accountability enables [WMATA] to offer value-added services to partners on a collaborative basis and save on operating costs in the long run.[2]

Due to construction delays and other contributing factors, WMATA was unable to relocate the data center from JGB to the Eisenhower building on schedule as originally planned. In May 2022, as an interim solution, WMATA approved funding for a three-year lease at a temporary facility. This funding enabled WMATA to migrate the data center from the JGB building to the Equinix data center hosting facility in Ashburn, VA.

According to the last version IMM-MetroMoves-IT Project Charter, WMATA planned to install the core network equipment that had initially been procured for Eisenhower at Equinix's temporary leased facility.[3] Additionally, the Project Charter specified that the plan was to move the interim data center at Equinix back to the Eisenhower building at the end of the three-year lease.[4]

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[1] *Project Charter, Enterprise Data Center, Version 1.0, August 2019, Office of Enterprise Architecture, at p. 4.*
[2] *Project Charter, Enterprise Data Center, Version 1.0, August 2019, Office of Enterprise Architecture, at p. 5.*
[3] *IMM-MetroMoves-IT Project Charter, Document Version 1.9, Date of Modification 05/26/2022, p. 2.*
[4] *IMM-MetroMoves-IT Project Charter, Document Version 1.9, Date of Modification 05/26/2022, p. 2.*

On July 15, 2022, WMATA signed a three-year contract[5] totaling $14.7 million with AT&T to lease space in the Equinix data center while construction at the Eisenhower building was completed.

According to Uptime Institute,[6] Equinix is classified as a Tier IV data center and is recognized as:

> the world's digital infrastructure company, enabling digital leaders to harness a trusted platform to bring together and interconnect the foundational infrastructure that powers their success. Equinix enables today's businesses to access all the right places, partners and possibilities they need to accelerate advantage. With Equinix, they can scale with agility, speed the launch of digital services, deliver world-class experiences, and multiply their value.[7]

WMATA's Current Data Center Infrastructure

Between 2019 and 2023, WMATA planned for and ultimately built a new data center at Eisenhower, which was finished on or about June 2023 and cost approximately $44.8 million. However, in February 2024, DM management decided to keep a large portion of its data center equipment and services at Equinix instead of using the new WMATA-owned data center at Eisenhower. As a result, Equinix is now WMATA's primary data center, and there is no plan to move to Eisenhower.

Currently, WMATA's data center infrastructure includes the following facilities: (1) Equinix in VA,[8] (2) Carmen Turner Facility (CTF) in Maryland (MD), (3) WMATA's Eisenhower building in VA, and (4) Microsoft's Azure Cloud located online. At the time of this audit, CTF was the secondary data center used as the failover data center in the event Equinix was not operational. DM plans to decommission the CTF data center and use Microsoft's Azure Cloud as the new failover solution.

DM, created as a new WMATA department in 2023, is responsible for designing, procuring, building, maintaining, and monitoring WMATA's IT infrastructure, which enables WMATA to deliver safe, reliable, and efficient transit services. The department is also responsible for providing overall IT governance and managing the budget for the IT infrastructure, including the data center infrastructure. DM management was not involved with or responsible for the

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[5] Contract term of 36 months (July 15, 2022 – July 14, 2025), two additional terms of twelve months each automatic renewal starting July 18, 2022, and with 90 Day Notice of Non-renewal.

[6] Uptime Institute is an independent advisory organization that sets the global standard for designing, building, and operating data centers.

[7] Uptime Institute.com. Data Center: Equinix LD4 Data Centre. https://uptimeinstitute.com/uptime-institute-awards/datacenter/equinix-ld4-data-centre/125

[8] Equinix data center is a facility where businesses and organizations, including WMATA, rent space to house their servers, networking equipment, and storage devices.

development of WMATA's decision or plan to move the JGB data center to the new Eisenhower building, or to lease the Equinix data center facility as a temporary solution. Those decisions were made by previous IT management, who are no longer employed at WMATA.

Funding Sources for the Data Center

The data center replacement project was funded by Capital Improvement Program (CIP) projects CIP 0330 and CIP 0337. CIP 0330 is a data center specific project tasked with supplying hardware, software, and consulting services to Eisenhower and Equinix, bolstering operations across all headquarters, and leasing a colocation facility at Equinix. CIP 0337 covered the construction of the new Eisenhower office building, including a floor specifically designed to be used as a data center. See Appendix B for a detailed breakdown of cost information.

In November 2021, Congress and the president enacted IIJA.[9] The act requires OIG to assess the effective use of funding for major capital improvement projects. This data center project audit falls within this assessment. See Appendix B for more details on IIJA and OIG's requirements.

[9] *Infrastructure Investment and Jobs Act, Pub. L. No. 117-58, 135 Stat. 429 (2021).*

Finding 1: DM Did Not Conduct Any Comprehensive Cost and Technology Assessments Before Designating Equinix as the Permanent Primary Data Center

DM has made strategic, financial, and technical decisions without the benefit of comprehensive cost and technology assessments. For instance, WMATA invested approximately $44.8 million in building the Eisenhower data center. However, DM decided to make Equinix the primary data center instead of fully utilizing Eisenhower. Relocating the JGB data center to Equinix instead of Eisenhower in July 2022 was a significant undertaking and was intended to be temporary, pending a future move to Eisenhower.

DM did not provide OIG with any cost-benefit analysis or technology assessment to justify the decision to remain at Equinix instead of relocating the data center to Eisenhower as originally planned. When OIG requested the analysis and evaluation DM used for their decision, DM management acknowledged they had not conducted any such analysis or evaluation. OIG also requested but did not receive supporting documentation on data center operations, such as: (1) availability, (2) performance, (3) capacity, and (4) cost optimization. OIG requested this documentation to determine whether DM tracked data center operational costs to support future decisions and to understand the rationale behind DM's choices.

According to Control Objectives for Information and Related Technology (COBIT),[10] organizations should assess and plan for their IT environment's strategic direction by conducting operational, financial, and technical infrastructure assessments. To evaluate whether DM's data center cost and operational efficiency decisions align with WMATA's mission objectives and financial constraints, OIG identified five relevant assessments for analysis. While COBIT provides broad and comprehensive guidance, the following assessments are particularly significant for evaluating WMATA's data center strategy:

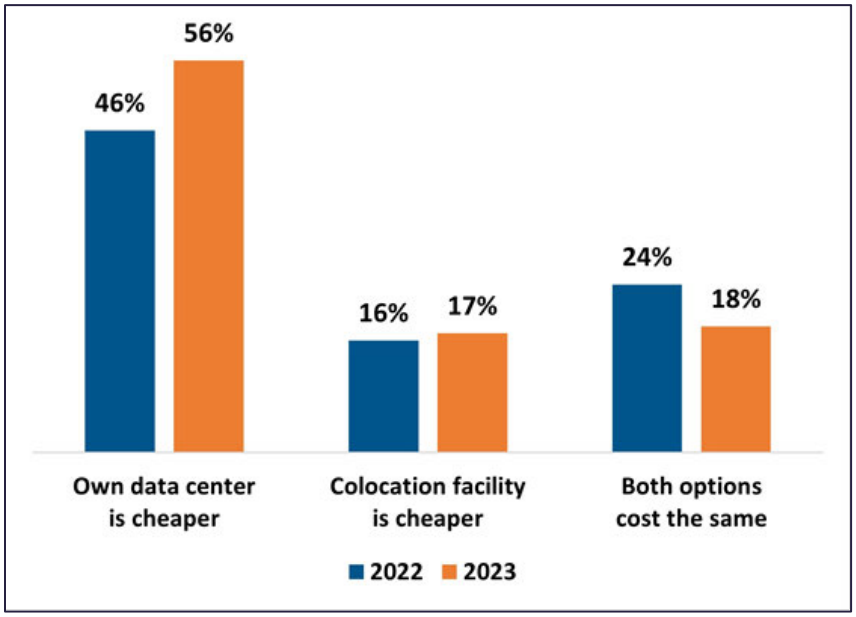
1. Cost-Benefit Analysis
2. Technology Assessment
3. Power Consumption Assessment
4. Tier Assessment
5. Tradeoff Assessment

[10] *COBIT is a globally accepted framework for optimizing enterprise IT governance - Refer to Appendix C for the criteria/requirements.*

The following sections detail the individual assessments:

a. **Cost-Benefit Analysis** – DM did not conduct a cost-benefit analysis to support its decision that staying at Equinix is more cost-effective than using the new data center at Eisenhower. A correctly done assessment would have provided DM management with a clear, cost-justifiable rationale for choosing the data center that best meets WMATA's current financial and mission goals. For example, a survey from November 2023 included in the *Uptime Institute's Data Report on Finance & Strategy* suggests that outsourcing data center services costs more than having workloads performed in-house. The Uptime report states: "[d]espite the benefits of outsourcing, most data center managers believe that keeping workloads in their facilities is the cheaper alternative." According to the report, more than half of the respondents (56%) said workload provisioning in their data centers was cheaper than in a colocation facility – up a full 10 points from last year's report and survey (see Figure 1).

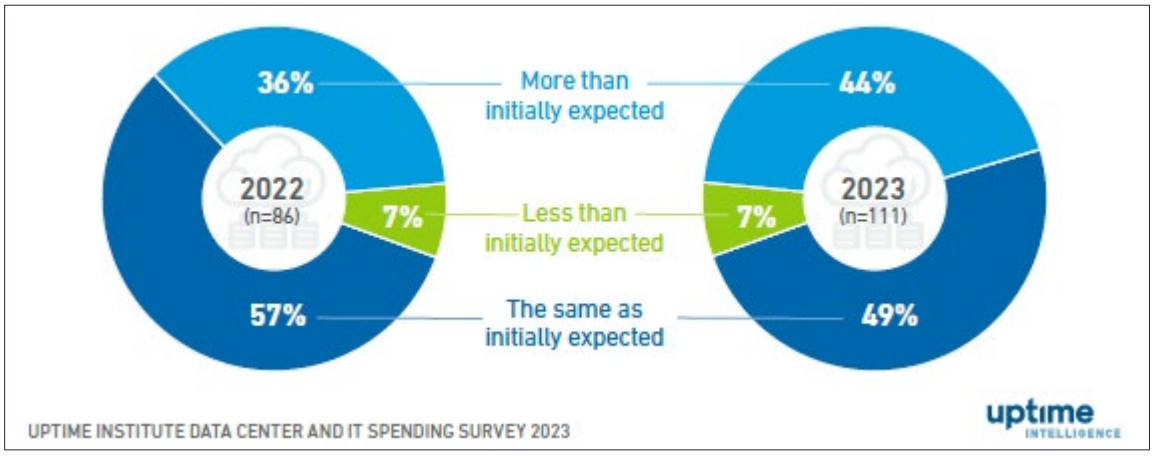
Figure 1: Enterprise vs Colocation: The Cost of Housing Workloads



Source: Uptime Institute - Uptime Intelligence (November 2023)

Another Uptime report states that "[m]ore enterprises surveyed in 2023 say colocation costs are higher than expected compared with 2022. This is primarily due to colocation companies passing higher power costs onto their customers"[11] (see Figure 2).

Figure 2: Colocation Costs are Higher than Expected



The two Uptime reports and surveys point to the need for organizations to conduct assessments to drive decisions based on proven cost expectations. Had DM management done a proper cost assessment, they would have been better positioned to choose the data center option that best meets WMATA's current financial and mission goals. Without such an assessment, WMATA may not fully understand the economic and operational implications of the data center relocation, which increases the risk of unexpected costs, budget overruns, and financial strain.

b. **Technology Assessment** – DM did not perform a technology assessment before designating Equinix as the primary data center. According to the DM PowerFlex[12] project charter, DM plans to use Microsoft Azure Cloud as a secondary data center to serve as a failover for Equinix. The PowerFlex solution provides a centralized platform with extensive computing and storage capabilities that support multiple environments. This platform will integrate with Microsoft Azure Cloud, enabling WMATA to shift significant workloads between the primary and secondary data centers. As a result, Equinix will have a failover backup at Microsoft Azure Cloud.

[11] *Uptime: Donnellan, D. (2024). UI Intelligence Data Report: Most operators plan to spend more on rising demand (Report No.125) Uptime Intelligence. 2023.SpendingSurvey.Report.pdf*

[12] *Dell PowerFlex is software-defined infrastructure platform that unifies the delivery of block and file storage, and compute resources in an engineered integrated system while simplifying workload and infrastructure coordination across on-premises and cloud assets.*

However, these decisions were made without assessing the technology and mission requirements necessary to determine whether Microsoft Azure Cloud was a viable solution to serve as the failover data center for Equinix. For instance, no assessments have been conducted to:

- Identify whether WMATA's critical legacy applications are rationalized,[13] modernized, cloud-ready, or suitable for migration to the Microsoft Azure Cloud.
- Determine a failover solution for applications like Advanced Information Management (AIM)[14] that, in the absence of the CTF data center, cannot be moved to Equinix or Microsoft Azure Cloud due to their mission criticality.
- Determine if DM's lift-and-shift[15] migration strategy for moving applications to Microsoft Azure Cloud will provide cost-effectiveness or operational efficiencies.

c. Power Consumption Assessment – DM representatives indicated that the department currently lacks a process for measuring or assessing Power Usage Effectiveness (PUE) at WMATA-owned data centers. PUE is an industry-standard best practice that helps organizations calculate energy efficiency and measure power consumption. As a result, OIG was unable to determine how WMATA established its power consumption usage baseline since DM does not measure or assess the power consumption of its data centers.

Without a proper power consumption assessment or the implementation of cost-saving measurement capabilities to optimize PUE, WMATA may ultimately face significantly higher operational costs, as power is often the most significant expense for a data center.

d. Tier Assessment – DM has not identified or assessed WMATA's data center tier requirements in order to determine whether Eisenhower and/or Equinix met those requirements. The Uptime Institute is the founder and trusted source for data center tier certification. The tier classification system offers a globally recognized, comprehensive, industry-wide framework for assessing a data center's design, construction, and operation. The tier classification system establishes four levels of data centers, Tier I through Tier IV, with each tier providing specific benchmarks regarding uptime, infrastructure redundancy, and fault tolerance. Each tier offers organizations higher operational reliability, such as

[13] *Application rationalization is a process that involves identifying, evaluating, and categorizing an organization's applications to determine which should be kept, replaced, retired, or consolidated.*
[14] *AIM® Rail System allows the WMATA dispatchers and supervisors to manage all rail line traffic, traction power devices, and station equipment by receiving information from the field, processing it, and displaying it on workstations and large projection screens.*
[15] *Lift-and-shift – also known as rehosting – is a migration strategy that involves moving data and applications from an on-premises location to Azure-based virtual machines in the cloud. Source: Azure Cloud Platform.*

more uptime, less downtime, and power consistency. The higher the tier, generally, the higher the cost (see Figure 3).

Figure 3: Uptime Institute's Tier Classification System

Tier	Description	Availability (Annually)
Tier I	• Provides dedicated site infrastructure to support information technology beyond an office setting	**Uptime:** 99.671% **Downtime:** 28.8 hours
Tier II	• Includes all Tier I requirements as well as redundant critical power and cooling components	**Uptime:** 99.741% **Downtime:** 22.0 hours
Tier III	• Includes all Tier I and II requirements as well as a redundant distribution path for power and cooling • Requires no shutdowns for equipment replacement and maintenance	**Uptime:** 99.982% **Downtime:** 1.6 hours
Tier IV	• Includes all Tier I, II, and III requirements and adds fault tolerance (equipment failures and distribution path interruptions have no affect on IT operations)	**Uptime:** 99.995% **Downtime:** 26.3 minutes

Source: Created by OIG based on Uptime Institute Tier Classification Information

Figure 3 provides the requirements for infrastructure design and performance that are defined at different tiers. This assessment would allow WMATA to determine Eisenhower's tier level and whether it's feasible to use Eisenhower as its primary data center.

e. **Tradeoff Assessment**[16] – DM has not assessed the tradeoffs of operating without an on-premises data center. DM management has decided not to use the Eisenhower as the primary data center and has plans to decommission the CTF data center. Without ownership of a physical primary data center infrastructure, WMATA may experience:

- Limited ability to make strategic decisions about future data center options, including adopting emerging technologies such as artificial intelligence (AI), cloud, edge, or hybrid services.

[16] *Tradeoff Assessment - The Open Group Architecture Framework (TOGAF) provides guidance for enterprise architecture, including assessing strategic trade-offs between technical feasibility and business goals.*

- Higher ongoing operational costs can affect budget allocation for digital modernization and other DM initiatives.
- Challenges implementing specific technologies, architectures, or configurations tailored to WMATA's needs due to inflexibility.
- Inability to scale to accommodate future growth. For instance, our review noted that any future request to increase WMATA's space at Equinix may take months, limiting WMATA's ability to respond timely to changing mission demands requiring more capacity or space.

Overall, a lack of documented assessments may lead to decision-making processes that do not fully account for data center complexities, causing higher costs, operational inefficiencies, or service disruptions.

Recommendations

OIG recommends the GM/CEO:

1. Conduct a cost-benefit analysis that evaluates the financial implications of leasing Equinix versus utilizing the Eisenhower data center, considering factors such as total cost of ownership, operational expenses, and potential savings.

   Management Response

   It is the responsibility of DM leadership to make technology investment decisions based upon an overall strategy of leveraging trends in technology, cybersecurity, and cost efficiency. The Eisenhower facility was planned and built upon the requirements of prior leadership. It is not a facility designed to house a modern data center; for example, power outage is a consistent problem at that facility. While DM concurs that a comprehensive cost and technology assessment should be done for all data center planning going forward, this decision was made in the best interest of the Authority to ensure continuity of service for critical and core systems. Under new leadership, SD&O has initiated a comprehensive cost-benefit analysis to evaluate the feasibility of the Eisenhower Data Center. This assessment will examine key factors such as cost, scalability, connectivity, resiliency, and alignment with the organization's long- term infrastructure strategy. DM remains committed to sustaining a flexible, hybrid data center infrastructure that supports WMATA's strategic goals and business needs. DM commits to remediating this finding by 12/15/2026. Additionally, other associated actions from this audit engagement must be completed to ensure the successful execution of this remediation effort.

OIG Comment

OIG considers management's comments responsive to the recommendation and the corrective actions taken should resolve the issue identified in this report. OIG will follow up on the planned actions during the corrective action plan phase.

2. Perform technical evaluations to assess the suitability of utilizing Equinix or Eisenhower as the primary data center based on WMATA's current and future technological requirements, such as power consumption, scalability, performance, security, and compliance.

Management Response

See response to #1. DM will be able to provide a technical evaluation of the Eisenhower data center once it has reached a fully functional operating state. With the cost-benefit analysis and tier assessment, we will be better equipped to support a technical evaluation. DM commits to remediating this finding by 12/15/2026. There are other actions associated with this audit engagement that must be addressed before the successful execution of this corrective action.

OIG Comment

OIG considers management's comments responsive to the recommendation and the corrective actions taken should resolve the issue identified in this report. OIG will follow up on the planned actions during the corrective action plan phase.

3. Perform Uptime Institute's tier assessment for the Eisenhower data center and the Equinix facility to provide an objective basis for comparing resilience, redundancy, and operational performance.

Management Response

See response to #1. DM is committed to performing a comprehensive tier assessment to evaluate the capabilities of the Eisenhower facility. This assessment will determine whether the facility can meet the necessary operational and resiliency requirements to support WMATA's data center needs. However, for an accurate evaluation, Eisenhower must first achieve full functionality and power capability. Currently, there are usage deficiencies that must be addressed to mature the facility to an optimal operational state. A Tier analysis for Eisenhower will be performed in the near future as WMATA begins transitioning critical systems to the facility. DM is dedicated to remediating this finding by 12/15/2026.

Additionally, other actions associated with this audit engagement must be completed to ensure the successful execution of this corrective action.

OIG Comment

OIG considers management's comments responsive to the recommendation and the corrective actions taken should resolve the issue identified in this report. OIG will follow up on the planned actions during the corrective action plan phase.

Finding 2: WMATA Invested Approximately $44.8 Million to Build a New Primary Data Center at Eisenhower That is Significantly Underutilized

WMATA invested an estimated $44.8 million to construct a new Eisenhower data center (see Table 1). Currently, according to DM representatives, Eisenhower is only being used at about 25 percent of its capacity. The low utilization is contrary to the goals and objectives described in WMATA's strategic plan and the MetroMoves-IT Project Charter. Not fully utilizing the Eisenhower data center is also a potential waste of monetary resources.

Table 1: Funding Details from CIP 0330 and CIP 0337 for Data Centers[17]

Program of Project	Funds Allocated to Eisenhower Data Center
CIP 0330	$17.5 Million
CIP 0337	$ 27.3 Million
Total	**$44.8 Million**

The total $17.5 million cost from CIP 0330 is directly allocated to the data center. However, the $27.3 million from CIP 0337 includes both direct and shared costs. Direct costs total $15.6 million, while the remaining $11.7 million is classified as shared costs. Shared costs refer to expenses that cannot be directly allocated or identified with the data center but support its construction and operation. These include non-construction soft costs such as permitting and indirect construction costs like site excavation, exterior wall materials, and electrical functionality. Because the data center contributed to the building's creation, it is responsible for a portion of these shared costs.

OIG requested that DM provide any formal plans they had developed to justify not fully using the Eisenhower data center as originally intended. DM lacked any written justification for (1) choosing Equinix instead of Eisenhower as WMATA's primary data center or (2) determining whether utilizing Equinix instead of Eisenhower is more cost-effective or technically feasible.

On December 19, 2023, OIG visited the Eisenhower data center and observed that the data center had all the necessary infrastructure capabilities to meet WMATA's operational requirements, *i.e.*, equipment, platforms, and application hosting support. The IT data center engineer at the Eisenhower data center confirmed OIG's observation. Moreover, DM representatives agreed with OIG's assessment that the Eisenhower data center is underutilized.

[17] *As of November 2023.*

Table 2: Overview of WMATA's Data Center Operating and Ownership Models

Data Center Facility		Infrastructure			IT Equipment			Platform	Applications	Operations & Admin
	Designation	Physical Space/Cage	Power	Cooling	Server	Storage	Networking	Operating System, Virtualization	Applications	Personnel
Equinix	Primary	EQX	EQX	EQX	WMATA	WMATA	WMATA	WMATA	WMATA	WMATA
CTF	Secondary	WMATA	WMATA	WMATA	WMATA	WMATA	WMATA	WMATA	WMATA	WMATA
Eisenhower	Hosts MICC	WMATA	WMATA	WMATA	WMATA	WMATA	WMATA	WMATA	WMATA	WMATA

Table 2 provides an overview of WMATA's current data center operation and ownership structure. WMATA owns the CTF and Eisenhower data centers, which includes the equipment, network, software, applications, and support personnel responsible for operating and maintaining the hardware and software. In contrast, Equinix only provides floor space, power, and cooling, while WMATA owns the equipment, platform, applications, and personnel.

By not fully utilizing the Eisenhower data center and extending the Equinix contract, WMATA risks incurring financial, operational, and reputational losses. Currently, the facility operates at about 25% capacity, leaving 75% underutilized. For instance, WMATA may not realize a return on investment (ROI) for the $44.8 million spent on the Eisenhower data center. As a result, approximately $33.6 million ($44.8 million × 75%) of the investment may not be yielding a return, making it a potential financial sunk cost. Additionally, ongoing operational expenses for maintaining excess capacity could further increase financial inefficiencies.

Recommendation

OIG recommends the GM/CEO:

4. Develop a strategy or plan to determine the future usage of the Eisenhower data center.

Management Response

Management agrees with the recommendation. DM is working to understand true costs and true utilization and will provide updated information by April 30, 2025. Additionally, DM has developed a draft plan for the future use of the Eisenhower facility. This plan will include the deployment and management of assets, as well as the anticipated resource needs required to operate the facility in accordance with planned WMATA business needs. DM commits to remediating this finding by 9/30/2025.

OIG Comment

OIG considers management's comments responsive to the recommendation and the corrective actions taken should resolve the issue identified in this report. OIG will follow up on the planned actions during the corrective action plan phase.

Finding 3: DM Has Not Implemented a Risk Management Process for its Data Center Operations

DM has made significant changes to WMATA's data center strategy by selecting Equinix as the primary data center instead of Eisenhower and planning to decommission the CTF data center. However, these decisions, made without corresponding documented comprehensive risk assessments, have introduced additional risks to an already complex technical infrastructure, increasing WMATA's exposure to operational, security, and compliance risks.

According to the National Institute of Standards and Technology (NIST), a federal agency that develops cybersecurity standards, guidelines, and best practices to meet the needs of U.S. industry and federal agencies, risk management is a key component of effective data center operations. NIST Special Publication 800-39, Managing Information Security Risk Organization, Mission, and Information System View, provides a structured, yet flexible approach for managing risk. It states, "[t]o successfully execute organizational missions and business functions with information system-dependent processes, senior leaders/executives must be committed to making risk management a fundamental mission/business requirement."[18] This criterion recommends that organizations perform risk assessments to identify potential risks and develop risk mitigation strategies that affect data center operations.

DM has not implemented a comprehensive risk management process that addresses the strategic, financial, technical, and operational factors of WMATA's data centers. Specifically, OIG has made the following observations:

a. **Lack of Risk Assessment for Critical Data Center Assets** – DM has not identified, documented, or assessed the risks associated with critical data center assets and systems, which should be prioritized for mitigation. Conducting a risk assessment for critical data center IT assets is essential for identifying potential vulnerabilities and threats that could impact asset operations. OIG found that DM continues to utilize outdated equipment, hardware, and software at Equinix and the CTF data centers. This situation may lead to higher maintenance costs, system failures, and outages of mission-critical systems. A thorough risk management process would enable WMATA to develop effective mitigation strategies, ensuring continuous availability, service, maintenance, and security, thereby minimizing downtime and financial losses.

[18] *NIST Special Publication 800-39, Managing Information Security Risk Organization, Mission, and Information System View, p. 2.*

b. **Unknown Risks Associated with Third-Party Data Center Providers** – DM has not assessed Equinix to identify potential risks and strategies for mitigation. One risk for DM to consider is that WMATA may develop a long-term dependency on Equinix. This dependency could lead to vendor lock-in, limiting WMATA's ability to switch to alternative providers or negotiate favorable terms with Equinix in the future. This could increase costs and impact ongoing operational efficiency. Conducting a risk assessment could have identified this risk and any other associated risks, enabling DM to implement appropriate mitigation strategies. However, according to Uptime Institute, Equinix is the world's digital infrastructure company… delivering world-class experiences and multiplying its value.

c. **Lack of Control** – DM has not performed a risk assessment to evaluate the consequences of not using a WMATA-owned and controlled facility as the primary data center. A risk assessment would allow WMATA to analyze the operational risks and impacts associated with discontinuing its physical data center infrastructure and potentially reducing its visibility and control over critical assets. Key challenges include:

   - *Scalability and Space Limitation* – WMATA may have challenges in expanding or adding more racks at Equinix due to space limitations, impacting WMATA's ability to fulfill future growth needs on a timely basis.
   - *Limited Accessibility* – DM staff must travel long distances between data centers at Equinix in VA, CTF in MD, and Eisenhower in VA, which increases the risk of delays in maintaining or troubleshooting critical hardware issues.

d. **Business Continuity Risks** – DM management has not conducted a business continuity risk assessment to identify and mitigate potential risks that could adversely impact the recovery of WMATA's mission-critical systems. For example:

   - During a meeting on March 25, 2024, DM staff informed OIG that only informal failover testing[19] from CTF to Equinix had been performed. This testing was performed on an ad-hoc basis without formal documentation.

[19] *Failover testing is a process that evaluates a system's ability to handle a failure by moving applications to a secondary location. It's a key component of a system's disaster recovery plan and is important for ensuring business continuity.*

- DM has not updated the Recovery Point Objective (RPO)[20] and Recovery Time Objective (RTO)[21] to align with Equinix's capabilities. Mission-critical applications could be lost if the recovery objectives do not align.
- DM has not completed or updated its "Continuity of Operations - Categories, Priorities and Classifications" plan for critical applications and services, initially developed in March 2019 by the Office of Enterprise Architecture.
- OIG noted that according to the PowerFlex Project Charter, the execution of the failover process for WMATA's data centers and critical applications is conducted manually. Manual failover processes are slower and may prolong recovery times, leading to extended outages for WMATA's mission critical applications. The successful implementation of the PowerFlex suite, and the adoption of Azure cloud, may mitigate these risks that are present with the current manual failover process.

e. Increased Risk of Service Disruption – DM management has not conducted a risk assessment of WMATA's High Availability (HA) and failover strategies, especially with their current deployment of Symmetrix Remote Data Facility (SRDF)[22] in an active-active[23] configuration which facilitates application failover between Equinix and CTF. The active-active setup is designed to keep both data centers fully operational, enabling them to handle traffic simultaneously. If one site fails, the other site automatically continues to handle the load without any noticeable disruption, maximizing application availability and minimizing downtime. OIG's discussion with DM staff and documentation review noted that risk scores, categories, priorities, and classifications for critical applications and services had not been completed or updated to fulfill their respective HA and failover readiness or strategies.

In addition, DM staff informed OIG that they are implementing PowerFlex to facilitate using Microsoft Azure Cloud as a secondary facility for failovers. However, as of February 18, 2025, DM is still in the process of fully implementing the PowerFlex solution even though the software has been installed.

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[20] RPO - represents the point before a disruption or system outage where mission/business process data can be recovered after an outage.
[21] RTO - defines the maximum time a system resource can remain unavailable before an unacceptable impact on other system resources is realized, supported mission/business processes, and the Maximum Tolerable Downtime (MTD).
[22] The SRDF maintains real-time (or near real-time) copies of data on a production storage array at one or more remote storage arrays.
[23] Active-active architecture refers to a system configuration where multiple identical resources, such as servers or data centers, are simultaneously active and serving requests. It is designed to provide high availability, scalability, and fault tolerance by distributing workloads across multiple nodes, ensuring that even if one node fails, the system can continue to function without disruption. https://www.geeksforgeeks.org/active-active-vs-active-passive-architecture/

The lack of a risk management process for data center operations, particularly for critical data center assets and third-party providers, poses significant risks for WMATA. This can lead to increased maintenance costs, system failures, and outages of mission-critical systems that could significantly impact WMATA's mission goals, lead to revenue losses, and damage WMATA's reputation.

The absence of a data center risk management process could also make WMATA more vulnerable to outages, data breaches, and operational inefficiencies. A lack of consideration and preparation for these risks could lead to significant financial losses, reputational damage, and legal liabilities. Moreover, inadequate consideration for service disruptions can hinder an organization's ability to respond effectively to crises, jeopardizing overall resilience and stability.

Recommendations

OIG recommends the GM/CEO:

5. Conduct a comprehensive risk assessment of its data centers, including on-premises, colocation, and cloud services.

Management Response

DM concurs with this finding. DM will collaborate with our internal audit partners to conduct an internal risk assessment of our data facilities and footprint. DM commits to remediating this finding by 3/31/2027. This timeframe for this corrective action was introduced to allow proper coordination with our internal audit partners and allow DM time to establish preparation for a proper risk assessment. DM commits to reporting progress throughout this period, as we meet critical milestones.

OIG Comment

OIG considers management's comments responsive to the recommendation and the corrective actions taken should resolve the issue identified in this report. OIG will follow up on the planned actions during the corrective action plan phase.

6. Identify and mitigate potential risks associated with relying solely on Equinix as the primary data center, including the potential risk of a single point of failure.

Management Response

DM concurs that there is a lack of documentation behind the strategy used to decide to utilize Equinix as its primary data center. As noted in Response #1, the Eisenhower data center presents significant limitations regarding power, and there is no evidence to support the claim that the Eisenhower data center is more scalable, secure, or cost-effective than Equinix, a state-of-the-art Tier III facility. Additionally, WMATA has contracted with AT&T which includes SmartHands support for the Equinix facility as part of our licensing arrangement, which eliminates the need for DM staff to travel to the facility to troubleshoot issues. We will work with our internal audit partners as part of the data center risk assessment. If any risks are identified concerning single points of failure, DM will develop a strategy and plans of action to mitigate the risks and remediate the findings. DM commits to remediating this finding by 3/31/2027. This period for this corrective action was introduced to allow proper coordination with our internal audit partners to execute a risk assessment properly. A proper risk assessment will afford DM the opportunity to project plan and strategize methods to mitigate potential identified risks. DM commits to reporting progress throughout this period, as we meet critical milestones.

OIG Comment

OIG considers management's comments responsive to the recommendation and the corrective actions taken should resolve the issue identified in this report. OIG will follow up on the planned actions during the corrective action plan phase.

7. Conduct IT COOP testing between Equinix and CTF to establish the failover and recovery objectives.

Management Response

DM acknowledges this finding and will conduct COOP exercises between the two locations to assess failover capabilities. These exercises will provide critical insights into system resilience and reliability, with the results shared with the appropriate business owners. DM is committed to remediating this finding by 12/15/2026. This timeline allows for proper coordination with software operators and business owners to conduct the necessary failover testing required for effective COOP planning. While DM does not currently have a formal DR

policy, it does maintain a DR SOP that outlines the required processes and steps for backup, testing, and restoration.

OIG Comment

OIG considers management's comments responsive to the recommendation and the corrective actions taken should resolve the issue identified in this report. OIG will follow up on the planned actions during the corrective action plan phase.

8. Complete the implementation of PowerFlex to facilitate redundancy to a future secondary data center with Microsoft Azure as planned.

Management Response

Digital Modernization concurs with this finding. The PowerFlex project is targeted for completion by 12/15/2025. DM commits to remediate this finding by 12/15/2025.

OIG Comment

OIG considers management's comments responsive to the recommendation and the corrective actions taken should resolve the issue identified in this report. OIG will follow up on the planned actions during the corrective action plan phase.

9. Complete and update the continuity of operations categories, priorities, and classifications plan for critical applications and services.

Management Response

DM concurs with this finding and will commit to updating our current DR SOP and the associated categories, prioritizations, classifications, and critical applications and platforms. DM commits to remediate this finding by 9/30/2025.

OIG Comment

OIG considers management's comments responsive to the recommendation and the corrective actions taken should resolve the issue identified in this report. OIG will follow up on the planned actions during the corrective action plan phase.

Finding 4: DM Does Not Have a Data Center Strategy that Addresses Cost Optimization and Operational Efficiency

DM does not have a data center strategy that addresses cost optimization and operational efficiency. Data center cost optimization involves identifying and implementing strategies to reduce expenses while maintaining or improving the data center's efficiency and performance. According to Gartner, Inc., the world's leading IT research and advisory company, "75% of organizations will have implemented a data center infrastructure sustainability program driven by cost optimization and stakeholder pressures by 2027, up from less than 5% in 2022."[24]

A data center strategy is essential for aligning data center objectives with WMATA's overall mission and goals, ensuring that resources are utilized efficiently to deliver maximum value. According to COBIT 2019 Framework, Governance & Management Objectives, Section APO02.05, it is important to, "[d]evelop a holistic digital strategy, in cooperation with relevant stakeholders, and detail a road map that defines the incremental steps required to achieve the goals and objectives."[25]

In addition to COBIT, the U.S. Office of Management and Budget (OMB) established the Data Center Optimization Initiative (DCOI)[26] in 2016. The initiative requires agencies to: "develop and report on data center strategies to consolidate inefficient infrastructure, optimize existing facilities, improve security posture, achieve cost savings, and transition to more efficient infrastructure, such as cloud services and inter-agency shared services."[27]

OMB also provides guidelines for federal agencies on establishing clear and measurable metrics and goals to guide cost-reduction efforts and ensure alignment with strategic objectives. DCOI seeks to improve data center operations across 24 federal agencies and aid them in realizing significant energy and cost savings. DCOI has become the data center industry's best practice for benchmarking utilization and optimization standards.

Based on DCOI, the Government Accountability Office (GAO) conducted an assessment and issued a report in February 2023 titled "Data Center Optimization: Agencies Continue to Report Progress." The report highlights the federal government's efforts to establish measurable cost

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[24] Press Release, May 2, 2023: *Gartner Predicts 75% of Organizations Will Have Implemented a Data Center Infrastructure Sustainability Program by 2027. See* https://www.gartner.com/en/newsroom/press-releases/2023-05-02-gartner-predicts-75-percent-of-organizations-will-have-implemented-a-data-center-infrastructure-sustainability-program-by-2027.

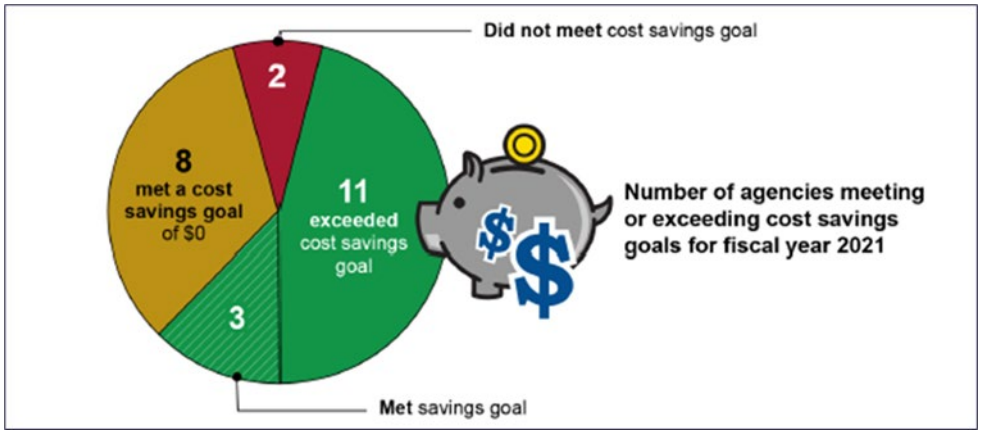
[25] *COBIT 2019 Framework, Governance & Management Objectives*, Section APO02.05, p. 67

[26] *CIO.GOV, Data Center Optimization Initiative. See https://www.cio.gov/policies-and-priorities/DCOI/.*

[27] *Memorandum for heads of Executive Departments and Agencies, August 1, 2016.*

optimization strategies and goals for data centers. For example, during FY 2021, DCOI found that 22 of the 24 agencies surveyed reported meeting their cost-saving goals, which amounted to a total of $612 million (see Figure 4).

Figure 4: Agency-Reported OMB Status of FY 2021 Data Center Cost Savings Goals



OIG found gaps in WMATA's data center optimization practices, including the lack of a framework to identify, prioritize, and execute cost optimization measures.

a. **Lack of Cost Optimization Strategy** – Specifically, OIG observed that:

- DM does not have a plan that considers data center cost optimization initiatives, cost-management targets, and operational efficiency.
- The current DM policy instructions and governance do not address WMATA's data center cost optimization and operational efficiencies.
- DM management has no strategy in place to assess whether significant data center investments should be accounted for as capital expenditures (CAPEX) versus operational expenditures (OPEX). In the context of data center investments, deciding whether to classify spending as CAPEX or OPEX is strategic and helps WMATA achieve more accurate budgeting and financial forecasting.
- DM management does not have a process to track the return on investment (ROI) or total cost of ownership (TCO) for funds spent on data centers.

b. **Lack of a Resource Utilization Strategy** – DM management does not have a strategy for optimizing resource utilization within WMATA's data centers. A resource utilization strategy serves as a governance and/or policy framework that guides decisions on resource allocation, investment in new technologies, and risk management. This strategic

approach maximizes resource efficiency, reduces costs, and improves the overall effectiveness of data center operations, including server utilization, server virtualization, consolidation, and energy consumption. For example, DM and contracted staff explained that three of WMATA's Oracle Exadata database servers at Equinix were underutilized and could have been used more efficiently.

c. **Absence of a Communications Strategy** – DM management has not established a process for communicating data center initiatives amongst key stakeholders, such as IT managers, finance officers, operational heads, and executive leadership. A data center communication strategy refers to a comprehensive plan for how information related to data center's operations, maintenance, and management is communicated among all key stakeholders. Specifically, DM has not formed a cross-functional team of data center subject matter experts, financial experts, and IT personnel responsible for developing cost-management strategies and improving operational efficiencies. The goal is to ensure that everyone involved stays well-informed, aligned with the data center's strategic goals, and capable of responding effectively to changes and challenges. Staff from Service Delivery & Operations stated that they consult financial experts regarding data center initiatives; however, OIG could not find any support for this assertion. Without a communications strategy, WMATA could potentially face increased costs, performance issues, and missed opportunities for growth and innovation.

d. **Lack of Governance Over Key Performance Indicators (KPIs)**[28] – DM management does not have a process, personnel, and systems to effectively measure the success of cost reduction efforts, such as server utilization rates, energy consumption, and cooling efficiency. For example, DM staff told OIG that there is no continuous mechanism to measure power consumption. As a result, DM has no KPIs or benchmarks to effectively manage and optimize data center power costs. As stated earlier in the report, Service Delivery & Operations provided OIG with a total cost estimate of $34 million for a year's total power consumption for WMATA-owned data centers. However, OIG could not obtain any established metrics for measuring total power consumption. The absence of clear cost management metrics or KPIs can lead to ineffective resource allocation, difficulty tracking performance, missed opportunities for improvement, lack of insight into cost management, and difficulty benchmarking.

WMATA could achieve operational and cost efficiencies by using DCOI guidelines to monitor data center operations and implement cost-management and optimization strategies. Without a

[28] *KPIs are the critical (key) quantifiable progress indicators toward an intended result.*

clear strategic direction for data centers, DM may not be able to take advantage of opportunities to prioritize cost optimization efforts, improve operational efficiencies, implement targeted cost-management measures, and align data center initiatives with DM's modernization strategy.

Recommendations

OIG recommends the GM/CEO:

10. Implement a formal data center strategy that outlines clear objectives, priorities, and initiatives for cost optimization and operational efficiency.

    Management Response

    DM concurs that the data center strategy is not fully documented; however, Management does not concur that there is no strategy. The current DM leadership developed a strategy and presented it to the Senior Executive Team at WMATA, which resulted in funding for the Powerflex Project as a critical component of this strategy. DM is in the final stages of developing the data center strategy. Upon executive approval, DM will deploy this strategy in a manner that aligns with the executive strategic plan to manage our on-premises and cloud data center footprint properly. DM commits to remediate this finding by 9/30/2025.

    OIG Comment

    OIG considers management's comments responsive to the recommendation and the corrective actions taken should resolve the issue identified in this report. OIG will follow up on the planned actions during the corrective action plan phase.

11. Adopt a financial analysis framework that provides guidelines for performing data center cost analysis, covering CAPEX, OPEX, ROI, and TCO assessments.

    Management Response

    As noted above, the DM strategy is not fully documented; however, a cost-avoidance approach was built into the strategy around Equinix and Powerflex. To ensure proper documentation in the future, DM will identify a proper resource to establish and deploy a business-suitable financial analysis framework that is conducive to DM's current and future strategic needs. DM commits to remediating this finding by 12/15/2026. There are other

actions associated with this audit engagement that must be addressed before the successful execution of this corrective action.

OIG Comment

OIG considers management's comments responsive to the recommendation and the corrective actions taken should resolve the issue identified in this report. OIG will follow up on the planned actions during the corrective action plan phase.

12. Establish comprehensive financial oversight and cost monitoring systems and processes to ensure that data center expenses are effectively managed and monitored, enabling WMATA to meet budget and cost optimization goals.

Management Response

DM, working with the Office of CFO, will identify a proper resource to establish and deploy business-suitable fiscal oversight controls that are aligned with DM's current and future strategic needs. This will require discovery regarding existing processes and tools for monitoring KPIs such as power utilization, which DM does not control alone. DM will identify a strategy for monitoring systems and processes with a plan for implementation by December 2025 for funding consideration. DM commits to remediating this finding by 3/31/2026. There are other actions associated with this audit engagement that must be addressed before the successful execution of this corrective action.

OIG Comment

OIG considers management's comments responsive to the recommendation and the corrective actions taken should resolve the issue identified in this report. OIG will follow up on the planned actions during the corrective action plan phase.

13. Perform a thorough assessment of current data center operations and expenses to identify opportunities for cost optimization that address resource utilization.

Management Response

DM concurs with this recommendation and has already begun an assessment of data center operations and will provide recommendations on opportunities for cost optimization and resource utilization by 6/30/27. There are other actions associated with this audit engagement

that must be addressed before the successful execution of this corrective action. DM commits to reporting progress throughout this period, as we meet critical milestones.

OIG Comment

OIG considers management's comments responsive to the recommendation and the corrective actions taken should resolve the issue identified in this report. OIG will follow up on the planned actions during the corrective action plan phase.

14. Establish a cross-functional team that includes DM, finance, operations, and business units to incorporate diverse input and requirements into data center cost management decisions.

Management Response

DM concurs with this recommendation. DM will develop a methodology that fosters collaboration across respective WMATA-wide business lines related to the efficient management and deployment of data strategy and assets. DM commits to remediating this finding by 3/31/2026. There are other actions associated with this audit engagement that must be addressed before the successful execution of this corrective action.

OIG Comment

OIG considers management's comments responsive to the recommendation and the corrective actions taken should resolve the issue identified in this report. OIG will follow up on the planned actions during the corrective action plan phase.

Finding 5: DM Did Not Effectively Manage its Data Center Asset Inventory

DM has not implemented adequate controls or processes at the Equinix, Eisenhower, and CTF data centers to manage and maintain data center assets, such as servers, storage devices, and network equipment. For example, OIG noted that the inventory of equipment at Equinix lacked critical asset lifecycle information such as, end-of-warranty (EOW), end-of-support (EOS), and end-of-life (EOL) data. Such information is vital and the absence of this data limits WMATA's ability to plan and forecast future upgrades, retire aged or outdated systems, and manage capacity. Moreover, not having this lifecycle data could increase costs and operational inefficiencies for WMATA, limiting WMATA's ability to track, maintain, and optimize resources.

According to the COBIT Framework, Management Objective BAI09, an organization should:

> Manage IT assets through their life cycle to ensure that their use delivers value at optimal cost, remain operational, and are accounted for and physically protected. Ensure that those assets that are critical to support service capability are reliable and available.[29]

OIG's review revealed the following:

a. **Unused or Overprovisioned Equipment** – During our visit to the Eisenhower data center, OIG observed two unused sets of Quantum Enterprise Automatic Tape Library (EATL) equipment, including a pallet of tapes purchased on June 9, 2022, that cost $1.3 million. The EATL equipment had not been installed or used since it was purchased. DM representatives stated that this equipment was now out of warranty, and that it was purchased without an adequate needs assessment and may now be targeted for surplus. The $1.3 million spent on EATLs could have been put to better use or repurposed to support other DM initiatives. Our follow-up with DM noted that the unused EATL equipment was not documented in any active asset inventory system or the Nlyte Data Center Infrastructure Management (DCIM) software.[30]

b. **Absence of Equipment Lifecycle Management** – DM provided an inventory of the equipment located at Equinix, including equipment procured and moved from JGB. However, the Equinix equipment inventory did not include asset lifecycle information such as EOW, EOS, or EOL. When OIG requested the missing asset lifecycle information, DM

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[29] *COBIT 2019 Framework, Governance & Management Objectives, Section BAI09, p.209*

[30] *DCIM software monitors, measures, manages, and controls data center utilization and energy consumption for all IT-related equipment and facility infrastructure components.*

could not provide all the requested information. OIG found that inventory tracking at Equinix is primarily a manual process, which decreases the effectiveness of asset management.

OIG's review of the Equinix equipment inventory also found that only 166 of the 1,061 assets (16%) had EOS information available. Further, of these 166 assets with EOS information, 96 (58%) were either approaching or already passed their EOS date (see Table 3). This indicates that some of the equipment at Equinix is not being tracked for remediation or decommission. As a result, WMATA faces a risk that the equipment may fail, impacting service and operations

Table 3: Equinix Equipment EOS Analysis by Asset Type

Equinix Equipment EOS Analysis by Asset Type					
Asset Type	**Total Assets**	**# Assets with EOS Information Available**	**% Assets with EOS Information Available**	**# Assets that are Near or Past EOS Date**	**% Assets that are Near or Past EOS Date**
Network	593	70	12%	30	43%
Server	156	55	35%	51	93%
Peripheral	105	9	9%	0	0%
Powerstrip	98	8	8%	6	75%
Cabinet	84	10	12%	4	40%
Chassis	17	10	59%	5	50%
KVMSwitch	4	0	0%	0	No EOS Available
PDU	4	4	100%	0	0%
Total	**1,061**	**166**	**16%**	**96**	**58%**

DM provided another equipment inventory listing that included equipment and applications at Equinix. All of the 43 applications, and 941 of the 1,061 pieces of equipment (89%) listed in this inventory, were missing aging information. As a result, it is possible that management is not effectively monitoring obsolete equipment or legacy applications for necessary refresh or updates at Equinix (see Table 4).

Table 4: Applications and Equipment at Equinix with Aging Information

Applications and Equipment at Equinix with Aging Information			
Group	**# Items**	**# Items without Aging Information Available**	**% of Items without Aging Information Available**
Applications	43	43	100%
Equipment	1,061	941	89%

Inadequate tracking of equipment lifecycle increases the risk of failures and costly repairs, which could severely impact WMATA's operations and reputation in the future.

c. **Nlyte DCIM Software Not Used to Track Data Center Assets** – WMATA has purchased the DCIM tool Nlyte to track and manage its data center assets; however, the tool has not been fully configured or implemented. Additionally, Nlyte DCIM software is not fully integrated with other asset management tools, such as a Configuration Management Database (CMDB).[31] This integration would ensure that asset configuration information is consistently maintained. Instead, WMATA uses manual processes such as spreadsheets and ad-hoc documentation to track and maintain inventory. For example, DM provided OIG with Excel spreadsheets of the equipment and applications inventory at Equinix. Manually tracking inventory may potentially lead to inconsistencies and inaccuracies in asset records.

d. **Lack of a Centralized Asset Management System** – While the Nlyte tool can be used to track and manage assets, it is not a centralized, automated management system. DM staff stated that they are using ServiceNow, Dell Portal, and Nlyte DCIM to collect and track data center assets and Dell servers. DM also stated that they plan to use ServiceNow as the centralized asset management system and populate it with all the datasets kept in Dell Portal and Nlyte DCIM. However, without a centralized asset management system, WMATA lacks visibility and control over the inventory of hardware, software, and other infrastructure components.

The lack of proper data center asset management makes it difficult for DM to identify underutilized resources or obsolete equipment. This increases the risk of higher operational costs, poor resource utilization, overprovisioning, and missed opportunities for cost management.

Recommendations

OIG recommends the GM/CEO:

15. Implement a real-time centralized asset inventory system to monitor and track data center assets' deployment, movement, and retirement.

[31] *CMDB stores information on the hardware, software, systems, facilities, and personnel within an organization to help IT understand and manage these assets, referred to as Configuration Items or CIs, and their relationships to more efficiently deliver IT services and make better business decisions.*

Management Response

Digital Modernization concurs with this finding. DM concurs that centralized asset management is crucial to WMATA's strategic objectives. DM is currently working towards revising our asset management approaches and has already endeavored to incorporate data center assets in the management and life cycle of the hardware asset management program within ServiceNow. WMATA has approved a capital project for implementation of a holistic asset management program, building on its current hardware asset management program, and efforts are underway to begin developing a roadmap, charter, and implementation plan for initiation in FY26 with a goal of having a minimally viable CMDB for all Digital Assets by 04/30/2026.

OIG Comment

OIG considers management's comments responsive to the recommendation and the corrective actions taken should resolve the issue identified in this report. OIG will follow up on the planned actions during the corrective action plan phase.

16. Configure the Nlyte DCIM tool to provide accurate and up-to-date information about data center assets, manage asset lifecycles, and integrate with tools such as CMDB to manage configurations.

Management Response

Digital Modernization concurs with this finding. The configuration of the Nlyte solution or any other identified tools is a strategic part of DM's holistic efforts to address asset management. A comprehensive plan is being developed for implementation, and we anticipate this plan being reviewed by WMATA senior leadership for approval by late 12/15/2026.

OIG Comment

OIG considers management's comments responsive to the recommendation and the corrective actions taken should resolve the issue identified in this report. OIG will follow up on the planned actions during the corrective action plan phase.

Finding 6: DM Does Not Effectively Monitor Key Data Center Metrics

DM does not have a process to monitor crucial data center metrics, which hampers DM management's ability to optimize costs, plan capacity efficiently, and maintain high-performance levels. Implementing effective monitoring practices is essential to ensure that WMATA's data centers operate efficiently at low costs, meet mission demands, and deliver optimal performance.

According to the COBIT Framework[32] management objectives BAI04.01 and EDM02.04, an organization must:

1. assess the availability, performance, and capacity of services and resources; and
2. monitor key goals and metrics to determine whether the enterprise receives the expected value and benefits from I&T-enabled investments and services.

Specifically, OIG found that DM does not effectively monitor data center KPIs, limiting its ability to identify and address underutilized resources. OIG asked DM for copies of any periodic performance reports, but DM staff explained that they had no reports on cost optimization or capacity planning, and that they only produced similar reports on demand or on an ad-hoc basis. Details of OIG observations are provided below.

a. **Lack of Data Center Optimization Metrics** – DM lacks a process to collect, compile, and analyze data required to manage key data center metrics. Monitoring virtualization, availability, energy consumption, server utilization, server consolidation, and power consumption are necessary to manage data center costs. DCOI[33] is regarded as the industry's best practice for monitoring data center optimization. It requires agencies to improve the efficiency and cost effectiveness of federal data centers by addressing underutilized servers, increasing virtualization, improving availability, and implementing advanced energy metering. Through the DCOI, agencies had $6.6 billion in cost savings and avoidances from FYs 2012-2021. While WMATA is not mandated to comply with DCOI, the requirements offer guidelines to help optimize and consolidate data centers. WMATA can follow those requirements to improve its data center performance and resilience while reducing costs and saving energy. WMATA has yet to implement measures like DCOI requirements.

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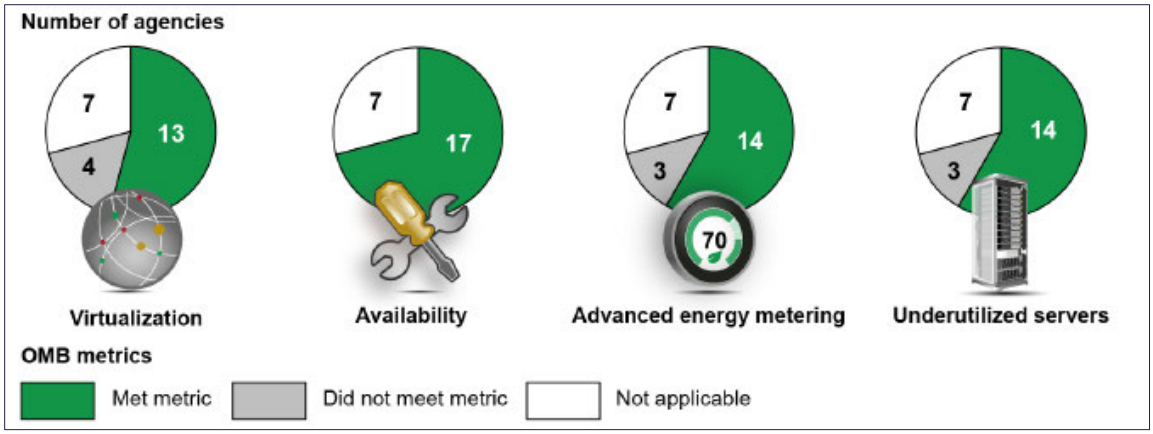
[32] COBIT 2019 Framework: Detailed Guidance Governance and Management Objectives.

[33] DCOI—OMB developed metrics to measure progress towards data center optimization. Over the lifespan of DCOI, these metrics have been modified and updated. In 2019, OMB released a revised inventory of optimization metrics, with one novel and three updated metrics: virtualization, advanced energy metering, server utilization, and data center availability.

Figure 5 shows other agencies' progress toward meeting their data center optimization targets as of September 2022, the latest available data.

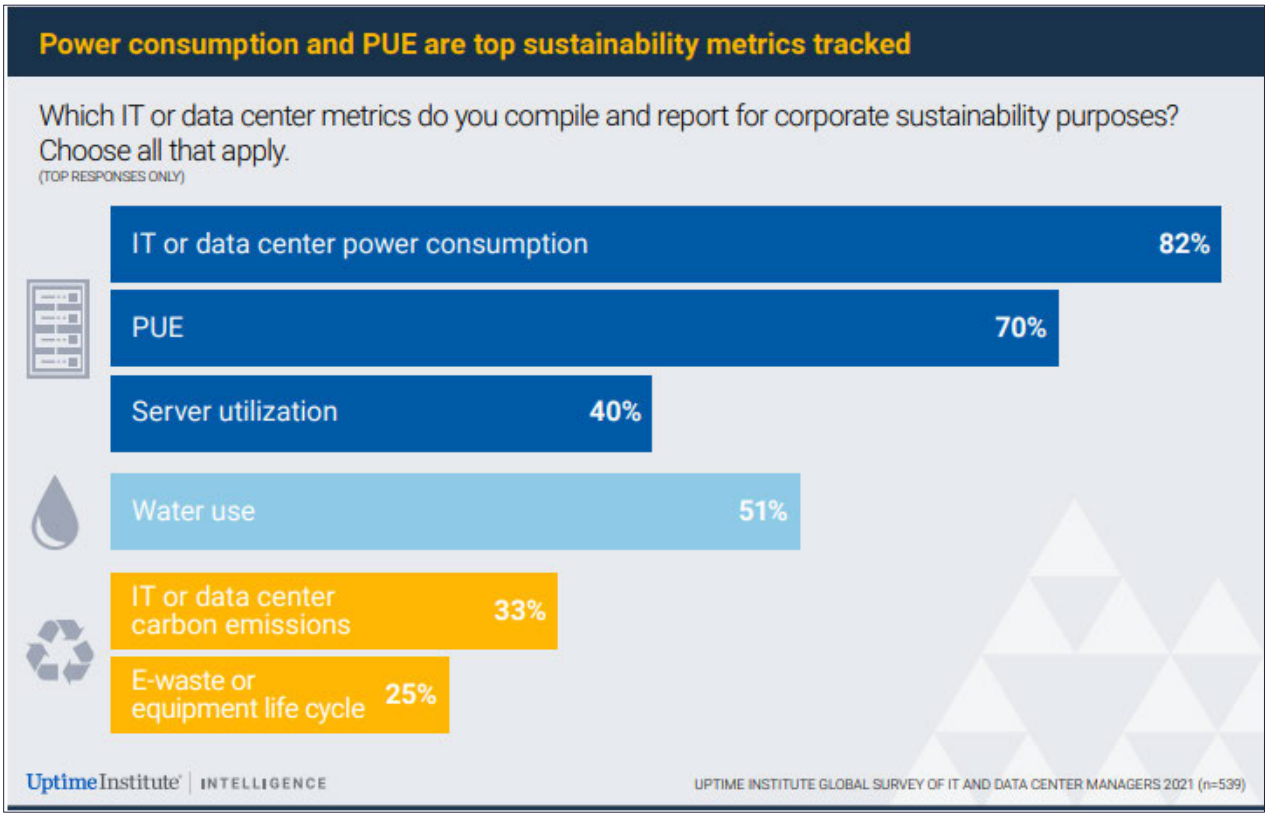
Figure 5: OMB Data Center Optimization Targets as of September 2022



b. **Underutilized Servers** – DM does not measure or track server utilization, making it impossible to determine how many servers were underutilized. According to the assessment conducted by Athena Intelligence Group,[34] in the report titled "FY 2022 Oracle Exadata Assessment for Optimization and Security Compliance," dated September 5, 2021, the average CPU and system loads were seven and eight percent, respectively, which indicates that the database servers were underutilized. In addition, DM stated that the three Oracle Exadata database servers were utilized at less than 30 percent capacity. According to Uptime Institute Global Data Center Survey 2021 (see Figure 6), only 40 percent of data center owners and operators track and measure server utilization, and most still do not track server utilization, arguably the most important factor in overall digital infrastructure efficiency.

[34] *A third-party consultant WMATA hired to conduct the assessment.*

Figure 6: Importance of Power Consumption and PUE Sustainability Metrics



c. **Server Consolidation and Virtualization** – DM lacks a process to measure server virtualization and consolidation rates across Equinix, Eisenhower, and CTF data centers. Server virtualization is a technology that allows for greater resource utilization by distributing the computing resources of a physical server across multiple environments. It involves the creation of multiple virtual servers to be run on a single physical server. Each virtual server acts as a unique and isolated server environment. Virtualization reduces the need for physical servers, which lowers hardware costs, energy consumption, and the need for physical space. DM does not track key metrics or use dashboards to monitor progress. For example, DM reported virtualizing 20 physical servers at Equinix into 846 virtual servers. However, DM has no dashboards or documentation to capture this information continuously. Without dashboards, DM cannot determine the server consolidation and virtualization rate.

   As a result, the department's ability to track how much they are saving on power, cooling, and hardware costs is limited. WMATA may miss significant cost-saving opportunities and operational efficiencies if it fails to measure or monitor the server virtualization and consolidation rate.

d. **PUE** – DM lacks a process to manage and measure power consumption rates or track PUE at Eisenhower, CTF, and Equinix. PUE is an industry-standard KPI used to measure the energy efficiency of the power consumed by the core data center IT equipment, including servers, switches, storage devices, and networking infrastructure.

   Without the capability to measure and monitor power, DM cannot detect real-time energy usage inefficiencies and potential cost increases. According to the Green Grid Association (TGG),[35] PUE metrics can help data center owners and operators better understand and improve energy efficiency so they can make better decisions about new data center deployments. TGG indicates that the average PUE for data centers is 2.0, with a good rate being 1.4. Recent super-efficient data centers have achieved PUEs as low as 1.1. The Equinix contractor for DM told OIG that Equinix has a PUE of 1.5.

   Without a process to monitor PUE, DM has no basis or method for measuring or tracking data center power consumption and performance. This creates a lack of visibility into real-time energy usage and inefficiencies.

e. **Ineffective Capacity Planning and Availability Monitoring Process** – DM has not developed a data center capacity plan or monitoring process that defines current and future capacity requirements, performance metrics, cost optimization, and availability metrics. DM management has confirmed that the department has not established any such plan or processes. Without effective capacity planning and availability monitoring, WMATA's data centers risk running out of space, power, and cooling capacity or might experience bottlenecks due to overprovisioning resources. These occurrences would severely affect the performance of applications and services hosted at the data centers.

f. **Lack of KPIs** – DM told OIG that they do not publish scheduled or periodic data center KPIs or dashboards for capacity requirements and performance. DM further indicated that they only publish ad-hoc performance reports like Uptime. The lack of effective monitoring for KPIs may limit WMATA's ability to identify areas for improvement, optimize resource utilization, and align its data centers with strategic goals and objectives.

g. **Nlyte DCIM Tool is not being used to Measure KPIs** – DM has installed the Nlyte DCIM in all WMATA's data centers but has not configured it to track and report key data center metrics. For example, it is not configured to track cost optimization, capacity planning, and

[35] *The Green Grid (TGG) is an open industry consortium of data center operators, cloud providers, technology and equipment suppliers, facility architects, and end-users. TGG works globally to create tools, provide technical expertise, and advocate for the optimization of energy and resource efficiency of Data Center ecosystems which enable a low carbon economy.*

performance. DM does not monitor KPIs such as capacity, cost of energy consumption, cooling, asset aging, change, space, power, efficiency, connectivity, and server utilization rate and virtualization in real-time. This lack of monitoring represents a missed opportunity for the department to leverage the tool's capabilities to drive improvements in the data centers. DM continues to use spreadsheets and manual processes instead of the real-time monitoring capabilities provided by the Nlyte DCIM tool. This increases the risk of delays in identifying performance and capacity issues and opportunities for cost management.

The lack of effective monitoring of key data center metrics may limit WMATA's ability to identify areas for improvement, optimize resource utilization, and align its data center operations with mission objectives, resulting in WMATA missing out on significant cost-management opportunities and operational efficiencies.

Recommendations

OIG recommends the GM/CEO:

17. Document data center capacity planning and monitoring processes that define current capacity requirements, performance metrics, cost optimization, and availability metrics.

Management Response

DM concurs with this finding. DM is developing needs-based processes and protocols that will ensure that our utilization is aligned with the appropriate needs of the enterprise environment. DM is identifying the proper tools and usage strategies along with the respective performance metrics that allows analytical lens for right sizing and managing our resource usage. DM commits to remediating this finding by 12/15/2027. This timeline is based upon an assessment of current staffing availability and dependencies on other departments. DM commits to reporting progress throughout this period, as we meet critical milestones.

OIG Comment

OIG considers management's comments responsive to the recommendation and the corrective actions taken should resolve the issue identified in this report. OIG will follow up on the planned actions during the corrective action plan phase.

18. Define and implement KPIs, metrics, or dashboards for data center capacity requirements and performance.

Management Response

Digital Modernization agrees with this finding and is committed to developing programmatic measurement baselines to assess the attainment of our strategic goals as part of its CMDB strategy, which correlates to finding #17. DM commits to remediate this finding by 6/30/2027. There are other actions associated with this audit engagement that must be addressed before the successful execution of this corrective action. DM commits to reporting progress throughout this period, as we meet critical milestones.

OIG Comment

OIG considers management's comments responsive to the recommendation and the corrective actions taken should resolve the issue identified in this report. OIG will follow up on the planned actions during the corrective action plan phase.

19. Reconfigure the DCIM software Nlyte to monitor and report key data center KPIs related to cost optimization, energy consumption, capacity planning, and performance.

Management Response

DM concurs with this finding. DM will assess the feasibility of configuring the Nlyte solution along with other potential program measurement tools to assess which option may be most effective based on organizational business needs. DM commits to remediate this finding by 12/15/2026. There are other actions associated with this audit engagement that must be addressed before the successful execution of this corrective action. DM commits to reporting progress throughout this period, as we meet critical milestones.

OIG Comment

OIG considers management's comments responsive to the recommendation and the corrective actions taken should resolve the issue identified in this report. OIG will follow up on the planned actions during the corrective action plan phase.

Scope

The scope of the audit: (1) considers different aspects of WMATA's data centers (*i.e.*, on-premises, colocation, and cloud computing), and (2) a review of budgeting and cost management of WMATA's data centers for the period of January 1, 2020, to January 31, 2023. Although the audit primarily covered this period, OIG also considered relevant data center-related events after January 31, 2023. Specifically, OIG validated key items through February 2025 to ensure the accuracy and completeness of our findings.

Methodology

To achieve the audit objective, OIG's audit methodology was as follows:

- Researched and reviewed information and industry best practices, including: WMATA Policy/Instructions; NIST Special Publications; GAO Guidelines, and past reports; COBIT – BAI04 (Manage Availability and Capacity); ISO/IEC TS 22237-1:2018 (IT Data center facilities and infrastructures); Data Center Infrastructure Management (DCIM) Metrics; and other related industry best practices.

- Reviewed strategies and plans for managing and maintaining WMATA's data center (hybrid) costs.

- Leveraged aspects of the work performed for the Audit of WMATA's Cloud Computing Strategy related to data center cost management.

- Gained an understanding of management's strategy, plans, programs, and expectations for implementing data center services and technologies.

- Assessed the cost for building the new data center at Eisenhower, maintaining the CTF data center, decommissioning the JGB data center, and the contract for leasing and installing WMATA's equipment at the Equinix data center.

- Conducted interviews and reviewed data and documents, including system and financial information and cost analysis.

- Obtained relevant documentation and performed a cost-benefit and ROI analysis for data center migrations, including building the new data center, leasing Equinix data center as a

full data center for WMATA, and the migration of some applications to Microsoft Azure Cloud.

- Performed a comparative analysis of WMATA's strategy of utilizing data center on-premises, colocation, and cloud computing models.

- Used best practices and industry examples to support and reference our audit reviews and testing.

- Reviewed WMATA's data center capacity planning and monitoring, including KPIs for cost, capacity, server utilization, virtualization, and energy usage.

- Conducted an onsite visit of WMATA's data centers at Eisenhower, CTF, and the Equinix data center at Ashburn, Virginia.

Generally Accepted Government Auditing Standards (GAGAS) Statement

We conducted this performance audit in accordance with generally accepted government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives.

In November 2021, congress and the president enacted IIJA. Section 30019(d)(2)(E)(iii) of IIJA requires WMATA OIG to issue a report, two years and five years after the enactment of the IIJA, that includes, among other things, an assessment of the effective use of funding to address major capital improvement projects. The funds used for the data center project are part of OIG's assessment of the effective use of funding to address major capital improvement projects.

The original budget for CIP 0330 was $112.4 million. However, the budget has been periodically revised upward. For example, $19.4 million was added for Network Infrastructure at Eisenhower and part of the Equinix lease, another $3.7 million was added to cover the rest of the Equinix lease, and the purchase, installation, and maintenance of the Dell PowerFlex application suite was covered by a net increase of approximately $1.5 million. CIP 0330 and its increases were funded by dedicated funds,[36] debt (dedicated revenue bonds),[37] and system performance[38] funds. Figure 7 provides a detailed breakdown of the invoices paid from CIP 0330, including the amendments (shown as CIP 0330_1-3). Please note that these costs will continue to increase as additional invoices are issued and paid.

Figure 7: Paid Invoices as of October 2024

CIP #	FY	Dedicated Funding	Debt (Dedicated Revenue Bonds)	System Performance	Grand Total
CIP0330	2020	$ 303,956	$ -	$ 244,200	$ 548,156
	2021	949,832	-	1,376,307	2,326,139
	2022	14,077,566	29,578,545	1,593,317	45,249,428
	2023	966	35,949,506	-	35,950,472
	2024	-	16,591,410	-	16,591,410
	2025	-	140,200	-	140,200
CIP0330_01	2023	3,588,800	-	-	3,588,800
	2024	-	2,047,534	-	2,047,534
	2025	-	527,607	-	527,607
CIP0330_02	2023	-	853,377	-	853,377
	2024	3,955,265	2,189,972	-	6,145,237
CIP0330_03	2024	-	4,623,095	-	4,623,095
Grand Total		**$ 22,876,385**	**$ 92,501,246**	**$ 3,213,824**	**$ 118,591,455**

As of October 2024, for CIP 0330, WMATA had paid down $118.6 million. $22.9 million of these invoices were paid using jurisdictional dedicated funds, $92.5 million in invoices were paid using dedicated revenue bonds, and $3.2 million was paid using system performance funds.

[36] *Funds received through VA, MD, and DC.*
[37] *The dedicated revenue bonds are paid down by jurisdictional dedicated funds.*
[38] *System performance is a type on non-Federal funding provided by the jurisdictions via the Capital Funding Agreement (CFA). It is distinctly different from dedicated funds.*

CIP 0337 was funded by dedicated revenue bonds and system performance funds for the construction of the new administrative office at Eisenhower. The total budget for CIP 0337 was $335.8 million, with approximately $22 million budgeted for constructing the data center portion of the Eisenhower building. Also, about $5 million in soft costs can be apportioned to the data center.

As of October 2024, WMATA had paid a total of $283.8 million on invoices from CIP 0337. Of the amount, $263.9 million of these invoices were paid for using dedicated revenue bonds, while $19.9 million in invoices was paid using system performance funds. While OIG cannot confirm exactly what portion of this total relates to the data center, the amount paid using system performance funds is largely related to soft costs. Therefore, some shared costs in the data center may have been paid for using system performance funds, while the rest would be dedicated revenue bonds.

Finding 2: Criteria/Requirements

COBIT Framework, Governance & Management Objectives: [39]

- Section EDM02.04 emphasizes the need to monitor value optimization. Monitor key goals and metrics to determine whether the enterprise receives expected value and benefits from I&T-enabled investments and services.[40]

- Section APO02.04 emphasizes the need to Identify gaps between current and target environments and describes the high-level changes in the enterprise architecture.[41]

- Section BAI04.01 emphasizes the need to "[a]ssess availability, performance and capacity of services and resources to ensure that cost-justifiable capacity and performance are available to support business needs and deliver against service level agreements (SLAs)."[42]

[39] *COBIT 2019 Framework, Governance & Management Objectives.*
[40] *Ibid, 37*
[41] *Ibid, 67*
[42] *Ibid, 181*

Management's Response

M E M O R A N D U M

SUBJECT: Audit of WMATA's Data Center Cost Optimization

DATE: March 28, 2025

FROM: Darin Newson, Director, Program Assessment & Evaluation

Darin Newson [redacted]WMATA Digitally signed by Darin Newson [redacted]WMATA Date: 2025.03.28 15:56:13 -04'00'

TO: Rex Dekyi, WMATA, Office of the Inspector General

This communication outlines Digital Modernization's (DM) management responses to the OIG's findings concerning the Data Center Cost Optimization Audit.

1. **Conduct a cost-benefit analysis that evaluates the financial implications of leasing Equinix versus utilizing the Eisenhower data center, considering factors such as total cost of ownership, operational expenses, and potential savings.**

Management Response: It is the responsibility of DM leadership to make technology investment decisions based upon an overall strategy of leveraging trends in technology, cybersecurity, and cost efficiency. The Eisenhower facility was planned and built upon the requirements of prior leadership. It is not a facility designed to house a modern data center; for example, power outage is a consistent problem at that facility. While DM concurs that a comprehensive cost and technology assessment should be done for all data center planning going forward, this decision was made in the best interest of the Authority to ensure continuity of service for critical and core systems. Under new leadership, SD&O has initiated a comprehensive cost-benefit analysis to evaluate the feasibility of the Eisenhower Data Center. This assessment will examine key factors such as cost, scalability, connectivity, resiliency, and alignment with the organization's long-term infrastructure strategy. DM remains committed to sustaining a flexible, hybrid data center infrastructure that supports WMATA's strategic goals and business needs. DM commits to remediating this finding by 12/15/2026. Additionally, other associated actions from this audit engagement must be completed to ensure the successful execution of this remediation effort.

Washington Metropolitan Area Transit Authority

2. **Perform technical evaluations to assess the suitability of utilizing Equinix or Eisenhower as the primary data center based on WMATA's current and future technological requirements, such as power consumption, scalability, performance, security, and compliance.**

Management Response: See response to #1. DM will be able to provide a technical evaluation of the Eisenhower data center once it has reached a fully functional operating state. With the cost-benefit analysis and tier assessment, we will be better equipped to support a technical evaluation. DM commits to remediating this finding by 12/15/2026. There are other actions associated with this audit engagement that must be addressed before the successful execution of this corrective action.

3. **Perform Uptime Institute's tier assessment for the Eisenhower data center and the Equinix facility to provide an objective basis for comparing resilience, redundancy, and operational performance.**

Management Response: See response to #1. DM is committed to performing a comprehensive tier assessment to evaluate the capabilities of the Eisenhower facility. This assessment will determine whether the facility can meet the necessary operational and resiliency requirements to support WMATA's data center needs. However, for an accurate evaluation, Eisenhower must first achieve full functionality and power capability. Currently, there are usage deficiencies that must be addressed to mature the facility to an optimal operational state. A Tier analysis for Eisenhower will be performed in the near future as WMATA begins transitioning critical systems to the facility. DM is dedicated to remediating this finding by 12/15/2026. Additionally, other actions associated with this audit engagement must be completed to ensure the successful execution of this corrective action.

4. **Develop a strategy or plan to determine the future usage of the Eisenhower data center.**

Management Response: Management agrees with the recommendation. DM is working to understand true costs and true utilization and will provide updated information by April 30, 2025. Additionally, DM has developed a draft plan for the future use of the Eisenhower facility. This plan will include the deployment and management of assets, as well as the anticipated resource needs required to operate the facility in accordance with planned WMATA business needs. DM commits to remediating this finding by 9/30/2025.

5. **Conduct a comprehensive risk assessment of its data centers, including on-premises, colocation, and cloud services.**

Management Response: DM concurs with this finding. DM will collaborate with our internal audit partners to conduct an internal risk assessment of our data facilities and footprint. DM commits to remediating this finding by 3/31/2027. This timeframe for this corrective action was introduced to allow proper coordination with our internal audit partners and allow DM time to establish preparation for a proper risk assessment. DM commits to reporting progress throughout this period, as we meet critical milestones.

6. **Identify and mitigate potential risks associated with relying solely on Equinix as the primary data center, including the potential risk of a single point of failure.**

Management Response: DM concurs that there is a lack of documentation behind the strategy used to decide to utilize Equinix as its primary data center. As noted in Response #1, the Eisenhower data center presents significant limitations regarding power, and there is no evidence to support the claim that the Eisenhower data center is more scalable, secure, or cost-effective than Equinix, a state-of-the-art Tier III facility. Additionally, WMATA has contracted with AT&T which includes SmartHands support for the Equinix facility as part of our licensing arrangement, which eliminates the need for DM staff to travel to the facility to troubleshoot issues. We will work with our internal audit partners as part of the data center risk assessment. If any risks are identified concerning single points of failure, DM will develop a strategy and plans of action to mitigate the risks and remediate the findings. DM commits to remediating this finding by 3/31/2027. This period for this corrective action was introduced to allow proper coordination with our internal audit partners to execute a risk assessment properly. A proper risk assessment will afford DM the opportunity to project plan and strategize methods to mitigate potential identified risks. DM commits to reporting progress throughout this period, as we meet critical milestones.

7. **Conduct IT COOP testing between Equinix and CTF to establish the failover and recovery objectives.**

Management Response: DM acknowledges this finding and will conduct COOP exercises between the two locations to assess failover capabilities. These exercises will provide critical insights into system resilience and reliability, with the results shared with the appropriate business owners. DM is committed to remediating this finding by 12/15/2026. This timeline allows for proper coordination with software operators and business owners to conduct the necessary failover testing required for effective COOP planning. While DM does not currently have a formal DR policy, it does maintain a DR SOP that outlines the required processes and steps for backup, testing, and restoration.

8. **Complete the implementation of PowerFlex to facilitate redundancy to a future secondary data center with Microsoft Azure as planned.**

Management Response: Digital Modernization concurs with this finding. The PowerFlex project is targeted for completion by 12/15/2025. DM commits to remediate this finding by 12/15/2025.

9. **Complete and update the continuity of operations categories, priorities, and classifications plan for critical applications and services.**

Management Response: DM concurs with this finding and will commit to updating our current DR SOP and the associated categories, prioritizations, classifications, and critical applications and platforms. DM commits to remediate this finding by 9/30/2025.

10. **Implement a formal data center strategy that outlines clear objectives, priorities, and initiatives for cost optimization and operational efficiency.**

Management Response: DM concurs that the data center strategy is not fully documented; however, Management does not concur that there is no strategy. The current DM leadership developed a strategy and presented it to the Senior Executive Team at WMATA, which resulted in funding for the Powerflex Project as a critical component of this strategy. DM is in the final stages of developing the data center strategy. Upon executive approval, DM will deploy this strategy in a manner that aligns with the executive strategic plan to manage our on-premises and cloud data center footprint properly. DM commits to remediate this finding by 9/30/2025.

11. **Adopt a financial analysis framework that provides guidelines for performing data center cost analysis, covering CAPEX, OPEX, ROI, and TCO assessments.**

Management Response: As noted above, the DM strategy is not fully documented; however, a cost-avoidance approach was built into the strategy around Equinix and Powerflex. To ensure proper documentation in the future, DM will identify a proper resource to establish and deploy a business-suitable financial analysis framework that is conducive to DM's current and future strategic needs. DM commits to remediating this finding by 12/15/2026. There are other actions associated with this audit engagement that must be addressed before the successful execution of this corrective action.

12. **Establish comprehensive financial oversight and cost monitoring systems and processes to ensure that data center expenses are effectively managed and monitored, enabling WMATA to meet budget and cost optimization goals.**

Management Response: DM, working with the Office of the CFO, will identify a proper resource to establish and deploy business-suitable fiscal oversight controls that are aligned with DM's current and future strategic needs. This will require discovery regarding existing processes and tools for monitoring KPIs such as power utilization, which DM does not control alone. DM will identify a strategy for monitoring systems and processes with a plan for implementation by December 2025 for funding consideration. DM commits to remediating this finding by 3/31/2026. There are other

actions associated with this audit engagement that must be addressed before the successful execution of this corrective action.

13. **Perform a thorough assessment of current data center operations and expenses to identify opportunities for cost optimization that address source utilization.**

Management Response: DM concurs with this recommendation and has already begun an assessment of data center operations and will provide recommendations on opportunities for cost optimization and resource utilization by 6/30/27. There are other actions associated with this audit engagement that must be addressed before the successful execution of this corrective action. DM commits to reporting progress throughout this period, as we meet critical milestones.

14. **Establish a cross-functional team that includes DM, finance, operations, and business units to incorporate diverse input and requirements into data center cost management decisions.**

Management Response: DM concurs with this recommendation. DM will develop a methodology that fosters collaboration across respective WMATA-wide business lines related to the efficient management and deployment of data strategy and assets. DM commits to remediating this finding by 3/31/2026. There are other actions associated with this audit engagement that must be addressed before the successful execution of this corrective action.

15. **Implement a real-time centralized asset inventory system to monitor and track data center assets' deployment, movement, and retirement.**

Management Response: Digital Modernization concurs with this finding. DM concurs that centralized asset management is crucial to WMATA's strategic objectives. DM is currently working towards revising our asset management approaches and has already endeavored to incorporate data center assets in the management and life cycle of the hardware asset management program within ServiceNow. WMATA has approved a capital project for implementation of a holistic asset management program, building on its current hardware asset management program, and efforts are underway to begin developing a roadmap, charter and implementation plan for initiation in FY26 with a goal of having a minimally viable CMDB for all Digital Assets by 04/30/2026.

16. **Configure the Nlyte DCIM tool to provide accurate and up-to-date information about data center assets, manage asset lifecycles, and integrate with tools such as CMDB to manage configurations.**

Management Response: Digital Modernization concurs with this finding. The configuration of the Nlyte solution or any other identified tools is a strategic part of DM's holistic efforts to address asset management. A comprehensive plan is being developed for implementation, and we anticipate this plan being reviewed by WMATA senior leadership for approval by late 12/15/2026.

17. **Document data center capacity planning and monitoring processes that define current capacity requirements, performance metrics, cost optimization, and availability metrics.**

Management Response: DM concurs with this finding. DM is developing needs-based processes and protocols that will ensure that our utilization is aligned with the appropriate needs of the enterprise environment. DM is identifying the proper tools and usage strategies along with the respective performance metrics that allows analytical lens for right sizing and managing our resource usage. DM commits to remediating this finding by 12/15/2027. This timeline is based upon an assessment of current staffing availability and dependencies on other departments. DM commits to reporting progress throughout this period, as we meet critical milestones.

18. **Define and implement KPIs, metrics, or dashboards for data center capacity requirements and performance.**

Management Response: Digital Modernization agrees with this finding and is committed to developing programmatic measurement baselines to assess the attainment of our strategic goals as part of its CMDB strategy, which correlates to finding #17. DM commits to remediate this finding by 6/30/2027. There are other actions associated with this audit engagement that must be addressed before the successful execution of this corrective action. DM commits to reporting progress throughout this period, as we meet critical milestones.

19. **Reconfigure the DCIM software Nlyte to monitor and report key data center KPIs related to cost optimization, energy consumption, capacity planning, and performance.**

Management Response: DM concurs with this finding. DM will assess the feasibility of configuring the Nlyte solution along with other potential program measurement tools to assess which option may be most effective based on organizational business needs. DM commits to remediate this finding by 12/15/2026. There are other actions associated with this audit engagement that must be addressed before the successful execution of

this corrective action. DM commits to reporting progress throughout this period, as we meet critical milestones.

To Report Fraud, Waste, or Abuse

Please Contact:

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