



441 G St. N.W.  
Washington, DC 20548

Accessible Version

December 19, 2018

Congressional Committees

**Department of Agriculture: Analysis of Selected Data Centers Did Not Follow Federal Guidance and Leading Practices**

The Consolidated Appropriations Act, 2018 required the Secretary of Agriculture to conduct a detailed cost-benefit analysis<sup>1</sup> that includes a complete analysis of the department’s National Finance Center (NFC) data center and two other data centers of comparable size and complexity.<sup>2</sup> According to the act,<sup>3</sup> this analysis was also to include an assessment of each center’s (1) cost-effectiveness;<sup>4</sup> (2) security; (3) Federal Risk and Authorization Management Program (FedRAMP) certification status;<sup>5</sup> and (4) demonstrated record of maintaining Continuity of Operations Plan (COOP) functions without disruption of critical operations. The act required the Department of Agriculture (USDA) to submit the cost-benefit analysis to the Committees on Appropriations of the Senate and House of Representatives within 90 days of the act’s March 23, 2018 enactment.

In response to the act, USDA requested that the General Services Administration’s (GSA) Infrastructure Optimization Center of Excellence conduct the cost-benefit analysis on its behalf.<sup>6</sup>

<sup>1</sup>The Office of Management and Budget (OMB) defines a cost-benefit analysis as a systematic quantitative method for assessing the desirability of government projects or policies when it is important to take a long view of future effects and a broad view of possible side effects.

<sup>2</sup>Consolidated Appropriations Act, 2018, Pub. L. No. 115-141, div. A, title VII, § 702, 132 Stat. 348, 382 (March 23, 2018).

<sup>3</sup>In this report, “the act” refers to the Consolidated Appropriations Act, 2018.

<sup>4</sup>OMB defines cost-effectiveness as a systematic quantitative method for comparing the costs of alternative means of achieving the same stream of benefits or a given objective. An alternative is considered cost-effective if, on the basis of life-cycle cost analysis of competing alternatives, it is determined to have the lowest costs expressed in present value terms for a given amount of benefits.

<sup>5</sup>FedRAMP is a government-wide program managed by GSA that is intended to provide a standardized approach to security assessment, authorization, and continuous monitoring for cloud services. Cloud services refer to any capabilities offered by ubiquitous, convenient, on-demand network access to a shared pool of configurable computing resources (e.g., networks, servers, storage, applications, and services) that can be rapidly provisioned and released with minimal management effort or service provider interaction. For the purpose of this report, “certification status” refers to the status of the FedRAMP-issued authorization to operate.

<sup>6</sup>GSA’s Infrastructure Optimization Center of Excellence supports USDA’s data center consolidation initiative. The Center of Excellence is responsible for assisting federal agencies with, among other things, developing a unified and optimized IT infrastructure and leveraging federally owned data centers, cloud computing services, and commercial data centers.

Subsequently, GSA conducted an assessment of the NFC data center and three other data centers operated by USDA, the National Aeronautics and Space Administration (NASA), and the Department of Transportation (DOT).<sup>7</sup> Following its completion, USDA submitted the assessment to the Committees on Appropriations on July 27, 2018 (36 days after the required June 21, 2018 deadline).

In addition, the act included a provision for GAO to review the sufficiency of USDA's cost-benefit analysis, and to submit the results of its review to the Committees on Appropriations.<sup>8</sup> Our objective was to determine the extent to which the assessment analyzed the cost-effectiveness, security, and continuity of operations of the selected data centers in accordance with federal guidance and leading practices. To accomplish this objective, we compared the assessment's analysis of each data center's cost-benefit and cost-effectiveness, security, and continuity of operations with relevant federal guidelines and leading practices established by the Office of Management and Budget (OMB), GAO, and others. Specifically, we evaluated relevant portions of the assessment against the elements of an economic analysis as defined in GAO's *Assessment Methodology for Economic Analysis*<sup>9</sup> and consistent with OMB Circular A-94.<sup>10</sup> Based on our evaluation, we determined whether the assessment considered and properly dealt with each of these defined elements.

To evaluate the assessment's analysis of security, we first identified whether each data center's facility security level was reported, and then examined whether the information security posture of each data center was analyzed. In addition, to evaluate each center's FedRAMP certification status, we consulted the FedRAMP Marketplace<sup>11</sup> to verify whether the assessment accurately reflected the authority to operate status for each of the selected data centers. Further, we evaluated whether the assessment's continuity of operations data reflected each data center's demonstrated ability to maintain continuity of operations plan functions in the event of a service disruption.

We met with the GSA officials who conducted the assessment to discuss their methodology and to determine which, if any, federal or agency-specific policies or guidance were used to develop the assessment. We also interviewed officials responsible for the USDA, DOT, and NASA data centers included in the assessment. We obtained clarifying information about the applicability of

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<sup>7</sup>GSA, *PL-115-141 Title VII § 702: Assessment of the National Finance Center Data Center* (June 1, 2018). The assessment compared NFC to three other data centers it considered to be operationally comparable, rather than to two data centers, as specified in the act.

<sup>8</sup>On October 25, 2018, GAO submitted to the Committees on Appropriations a sufficiency review of USDA's cost-benefit analysis as required by the act. This numbered correspondence finalizes the review.

<sup>9</sup>GAO, *Assessment Methodology for Economic Analysis*, GAO-18-151SP (Washington, D.C.: Apr. 10, 2018). The methodology provides a framework for assessing the sufficiency of economic analyses, including cost-benefit and cost-effectiveness analyses. GAO developed this methodology by synthesizing economic concepts identified in federal and international agency guidance, and by consulting with experts on economic analysis.

<sup>10</sup>Office of Management and Budget, *Guidelines and Discount Rates for Benefit-Cost Analysis of Federal Programs*, OMB Circular No. A-94 (October 1992; discount rates revised February 2018). This circular provides guidelines that OMB directs agencies to follow when conducting benefit-cost (referred to in this report as cost-benefit) and cost-effectiveness analyses that are submitted to OMB in support of legislative proposals. It also provides specific guidance on the discount rates to be used in evaluating federal programs whose benefits and costs are distributed over time.

<sup>11</sup>The FedRAMP Marketplace is GSA's official list of FedRAMP-authorized cloud service providers.

their data centers as a basis for comparison to NFC, as well as their views on the extent to which GSA had consulted their offices during the completion of the assessment.

We conducted this performance audit from July 2018 through December 2018 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.

## Background

In 2010, OMB launched the Federal Data Center Consolidation Initiative to promote green information technology (IT) by, among other things, reducing the overall energy and real estate footprint of government data centers. Subsequently, in September 2011, USDA published its data center consolidation plan. In addition, as part of its IT modernization plan submitted to Congress in December 2017, the department set a goal of reducing its data center footprint from a baseline of 39 data centers providing end-user services—which includes NFC—to 1 data center and 1 backup site by the end of fiscal year 2019.

USDA's NFC data center is located in Lakewood, Colorado, and has a fiscal year 2019 projected operating budget of \$21.1 million. NFC-hosted applications handle the payrolls for more than 650,000 federal employees, including those in USDA; the Departments of Homeland Security, Commerce, the Treasury, and Justice; and more than 100 smaller agencies, including GAO. NFC also processes insurance claims for nonfederal organizations, as well as for federal and tribal entities across the federal government.

In addition to NFC, GSA selected three other data centers for the assessment:

- The **Enterprise Services Center (ESC) data center**. This data center is operated by the Federal Aviation Administration (within DOT) and is located in Oklahoma City, Oklahoma. GSA reported that it selected this data center because of the size and complexity of the applications that the center supports. This facility performs financial management shared-services business functions that are comparable to those formerly performed at NFC.
- The **National Center for Critical Information Processing and Storage (NCCIPS) data center**. Operated by NASA, this data center is located in Stennis, Mississippi. GSA reported selecting this data center because it serves as an enterprise data center for government-wide federal data center consolidation initiatives that are similar to those conducted by USDA.
- The **National Information Technology Center (NITC) data center**. Operated by USDA, this data center is located in Kansas City, with a backup site in St. Louis, Missouri. GSA reported that it selected this center for the assessment because it is the only remaining enterprise data center and disaster recovery center identified by the USDA chief information officer (CIO) in the department's December 2017 IT modernization plan submitted to Congress. NITC is also the proposed destination data center planned for NFC's infrastructure migration.

Table 1 provides details about the 4 data centers, as reported in the assessment.

**Table 1: Details on Selected Data Centers Operated by the Department of Transportation and Federal Aviation Administration, National Aeronautics and Space Administration, and Department of Agriculture**

Data center	FedRAMP authorized	Size (square feet)	FY19 budget (\$, millions)
Enterprise Services Center, Department of Transportation, Federal Aviation Administration	not authorized	7,660	\$13.4
National Center for Critical Information Processing and Storage, National Aeronautics and Space Administration	not authorized	86,000	\$16.9
National Finance Center, Department of Agriculture	not authorized	12,747	\$21.1
National Information Technology Center, Department of Agriculture	authorized	171,331	\$35

Legend:

- Authorized by the Federal Risk and Authorization Management Program
  - Not authorized by the Federal Risk and Authorization Management Program
- Source: USDA's Assessment of the National Finance Center Data Center data | GAO-19-146R

**The Assessment Lacked Key Elements for Analysis of Cost-Benefit and Cost-Effectiveness, Security, and Continuity of Operations**

The Assessment Did Not Meet Three of Five Elements of a Cost-Benefit and Cost-Effectiveness Analysis

GAO's *Assessment Methodology for Economic Analysis*<sup>12</sup> identifies five key methodological elements for the baseline structure of both a cost-benefit and cost-effectiveness analysis: objective and scope, methodology, analysis of effects, transparency, and documentation. However, USDA's assessment did not meet—that is, adequately consider and properly deal with—three of the five key elements, and only partially met the remaining two elements.

1. *Objective and scope—Partially Met*

According to GAO's methodology, the assessment's objective should be stated and its scope should be designed to address this objective. Further, OMB Circular A-94 recommends that a cost-effectiveness or cost-benefit analysis clearly state the rationale for the examination being performed. OMB also states that it is important in a cost-benefit analysis to take a long view of future effects and a broad view of possible side effects.

USDA's assessment stated that its objective was to conduct a cost-benefit analysis of the NFC data center against operationally comparable data centers in accordance with the act. However, the scope of the assessment included an evaluation of the impact of migrating NFC to NITC, without clearly explaining how the migration addresses the objective. Further, the assessment reported its time horizon as "phased," without defining its duration.

<sup>12</sup>An economic analysis, such as a cost-benefit or cost-effectiveness analysis, is intended to inform decision makers and stakeholders about the cost-and-benefit effects of an action. The analysis may be prospective, examining an action that could be taken, or retrospective, examining the outcome of an action that has already been taken.

2. *Methodology—Not Met*

GAO's methodology recommends that the assessment should consider all relevant alternatives, define an appropriate baseline, and identify the important economic effects for each alternative considered, along with their time horizons, and whether direct or ancillary effects exist. Similarly, OMB Circular A-94 recommends that agencies consider alternative means of achieving program objectives.

While the data center assessment reported its selection criteria for evaluating the selected data centers against the NFC baseline, the assessment did not report on the decision rules that led to the data centers' selection. For instance, the assessment reported that each data center's gross floor area was among the selection criteria for evaluation, but did not go on to explain what measures led GSA to the determination that NCCIPS, with 86,000 square feet of data center space, was comparable to the NFC baseline, with 12,747 square feet of space. Further, in the course of conducting its analysis, GSA only evaluated the NFC effect of migrating to NITC, and did not evaluate other selected data centers.

3. *Analysis of effects—Not Met*

GAO's methodology recommends that the assessment should quantify the important cost-and-benefit effects and monetize them using the concept of opportunity cost.<sup>13</sup> It should also apply the criterion of net present value, or related outcome measures, to compare these effects across alternatives. In addition, the assessment should control for inflation and use economically justified discount rates. Where important cost-and-benefit effects cannot be quantified, the assessment should show how they affect the comparison of alternatives. In addition, OMB Circular A-94 recommends that the net present value of the life-cycle cost of the alternatives be considered in a cost-effectiveness analysis. Further, OMB Circular A-94 states that social net benefits, and not the benefits and costs to the federal government, should be the basis for evaluating government programs or policies that have effects on private citizens or other levels of government.

USDA's assessment included a comparison of the current operating costs of the infrastructure and levels of service provided for each of the selected data centers. The assessment also identified potential cost savings and qualitative improvements to NFC. However, the assessment did not determine the net present value of the life-cycle costs of operating the data centers and provided only per-unit costs, such as floor space, server instances, or terabytes of data storage. Instead, the scope of the assessment focused on the impact of the NFC migration from the perspective of costs to the federal government rather than costs and benefits that would accrue to society (including citizens and residents of the United States) as a result of NFC moving to NITC.

4. *Transparency—Not Met*

GAO's methodology recommends that analytical choices, assumptions, and data used be described and justified. The methodology further recommends evaluating how plausible adjustments to each choice and assumption may impact the estimates of the cost-and-benefit effects and results of the comparison of alternatives. Similarly, OMB Circular A-94 recommends that the sources and nature of uncertainty be characterized, ideally presenting probability distributions of potential benefits, costs, and net benefits.

However, the assessment lacked transparency with regard to how it arrived at the results it presented. For example, the assessment reported that USDA would incur a one-time cost to

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<sup>13</sup>According to OMB, opportunity cost is the maximum worth of a good or input among possible alternatives.

migrate NFC to NITC, estimated at \$131,000, but did not provide support for this amount. The assessment also projected expected cost savings for migrating to NITC, but did not characterize the level of certainty for this projection, or the probability of this outcome. The assessment also lacked a sensitivity analysis on this projection.<sup>14</sup>

#### 5. *Documentation—Partially Met*

GAO's methodology recommends that the assessment be clearly written; it should clearly describe data and results; its conclusions should be consistent with its results; and sources should be cited. The methodology also states that the assessment should document its compliance with a robust quality assurance process, such as those described in guidelines issued pursuant to the law referred to as the Information Quality Act.<sup>15</sup> Further, OMB Circular A-94 recommends that key data and results, such as year-by-year estimates of benefits and costs, be reported to promote independent analysis and review.

Although the assessment was clearly written and reported that cost data were supplied by each data center, the assessment did not always cite its sources. For example, the assessment reported that the migration cost of NFC to NITC was estimated at \$131,000, but did not provide support for this amount. Further, the assessment did not provide year-by-year estimates of benefits and costs beyond fiscal year 2019. Further, GSA did not indicate that the assessment was developed in accordance with a quality assurance process, such as guidelines issued pursuant to the law referred to as the Information Quality Act. In addition, the executive summary of the assessment reported an upfront savings of up to \$235 million from migrating NFC to NITC, but later in the assessment reported the upfront savings as only \$23.5 million, which indicates that GSA did not apply a quality assurance process.

In discussing their approach to developing the assessment, GSA officials stated that they did not follow any policies or guidance for the development of this assessment. As such, the assessment lacks key elements and is not sufficient to serve as a cost-benefit or cost-effectiveness analysis, and, as a result, it does not effectively inform relevant decision makers and stakeholders on the Committees on Appropriations.

#### The Assessment Accurately Reported Each Data Center's FedRAMP Authorization Status, but Did Not Comprehensively Review the Centers' Security or Continuity of Operations

USDA's assessment included each agency's FedRAMP authorization status, but did not provide a comprehensive review of security and continuity of operations plans for the selected data centers. The review of security was limited to physical security, while the continuity of operations review did not demonstrate each agency's ability to maintain continuity of operations functions, as required by the act.

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<sup>14</sup>A sensitivity analysis identifies assumptions associated with key cost drivers, and then calculates the estimate's sensitivity to changes in the underlying assumptions.

<sup>15</sup>Section 515 of the Treasury and General Government Appropriations Act, 2001 is commonly referred to as the Information Quality Act or the Data Quality Act, Pub. L. No. 106-554, appendix C, title V, §515, 114 Stat. 2763, 2763A-153 (Dec. 21, 2000). It required OMB to issue guidance requiring agencies to develop guidelines ensuring and maximizing the quality (including the objectivity, utility, and integrity) of information before it is disseminated. Accordingly, in October 2001 OMB issued *Guidelines for Ensuring and Maximizing the Quality, Objectivity, Utility, and Integrity of Information Disseminated by Federal Agencies*, which were finalized in February 2002.

The assessment accurately reported the FedRAMP authorization to operate (ATO) status for each data center. Consistent with the FedRAMP Marketplace, the assessment noted that only one of the four selected data centers—NITC—currently holds a FedRAMP ATO. It further noted that one data center—NFC—lost its ATO in March 2017 for not maintaining appropriate security requirements for continuous monitoring and annual security control assessments. Representatives from the remaining two data centers reported that their data centers do not require a FedRAMP ATO because they do not provide cloud services.

The act required USDA to provide a security analysis of each selected data center. The National Institute of Standards and Technology (NIST) Special Publication 800-53A<sup>16</sup> provides a set of procedures for conducting such assessments of security—including both information and physical security controls—employed within federal information systems and organizations. USDA’s assessment, however, did not provide an analysis of the information security controls for any of the selected data centers.

GSA officials stated that they did not evaluate the information security capabilities of the data centers because information on the information security posture for each data center was already available as part of the agencies’ required reporting on Federal Information Security Modernization Act of 2014 (FISMA)<sup>17</sup> metrics. Without providing an analysis of the information security controls for each data center, USDA’s assessment cannot comprehensively report on the effectiveness of each data center’s information security capabilities.

USDA’s assessment of physical security was also limited. USDA provided a summary of an assessment of physical security for only two—NFC and NITC—of the four data centers. The assessment, conducted in accordance with Interagency Security Committee guidelines,<sup>18</sup> identified the facility security levels for NFC (Level III) and NITC (Level IV). Facility security levels, ranging from Level I (lowest risk) to Level V (highest risk),<sup>19</sup> reflect the perceived risk to the data centers and establish baseline levels of protection and countermeasures for physical security. The assessment also identified examples of physical security countermeasures in place at NITC.

However, it did not assess physical security for the ESC and NCCIPS data centers. GSA officials stated that they excluded the data centers for ESC and NCCIPS from this portion of the assessment due to time limitations established by the mandate. Without completely reporting on each data center’s facility security level, decision makers and stakeholders on the Committees on Appropriations will not be informed of the comparability of each data center’s risk level.

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<sup>16</sup>NIST, *Assessing Security and Privacy Controls in Federal Information Systems and Organizations: Building Effective Assessment Plans*, Special Publication 800-53A, Revision 4 (Gaithersburg, MD: December 2014).

<sup>17</sup>The Federal Information Security Modernization Act of 2014 (FISMA 2014), Pub. L. No. 113-283, 128 Stat. 3073 (Dec. 18, 2014) largely superseded the Federal Information Security Management Act of 2002 (FISMA 2002), enacted as Title III, E-Government Act of 2002, Pub. L. No. 107-347, 116 Stat. 2899, 2946 (Dec. 17, 2002). As used in this report, FISMA refers both to FISMA 2014 and to those provisions of FISMA 2002 that were either incorporated into FISMA 2014 or were unchanged and continue in full force and effect.

<sup>18</sup>Interagency Security Committee guidance describes *facility* as a space built or established to serve a particular purpose. The facility is inclusive of a building or suite and associated support infrastructure (e.g., parking or utilities) and land.

<sup>19</sup>Facility security levels are determined by five factors. These include a facility’s (1) mission criticality; (2) symbolic attractiveness as a threat target; (3) population; (4) square footage; and (5) threats to the tenant agencies.

Further, USDA's assessment only partially addressed each of the four selected data centers' demonstrated history of maintaining continuity of operation plan functions and not missing critical operations. FISMA requires agencies to have plans and procedures to ensure continuity of operations (COOP) for information systems that support the operations and assets of the agency.

The assessment reported that ESC had provided its incident response plan<sup>20</sup> as a validation of the data center's ability to recover from adverse events, but did not include the results of any tests of the plan. Additionally, the assessment reported that NCCIPS tests its failover systems semi-annually, although it did not include the result of such tests.<sup>21</sup> Further, the assessment included limited details on the expected annual maximum downtime for three of the four data centers—ESC, NFC, and NITC, but did not discuss the demonstrated history of the data centers for sustaining it.

GSA officials stated that they did not include the results of after-action reports in the assessment because the results were not seen as factors differentiating the data centers' demonstrated ability to maintain continuity of operations. However, without providing evidence such as the results of after-action reports, the assessment does not address each agency's demonstrated ability to not miss critical operations in the event of a service disruption.

## Conclusions

USDA's *Assessment of the National Finance Center Data Center* did not comprehensively address the objective for conducting the cost-benefit analysis and providing the assessment pursuant to the Consolidated Appropriations Act, 2018.<sup>22</sup> While providing cost comparisons, the assessment lacked key elements expected for a cost-benefit analysis. Further, the assessment provided only limited information on the security and continuity of operations for each data center. As a result, the assessment does not effectively inform stakeholders and congressional decision makers.

## Recommendations for Executive Action

GAO recommends that the Secretary of Agriculture take four actions:

The Secretary of Agriculture should amend its analysis of selected data centers to address key elements of a cost-benefit and cost-effectiveness analysis as defined by OMB Circular A-94 and relevant agency guidance. (Recommendation 1)

When amending its analysis of the selected data centers, the Secretary of Agriculture should report on the assessment of each facility's protective measures, as outlined by the Interagency Security Committee guidance. (Recommendation 2)

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<sup>20</sup>NIST, *Contingency Planning Guide for Federal Information Systems*, Special Publication 800-34, Revision 1 (Gaithersburg, MD: May 2010). Per NIST, federal directives distinguish COOP plans as a specific type of plan that should not be confused with information system contingency plans, disaster recovery plans, or business continuity plans.

<sup>21</sup>In technical comments provided to GAO, NASA officials indicated that the NCCIPS data center tests failover capabilities monthly, quarterly, semi-annually, and annually. They further noted that NCCIPS does not have a continuity of operations plan, because it serves as the COOP site for many NCCIPS customers.

<sup>22</sup>Pub. L. No. 115-141, div. A, title VII, §702 (March 23, 2018).



When amending its analysis of the selected data centers, the Secretary of Agriculture should report on an analysis of the information security controls for each data center, in order to evaluate the data center's information security capabilities. (Recommendation 3)

When amending its analysis of the selected data centers, the Secretary of Agriculture should report on each data center's demonstrated history of restoring continuity of operation functions in the event of a service disruption. (Recommendation 4)

### **Agency Comments and Our Evaluation**

We provided a draft of this report to USDA, GSA, DOT, and NASA for comment. In response, USDA provided written comments, which are reprinted in enclosure I and further discussed below. A Management and Program Analyst within GSA's Office of the Executive Secretariat and Audit Management provided comments via email, dated November 21, 2018, which stated that the agency concurred with the report. DOT and NASA provided technical comments, which we incorporated into the report, as appropriate.

In its comments, USDA generally disagreed with the findings and recommendations in the report. The department stated that conducting another assessment in accordance with OMB guidance would be redundant and represent a waste of government and taxpayer resources. The agency further stated that performing a new cost-benefit analysis in accordance with OMB's guidance for conducting an economic analysis would yield the same results as its original assessment.

As previously stated in this letter, the relevant provisions of the Consolidated Appropriations Act of 2018 required USDA to conduct and submit a detailed cost-benefit analysis to the Committees on Appropriations that includes a complete analysis of the National Finance Center data center and two operationally comparable data centers. The act required this analysis to detail and provide an assessment of each center's (1) cost-effectiveness; (2) security; (3) FedRAMP certification status; and (4) demonstrated record of maintaining continuity of operations and planning functions without disruption of critical operations. However, USDA's assessment lacked key elements, and was not sufficient to provide all of the necessary information called for by the act. Further, it is not GAO's intent to recommend that USDA perform any additional analysis that may have already been conducted. Rather, we believe it is important for USDA to provide to the Committees on Appropriations, all of the information that the act contemplated that the department omitted from its assessment. Accordingly, we have modified the language of our recommendations to more clearly reflect this intent. However, we continue to believe our recommendations are warranted.

USDA also provided the following additional comments:

In regard to recommendation 1, the department responded that its assessment had included a cost-effectiveness study. The department stated that it was directed to perform its assessment within 90 days, whereas a full cost-benefit analysis would typically require upwards of a year if conducted in accordance with OMB guidance and pursuant to the Information Quality Act. The department also stated that it conducted its assessment in accordance with criteria established in OMB memorandum M-16-19, *Data Center Optimization Initiative*.

GAO acknowledges the challenges associated with developing a cost-benefit analysis within 90 days. However, as stated in our report the assessment did not meet 3 of the 5 elements of a cost-benefit or cost-effectiveness analysis, and therefore was inadequate for the required "detailed cost-benefit analysis" that provides "a complete analysis" of the data centers. OMB

memorandum M-16-19 cited by USDA, defines a framework for achieving the data center consolidation and optimization requirements of the statutory provisions referred to as the Federal Information Technology Acquisition Reform Act, but does not address the elements necessary for conducting sound cost-benefit or cost-effectiveness analyses. OMB Circular A-94, however, provides the relevant guidance for doing so. Accordingly, we believe our modified recommendation for USDA to amend its analysis of selected data centers to address key elements of a cost-benefit and cost-effectiveness analysis as defined by OMB Circular A-94 and relevant agency guidance is warranted.

With respect to recommendation 2, USDA concluded that conducting any testing of physical security controls for the purposes of its assessment would have been duplicative. The department added that the Department of Homeland Security (DHS) conducts facility security assessments in accordance with Interagency Security Committee (ISC) guidance, while USDA continually assesses the inventory of baseline security controls—including physical security controls—according to FISMA requirements. Further, the department reported that the mandated time frame was insufficient to complete a full assessment of physical security controls.

Nevertheless, USDA did not include the results of such a DHS review in its assessment to Congress. Further, the assessment's summary of physical security was limited to only 2 of the 4 selected data centers. The assessment did not include a discussion of the physical security for the NCCIPS and ESC data centers. Therefore, we believe the modified recommendation for USDA to report on the assessment of each facility's protective measures, as outlined by the Interagency Security Committee guidance, is warranted.

Regarding recommendation 3, USDA reported that it utilized private-sector best practices to develop a comparative analysis of relevant security controls to complete the assessment. Additionally, the department stated that it continuously assesses the inventory of baseline security controls according to NIST guidance and FISMA requirements.

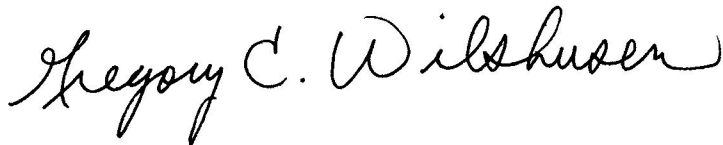
However, USDA did not include the results of such an analysis in its assessment to Congress. Additionally, GSA officials, who conducted the assessment on USDA's behalf, stated that they did not evaluate the information security capabilities of the data centers because information on the information security posture for each data center was already available as part of the agencies' required reporting on Federal Information Security Modernization Act of 2014 (FISMA) metrics. Because the assessment did not include a comprehensive security analysis of each data center, we maintain that our modified recommendation to report on an analysis of the information security controls for each data center is warranted.

With respect to recommendation 4, USDA reported that it had addressed the continuity of operations by comparing the maximum downtime ceiling requirements that each center must demonstrate to maintain their overall tier rating. However, as stated in our report, the department provided self-classified tier ratings for only 3 of the 4 data centers selected for its assessment, and failed to provide validation that the 3 data centers actually met the downtime requirements needed to maintain their respective ratings. Additionally, the department did not provide validation of the selected data centers' demonstrated record for maintaining the centers' continuity of operations plan functions and not miss critical operations. Therefore, we stand by our recommendation to report on each data center's demonstrated history of restoring continuity of operation functions in the event of a service disruption.

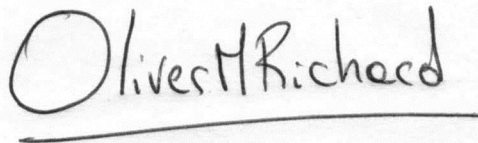
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We are sending copies of this report to the Secretaries of Agriculture and Transportation, the NASA and GSA Administrators, appropriate congressional committees, and other interested parties. In addition, the report will be available at no charge on the GAO website at <http://www.gao.gov>.

If you and your staff have any questions, please contact Gregory C. Wilshusen at (202) 512-6244 or [wilshuseng@gao.gov](mailto:wilshuseng@gao.gov), or Oliver Richard at (202) 512-8424 or [richardo@gao.gov](mailto:richardo@gao.gov). Contact points for our Offices of Congressional Relations and Public Affairs may be found on the last page of this report. GAO staff who made major contributions to this report were Jennifer R. Franks (Assistant Director), Wayne Emilien (Analyst-in-Charge), John Bailey, Justin Booth, Carol Bray, Christopher Businsky, Farrah Graham, David Hinchman, Franklin Jackson, and Priscilla Smith.



Gregory C. Wilshusen  
Director, Information Security Issues



Oliver M. Richard  
Chief Economist

Enclosure



United States  
Department of  
Agriculture

Office of the  
Assistant Secretary  
for Administration

1400 Independence  
Avenue SW

Washington, DC  
20250-0103

**TO:** Gregory C. Wilshusen  
Director, Information Security Issues  
U.S. Government Accountability Office

**THROUGH:** Gary S. Washington  
Chief Information Officer  
Office of the Chief Information Officer

**FROM:** Donald K. Bice  
Deputy Assistant Secretary  
for Administration

**SUBJECT:** U.S. Government Accountability Office's (GAO) draft report,  
entitled: Department of Agriculture: Analysis of Selected Data  
Centers Did Not Follow Federal Guidance and Leading Practices,  
Job Code 102946

**GARY  
WASHINGTON  
ON**

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WASHINGTON  
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The U.S. Department of Agriculture (USDA) appreciates the opportunity to respond to the U.S. Government Accountability Office (GAO) draft report “Department of Agriculture: Analysis of Selected Data Centers Did Not Follow Federal Guidance and Leading Practices, Job Code 102946” dated October 25, 2018. The USDA acknowledges the findings and recommendations in the GAO draft report. However, we would like to provide the following comments.

Recommendation 1 – The Secretary of Agriculture should conduct a comprehensive analysis of selected data centers that includes the elements of a cost-benefit analysis and cost-effectiveness analysis as defined by OMB Circular A-94 and relevant agency guidance.

USDA Response – USDA was directed to do an assessment in 90 days. A full *Benefit-Cost Analysis* according to all the associated criteria from OMB Circular A-94 and the Information Quality Act would typically take up to a year to complete. In order to meet the timelines directed by Congress, high-risk elements were assessed according to directions within the Appropriations Bill PL-115-141 Title VII §702 and in a manner consistent with USDA Data Center Optimization Initiative (DCOI) and Data Center Consolidation policy. The USDA assessment did include a cost effectiveness study, a security analysis, a Federal Risk and Authorization Management Program (FedRAMP) certification status, and a Continuity of Operations Plan (COOP) capability evaluation of each data center. The USDA also conducted the assessment according to criteria within OMB Memorandum M-16-19, Consolidation and Closure of Existing Data Centers; as well as private industry Best Practices uniquely available through the Office of American Innovation - IT Modernization, Infrastructure Optimization Center of Excellence.

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Recommendation 2 – When conducting its comprehensive analysis of the selected data centers, the Secretary of Agriculture should include a comprehensive review of each data centers’ physical security, with an assessment of each facilities protective measures as outlined by the Interagency Security Committee guidance.

USDA Response – Given the timeframe, USDA could not complete a full assessment of physical security controls. The Department of Homeland Security (DHS) conducts facility security assessments that evaluate facility protective measures according to Interagency Security Committee guidance, and the USDA continuously assesses the inventory of baseline security controls - including physical security controls - according to the Federal Information Security Management Act (FISMA) requirements. The USDA concluded that conducting additional testing within the framework of the assessment, would have been duplicative.

Recommendation 3 – When conducting its comprehensive analysis of the selected data centers, the Secretary of Agriculture should include a comprehensive review of each data centers’ security control assessments, in order to evaluate the data centers information security capabilities.

USDA Response – USDA utilized private industry Best Practices to develop a comparative analysis of relevant IT security controls to complete the assessment. The USDA also continuously assesses the inventory of baseline security controls according to National Institute of Standards and Technology (NIST) Risk Management Framework standard and FISMA requirements, and in compliance with DHS and USDA Cyber Security Policy.

Recommendation 4 – When conducting its comprehensive analysis of the selected data centers, the Secretary of Agriculture should ensure that each data center’s demonstrated history of restoring continuity of operation functions in the event of a service disruption is reported.

USDA Response – The USDA assessment addressed continuity of operations functionality of selected data centers by comparing the stringent down time ceiling requirements each center must demonstrate to maintain their overall Tier Rating.

Overall, USDA believes that a thorough and appropriate analysis using industry Best Practices was completed, and the outcome would be the same if a full OMB Circular A-94 assessment had been performed. Performing an A-94 assessment at this point would be a waste of government and taxpayer resources and would be redundant of the assessment already completed. Therefore, USDA disagrees with reconducting the assessment and will utilize scarce taxpayer resources to align itself with the Federal Data Center Optimization Initiative, our National Information Technology Center (NITC) Modernization Plan and our overarching Agency strategic objectives by migrating National Finance Center systems into the target consolidated NITC data center environment.

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Thank you again for the opportunity to review and respond to the report.

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Accessible text for USDA response to draft report “Department of Agriculture: Analysis of Selected Data Centers Did Not Follow Federal Guidance and Leading Practices, Job Code 102946” dated October 25, 2018

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TO: Gregory C. Wilshusen

Director, Information Security Issues

U.S. Government Accountability Office

THROUGH: Gary S. Washington

Chief Information Officer

Office of the Chief Information Officer

FROM: Donald K. Bice

Deputy Assistant Secretary

GARY WASHINGTON

Digitally signed by GARY WASHINGTON Date: 2018.12.11 12:48:14 -05'00'

Digitally signed by DONALD BICE Date: 2018.12.11 13:19:53 -05'00'

SUBJECT: U.S. Government Accountability Office's (GAO) draft report, entitled: Department of Agriculture: Analysis of Selected Data Centers Did Not Follow Federal Guidance and Leading Practices, Job Code 102946

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through the Office of American Innovation - IT Modernization, Infrastructure Optimization Center of Excellence.

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Thank you again for the opportunity to review and respond to the report.



*List of Committees*

The Honorable John Hoeven  
Chairman

The Honorable Jeff Merkley  
Ranking Member

Subcommittee on Agriculture, Rural Development,  
Food and Drug Administration, and Related Agencies  
Committee on Appropriations  
United States Senate

The Honorable Robert Aderholt  
Chairman

The Honorable Sanford Bishop  
Ranking Member  
Subcommittee on Agriculture, Rural Development,  
Food and Drug Administration, and Related Agencies  
Committee on Appropriations  
House of Representatives

(102946)