



County of Allegheny

Office of the Controller

PERFORMANCE AUDIT REPORT
ON CONTRACT COMPLIANCE
WITH CONTRACT #209006 BETWEEN
DELOITTE CONSULTING AND ALLEGHENY COUNTY
FOR THE PERIOD JANUARY 1, 2018
THROUGH DECEMBER 31, 2018

JUNE 8, 2020

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Controller

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COUNTY OF ALLEGHENY

OFFICE OF THE CONTROLLER

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February 6, 2020

Mr. Marc Cherna
Director
Allegheny County Department
of Human Services
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Pittsburgh, PA 15222

Mr. Nagen Suriya
Managing Director
Deloitte Consulting
30 Rockefeller Plaza
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**PERFORMANCE AUDIT REPORT
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FOR THE PERIOD JANUARY 1, 2018
THROUGH DECEMBER 31, 2018**

Dear Mr. Cherna and Mr. Suriya:

We have conducted a performance audit to evaluate Deloitte Consulting's compliance with the requirements of contract #209006. Our procedures were applied to the period from January 1, 2018 through December 31, 2018. Our engagement was performed in accordance with *Government Auditing Standards*.

DHS has paid Deloitte Consulting over \$153,237,214 for Information Technology services from 2003 to June 30, 2019. During our audit we noted that the contract #209006 terms which are very vague along with the weak structure of the service contract makes it difficult to ensure that adequate value will be obtained for the taxpayer-provided financial resources being expended.

We offer recommendations so that Deloitte Consulting can improve its service to Allegheny County, the Department of Human Services Office of Analytics, Technology, and Planning can improve its operations, and the taxpayers of Allegheny County can become aware of the multiple services being provided by Deloitte Consulting and the costs of those services. The results of our procedures are included in the attached report.

Mr. Marc Cherna and Mr. Nagen Suriya
February 6, 2020

We would like to thank the management and staff of Deloitte Consulting and the Department of Human Services for their courtesy and cooperation during our engagement.

Kind regards,



Chelsa Wagner
Controller



Lori A. Churilla
Assistant Deputy Controller, Auditing

cc: Honorable Patrick Catena, President, County Council
Honorable Robert J. Macey, Vice President, County Council
Honorable Rich Fitzgerald, Allegheny County Executive
Mr. William McKain, County Manager, Allegheny County
Ms. Jennifer Liptak, Chief of Staff, County Executive
Ms. Mary Soroka, Director, Office of Budget and Finance
Mr. Kenneth J. Varhola, Chief of Staff, County Council
Ms. Sarah Roka, Budget Manager, County Council

I. Introduction

The DHS Office of Analytics, Technology, and Planning (“ATP”) manages DHS application development and participates in managing the information technology infrastructure. The Deputy Director of ATP leads approximately 68 individuals who support the following functions: application development, information technology infrastructure, IT fiscal, application maintenance & operations, and operational support services. The compensation costs for DHS ATP personnel (including contracted personnel) during 2018 were more than \$5.6 million. (See the ATP organization chart at Exhibit 1 on page 27 for more information on the composition of ATP.)

The Services Provided by Deloitte Consulting

On January 11, 2017, DHS issued a Request for Proposals for information technology support and professional services. The RFP included seven service areas: 1) Program Management and Administration, 2) Project Development, 3) Reporting, 4) Data Management & Extract, Transform and Load (ETL) Operations, 5) Infrastructure, 6) IT Procurement Support, and 7) Security and Privacy. Any potential bidder was permitted to submit a proposal on one or more than one of the seven service areas. Successful bidders would enter into a 3-year contract with the option for Allegheny County DHS to add two one-year increments. A total 13 proposals were submitted in response to the RFP, and four of the entities that submitted proposals were invited to make oral presentations. Deloitte Consulting elected to bid on each of the seven sections of the RFP and was chosen as the successful bidder for all seven service areas. Deloitte Consulting was awarded Contract #209006 which was executed on October 3, 2017. The contract’s initial three-year term is the period from July 1, 2017 to June 30, 2020, with the option to renew for two, one-year periods. The maximum contract amount for the first year of the contract, approved via Executive Action, was \$15,930,000.

During the period from 2003 (the first full year for which billing data is available in the County’s JD Edwards accounting system) through June 30, 2019, Deloitte Consulting billed Allegheny County \$153,237,214 for its provision of information technology services under a series of IT services contracts (see Table 1 on page 6). Table 2 on page 6 shows the total amount billed by Deloitte Consulting under each service category during the period from July 1, 2008 (the date that marks the beginning of the first full fiscal year for which invoices were available in OnBase, the County’s data records management system) through June 30, 2019. The most significant categories of services provided by Deloitte Consulting have historically been application development (also termed “initiatives”, and includes change requests), application maintenance, and information/data management (IDM). Application development involves creating applications from scratch that enable DHS personnel to provide and document program services. Change requests are feature enhancements made to applications that are currently in service based on user feedback. Application maintenance includes activities necessary to maintain the operational integrity of an application that has already been placed into service. Information/data management (IDM) services relate to the maintenance of the DHS data warehouse, analytics cluster, data marts, and management reports, as well as other activities associated with the maintenance of application data.

Table 3 on page 7 identifies and briefly describes the various applications that have been developed by Deloitte Consulting over the years. Table 4 on page 8 shows how much Deloitte

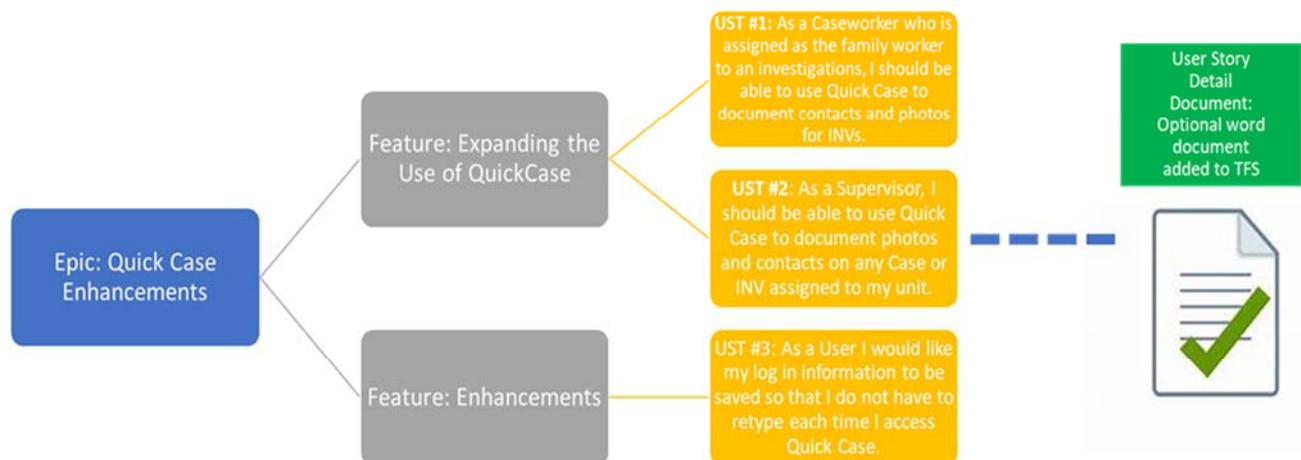
I. Introduction

Consulting has billed Allegheny County in connection with each application that has been developed from July 1, 2014 through February 9, 2019. The Synergy application is a large application that is comprised of many modules. Table 5 on page 8 shows how much Deloitte Consulting has billed Allegheny County in connection with each Synergy module that has been developed during the same time period.

The Application Development Process

Application development comprises the majority of the expenditures under Contract #209006. Deloitte Consulting and DHS utilize agile development methodology to develop applications. Agile development is a methodology in which requirements and solutions evolve through collaboration between self-organizing, cross-functional teams. When agile development methodology is used, the scope can be changed as necessary as development is occurring. The development is deemed to consist of multiple projects, occurs in iterations, and is not necessarily completed in a sequential order. Testing is typically performed concurrently with programming.

In terms of how Deloitte Consulting and DHS have implemented agile development methodology, large pieces of new work and major change requests are defined as “epics”. Epics are typically comprised of several key components, referred to as “features”. The various specific development tasks that must be completed in order to bring about the development of the various features are referred to as “user stories”. The diagram below illustrates a real-life example of an epic involving “Quick Case” which is an application used by CYF caseworkers to quickly add contact notes to a case and/or upload photo to the case file from the application. The epic includes a couple of features, which consists of various user stories.



User stories are written by ATP staff and explain in detail new pieces of work or enhancements to be made to existing applications. User stories are typically written after discussion with users and intended to address DHS program staff and service provider user needs. A description of the

I. Introduction

application development objectives is intended to be documented for each user story. When the description is detailed enough for Deloitte Consulting to be able to clearly understand what is intended to be accomplished, the user story is to be pushed to the “ready to estimate” status, which triggers a review of the user story by a Deloitte Consulting application development team. The application development team assigns a number of “story points” to the user stories based on their understanding of the volume and complexity of the application development work that would be necessary. There are relatively short periods of time, referred to as “sprints”, where the focus is exclusively on programming. We were advised that Deloitte Consulting uses a proprietary method to determine the maximum number of story points of application development work that can be accomplished in a particular application development “sprint” based on the number of developers in the development team and their availability (how many hours they would be able to work after any leave time is factored in) during the sprint. DHS ATP management then takes the maximum number of story points available provided by Deloitte Consulting into account as it attempts to select the highest priority user stories for development.

The Service Desk

From time to time, users may encounter issues when attempting to utilize the various software applications. A service desk has been established to assist with the resolution of these issues. iService, a commercial off-the-shelf (COTS) application, is being used to facilitate the service desk function as it enables the creation and tracking of service desk tickets. Users can submit service desk tickets to communicate their issues/problems either via phone or electronically. When a user contacts the service desk, their ticket is assigned one of the following ratings by the service desk staff: 1 – Work Stopped-No Workaround, 2 – Work Stopped-Workaround Available, 3 – Work Impaired, and 4 – Work Not Impaired. Service desk employees are cross-trained in the use of all of the available applications and triage service desk tickets as necessary to the appropriate Application Specialists within ATP. If service desk tickets cannot be resolved by ATP Application Specialists, they are routed to Deloitte Consulting for resolution.

Service desk tickets are submitted for data fixes. These are changes that need to be made to application data entered by users, but that cannot be made by the users because the data fields have been locked by the application. Program requirements may ordinarily prohibit changes in various fields that comprise the application data, and consequently an application may be designed to lock those fields. For example, the HMIS application, which is used by service providers and DHS to request and track homeless referrals, did not allow users to make updates to the head of household field. However, in certain circumstances, such as the death of the individual that had been designated as the head of household, a change in the head of household is permitted and appropriate. If an application was not designed to provide DHS with the functionality to make data fixes in-house, Deloitte Consulting would be requested to make the data fixes.

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Table 1. Deloitte Consulting Billings for IT Services

Contract Date Range	Contract #	Billings
Jan. 1, 2003-June 30, 2006*	Multiple Contracts	\$ 8,629,659
July 1, 2006-June 30, 2010	67651	31,300,098
July 1, 2010-June 30, 2012	116585	22,041,153
July 1, 2012-June 30, 2017	141802	68,051,994
July 1, 2017-June 30, 2020**	209006	23,214,310
Total Billings for All Contracts		\$153,237,214

*Deloitte Consulting began providing IT services to DHS in 1999. However, 2003 is the first full year in which billing data is available in JD Edwards, the County's accounting system.

**The amount shown includes only billings through June 30, 2019.

Table 2. Deloitte Consulting IT Services Billings by Service Category from July 1, 2008 through June 30, 2019

<i>IT Spend Category</i>	<i>Billed Amount</i>
Initiatives	\$35,508,649
Application Development	32,249,681
Operations & Maintenance	20,592,731
Maintenance	11,447,654
Change Requests	7,655,754
Information / Data Management (IDM)	7,235,741
Reporting	2,861,976
Operations	2,846,728
PMO	2,596,006
User Support/Data Fixes	2,009,516
Cloud/Database Migration	1,590,244
PMO/Administration Support	1,462,085
Dashboards/Data Layers	930,813
Operations/Development Support	799,260
Development Support	583,459
Infrastructure Enhancements	491,947
Security	479,362
DHS Support	380,261
Approved Expenses	9,662
Less: Discount	(145,313)
Total Billings	\$131,586,216

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Table 3. Description of Applications Developed by Deloitte Consulting and Total Spend for the Period 7/1/14 through 2/9/19

<i>Application</i>	<i>Application Description</i>	<i>Total Spend</i>
Key Information and Demographics System (KIDS)	A fully integrated child welfare management application designed to support the records management process from the initial reporting of allegations through the delivery of and payment for services.	\$11,165,333
Synergy	Allegheny County DHS clients with multi-system program involvement have client eligibility enrollment and services management activities tracked across multiple DHS program areas.	9,177,202
Enterprise Fiscal	Enables electronic processing of Fee for Service and Program Funded claims for several DHS program areas.	4,150,798
Homeless Management Information System (HMIS)	Allows DHS and its homeless provider network to request and track homeless referrals, collect client assessment data and services being delivered, while meeting the Housing and Urban Development (HUD) mandates issued by the Federal Government.	3,796,585
Client Information & Payment System (CIPS)	Collects consumer information, service authorizations, service codes, cost centers, rates, priority groups and diagnosis information for Mental Health, Intellectual Disability, and Drug & Alcohol program areas. It allows contracted providers to create service authorizations and enter claims for services provided to clients. It determines eligibility and produces provider-specific invoices monthly.	3,086,602
ClientView	Provides a single snapshot of an individual's interaction with various program areas for DHS and provider personnel.	1,957,161
Action Tracker	County-wide application providing paper less contract approval process to track various activities for grants, contracts & Executive Actions.	1,650,094
Allegheny Link	Referral, case, and services tracking system to assist in providing Information, Referral, and Case Management services to the County for the DHS Home Visiting programs as well as residents that are disabled or over 60. Also, used to assess the health and social needs of homeless people and match them with appropriate supports / housing programs.	1,516,813
DHS Assessment Tool	The single repository for any assessment conducted across DHS. It provides an assessment of needs / strengths to allow the agency to effectively share cross-program information and deliver targeted services.	1,270,088
Information Referral & Emergency System (IRES)	Used by DHS, State Police, and local healthcare providers to provide 24/7 support in administering the Involuntary Commitment (302) process for people who pose a danger to themselves / others.	968,808
Jail Collaborative	Utilized to coordinate efforts among Jail system staff and associated service providers, with the intent to provide more targeted services and improve outcomes for incarcerated and newly released clients.	924,609
Master Provider Enterprise Repository (MPER)	A centralized repository of provider, contract, service, service offering, allocation, and facility information that is used by multiple program offices to perform essential business (fiscal) operations.	911,358
Dialtrac	Used to track requests, complaints or inquiries from clients and associate it to their involvement in other DHS human service programs.	482,189
Integrated Monitoring Tool	Used by contract monitors within DHS to document periodic provider visits to measure their overall effectiveness in helping DHS to achieve its mission.	349,713
Master Client Index (MCI)	An enterprise repository of key client demographic data for individuals DHS provides services to.	277,299
Reports Portal	Unified platform to access Reports & Dashboards across program areas.	67,115

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Table 4. Deloitte Consulting Billings for Applications from July 1, 2014 to February 9, 2019

<i>Application</i>	<i>Development / Change Requests</i>	<i>Maintenance & Operations</i>	<i>Total Spend Per Application</i>
Key Info. and Demographics System (KIDS)	\$2,732,576	\$8,432,757	\$11,165,333
Synergy	6,754,961	2,422,241	9,177,202
Enterprise Fiscal	3,420,879	729,919	4,150,798
Homeless Management Info. System (HMIS)	2,151,509	1,645,076	3,796,585
Client Information & Payment System (CIPS)	1,843,054	1,243,548	3,086,602
Non Deloitte Consulting Applications	-	2,085,148	2,085,148
ClientView	1,724,043	233,118	1,957,161
Action Tracker	929,689	720,405	1,650,094
Allegheny Link	824,098	692,715	1,516,813
DHS Assessment Tool	897,581	372,507	1,270,088
Info. Referral & Emergency System (IRES)	440,907	527,901	968,808
Jail Collaborative	626,209	298,400	924,609
Master Provider Enterprise Repository (MPER)	369,346	542,012	911,358
Dialtrac	405,401	76,788	482,189
Integrated Monitoring Tool	306,008	43,705	349,713
Master Client Index (MCI)	272,554	4,745	277,299
Reports Portal	11,862	55,253	67,115
Total	\$23,710,677	\$20,126,238	\$43,836,915

Table 5. Deloitte Consulting Billings for Synergy Application Modules from July 1, 2014 to February 9, 2019

<i>Module</i>	<i>Development / Change Requests</i>	<i>Maintenance & Operations</i>	<i>Total Spend Per Module</i>
Mental Health Residential / Housing Portal	\$1,083,122	\$221,680	\$1,304,802
Independent Living / Youth Villages Lifeset	971,285	288,825	1,260,110
Youth Support Partners	795,276	311,822	1,107,098
Community Services Block Grant (CSBG)	729,648	282,559	1,012,207
Homeless Case Management	672,487	307,602	980,089
Family Support Centers	744,034	184,863	928,897
Integrated Teaming & Meeting	626,727	276,862	903,589
Home Visiting Portal	621,675	276,862	898,537
Education / Behavioral Health Specialists	510,707	271,166	781,873
Total	\$6,754,961	\$2,422,241	\$9,177,202

II. Objective, Scope, and Methodology

Scope

Our performance audit covered the period from January 1, 2018 through December 31, 2018. We conducted the audit in accordance with *Government Auditing Standards* issued by the Comptroller General of the United States. 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.

Objective

Our performance audit objective was to determine whether Deloitte Consulting complied with the requirements of contract #209006.

Methodology

The methodology used to accomplish our audit objective included, but was not limited to the following procedures:

- Reviewed contract #209006 between Deloitte Consulting and Allegheny County and its modification.
- Interviewed Department of Human Services (DHS) personnel to gain an understanding of the procedures in place to monitor Deloitte Consulting's compliance with contract #209006 and evaluated the effectiveness of those procedures.
- Interviewed DHS Office of Analytics, Technology, and Planning (ATP) personnel to gain an understanding of the information technology (IT) environment at DHS, the application development process, the design and implementation of the software applications included in the scope of work of contract #209006, and the information systems controls in place applicable to the commercial off-the-shelf (COTS) applications utilized by DHS from which data was extracted on which we have relied.
- Selected and tested samples of service desk tickets that Deloitte Consulting participated in resolving in order to evaluate the effectiveness and timeliness of ticket resolution and identify any potential significant weaknesses in the applications being developed.
- Communicated with frequent service provider users of several applications developed by Deloitte Consulting (test basis) in order to obtain their perspectives regarding whether the applications function appropriately and facilitate the accomplishment of program service objectives.

II. Objective, Scope, and Methodology

- Obtained application demonstrations from DHS ATP personnel to verify that the application development work for selected application features of various applications developed by Deloitte Consulting that was invoiced in 2018 was actually completed (test basis).
- Reviewed insurance certificates, invoices, and other documents and online resources as necessary to evaluate Deloitte Consulting's compliance with the requirements of contract #209006.
- Our audit also included an assessment of internal controls that are significant within the context of our audit objectives. Any significant findings related to internal control are included in the audit findings and recommendations.

We conducted our procedures from April through July of 2019. We provided a draft copy of our report to the Director of the Department of Human Services and the Managing Director of Deloitte Consulting for comment. Their responses begin on pages 31 and 36, respectively.

III. Findings and Recommendations

Finding #1

The Structure of the \$15,930,000 IT Contract Has Made It Difficult to Ensure That the County Will Receive Adequate Value for the Resources Expended

Criteria: Governments should clearly identify the goods or services that they seek to procure when conducting procurement processes. When procuring services, the resultant contracts should adequately describe any deliverables, costs associated with the deliverables as well as any milestones or other metrics by which contractual performance can be measured. This is especially important to help ensure that adequate value will be received when the resultant contracts are not fixed price contracts.

Condition: Several aspects of the service contract have made it difficult for DHS to ensure that the County is receiving adequate value for the financial resources being expended.

Lack of a Clearly Defined Scope of Work

The scope of work is the area in the agreement where the work to be performed is described. It should contain any milestones, reports, deliverables and end products that are expected to be provided. It should also contain a timeline for all deliverables.

During our review, we noted the RFP process was based on, and Contract #209006 includes, an estimated scope of work for only the first contract year. The Work Statement section of the contract indicates that “these projects listed below, which represent the initial estimated work to be performed or provided by Deloitte, can be adjusted by the DHS Director and will be documented in a change order as part of a monthly business planning meetings to be held throughout the term of the Agreement between Deloitte and DHS.”

With respect to software application development, for most applications the Work Statement indicates that DHS would identify/develop/collect/prioritize a list of application changes/enhancements before Deloitte was to begin developing the application code. We observed that during the first year of the contract, some components of the scope of work for the first contract year were deleted, and other components were added.

No Cost Estimates for Work Components

Although Deloitte Consulting had provided DHS with cost estimates for each component of the estimated scope of work in the proposal for the first contract year, contract #209006 does not contain the cost estimates, or any milestones that would trigger contract payments. We also observed

III. Findings and Recommendations

that the contract amount approved via the Executive Action for the first year of contract #209006, \$15,930,000, does not agree to the total of the cost estimates for the first-year estimated scope of work components provided by Deloitte Consulting, which was \$12,935,724, a difference of \$2,994,276 intended to serve as a cushion for cost overruns. We determined that the not-to-exceed contract amount for the first year of contract #209006, approved via the Executive Action, was based on the total of the cost estimates for the components contained in the scope of work for the last year in the previous services contract between Allegheny County and Deloitte Consulting.

An amendment to contract #209006 was fully executed to establish a scope of work and contract amount for the second year of the contract. We observed that while the amendment contains a little more detail in the scope of work, it still does not contain the cost estimates associated with each component of the estimated scope of work provided by Deloitte Consulting, or any milestones that would trigger contract payments. We also observed that the contract amount approved via the Executive Action for the second year of contract #209006, \$15,930,000, does not agree to the total of the cost estimates for the second-year estimated scope of work components provided by Deloitte Consulting, which was \$13,275,213, a difference of \$2,654,787 intended to serve as a cushion for cost overruns. Again, we determined that the contract amount for the second year of contract #209006 was based on the total of the cost estimates for the sections contained in the scope of work for the last year in the previous services contract between Allegheny County and Deloitte Consulting.

Invoicing Requirements Do Not Provide For Transparency

DHS has a responsibility to ensure that the County and taxpayers receive adequate value for the financial resources being expended. During our audit, we noted contract #209006 does not require Deloitte Consulting to submit its invoices for payment in any particular format, or to identify in its invoices the employees who provided services under the contract by name or job title and hours worked (per person) for each line item, or the estimated percentage of completion or estimated costs to complete tasks that are intended to be completed over time. Deloitte Consulting has historically submitted invoices for payment on an almost monthly basis, yet the invoices submitted for payment under contract #209006 have not identified the employees who provided services under the contract by name or job title and hours worked (by person) for each line item, or the estimated percentage of completion or estimated costs to complete tasks that are intended to be completed over time. (See sample invoice included as Exhibit 2 on page 28.)

III. Findings and Recommendations

Cause: A clearly defined scope of work for each contract year is essential in helping to ensure that the County receives adequate value for the resources being expended. It appears that the lack of specificity in the estimated scope of work for the first year of contract #209006 was attributable to the reorganization of ATP that began in 2017.

Regarding the cost estimates for the scope of work components, it was suggested to us by DHS ATP management that attorneys participated in the drafting of the contract, and that the contract not including the cost estimates provided by Deloitte Consulting was ultimately agreed upon by both sides, which is evidenced by the contract's execution.

With respect to the contract amounts for the first and second years of contract #209006, DHS selected an amount that would provide a cushion in the event that the actual costs associated with completing the scope of work would exceed the estimates provided. While establishing higher contract amounts reduced the likelihood that DHS would need to submit additional Executive Action requests, the County's and the taxpayers' best interests were not served by establishing contract amounts that exceeded the cost estimates provided by the consultant by millions of dollars.

Effect: The structure of the service contract makes it difficult for DHS to demonstrate to taxpayers that the County is receiving adequate value for the financial resources expended. It appears that the lack of certain contract essentials has resulted in what appears to be an open ended agreement with Deloitte Consulting. It appears that the agreement will need to continue far into the future in order for DHS to have improvements made and maintain the applications that it has already purchased. To date, DHS has spent approximately \$153,237,214 on IT services from Deloitte Consulting.

Recommendations: We recommend that DHS ATP management:

- Develop a clearly defined scope of work for each new contract year.
- Include the scope of work cost estimates provided by Deloitte Consulting or other milestones in the contract amendments for each new contract year in order to provide a basis for accountability and measurement of contractual performance.
- Require Deloitte Consulting to modify its invoices to include the names and/or titles of its personnel and the number of hours that they worked for each line item, the cumulative application development costs to date by application and estimated percentages of completion or costs to complete application

III. Findings and Recommendations

development initiatives in process, and/or other data elements that DHS ATP deems necessary in order for it to effectively monitor contractual performance (and could be used to demonstrate that adequate value was obtained for the resources expended).

We recommend that Deloitte Consulting:

- Modify the invoices that it submits to the County for payment so that the invoices conform to a format to be prescribed by DHS ATP management and are easily understandable.

Management's
Response:

The DHS and Deloitte Consulting responses begin on pages 31 and 36, respectively.

III. Findings and Recommendations

Finding #2

DHS Has Not Sufficiently Monitored Deloitte Consulting's Contractual Performance

Criteria: When governments award contracts for the provision of services, effective monitoring of contractual performance is essential to ensuring that the governments and taxpayers receive adequate value for the financial resources being expended.

Condition: There are several areas for which DHS' monitoring of Deloitte Consulting's contractual performance has been insufficient.

Insufficient Monitoring of Contract Costs in General

While the invoices that Deloitte Consulting has submitted for payment indicate the total number of hours worked and the total amount billed for each line item, they do not indicate the individuals who performed the work billed under each line item by name or job title, and the hours that they worked. For line items applicable to specific application development projects, the invoices do not include the cumulative costs incurred to date. For tasks that remain to be completed, the invoices do not provide an estimated percentage of completion or a projection of the costs to complete them. A significant number of hours have also routinely been reported in line items with general descriptions under the header "Base Costs." It is not clear exactly how the hours billed under these line items, such as "Development Support" and "Operations" have been spent. It is also not clear from the invoices which costs are direct costs and which costs are allocated (overhead) costs. DHS ATP management has advised us, and we observed, that it maintains an Excel schedule where it tracks the cumulative contract costs by area including the costs associated with the development of particular applications. DHS ATP management uses the Excel schedule in an attempt to identify billings that could be excessive, and initiates a discussion with Deloitte Consulting management when such billings are identified. However, the invoices being submitted for payment by Deloitte Consulting do not facilitate DHS ATP management assessing whether the County is receiving adequate value for the financial resources being expended under the contract or identifying aspects of its operations that may require additional attention.

Ineffective Monitoring of Application Development Costs

One characteristic of the methodology being utilized to develop applications is that cost estimates for specific application development tasks, called "user stories", are not provided by Deloitte Consulting's application development teams in terms of dollars or hours to complete. Instead, the application development teams assign a number of "story

III. Findings and Recommendations

points” to the user stories based on their understanding of the volume and complexity of the application development work that would be necessary. DHS ATP management takes the maximum number of story points available provided by Deloitte Consulting into account as it attempts to select the highest priority user stories for development during each development session. This methodology has led DHS ATP management to focus more on how much and which application development work can be accomplished, and less on how much each application development task is actually going to cost. This is important because another characteristic of the methodology being utilized to develop applications is that the rapid pace of application development necessitates frequent review and evaluation, which can lead to the desire to add additional application features (user stories) which could be unnecessary or of lesser value. If DHS ATP management were provided with estimates of the actual costs in dollars associated with the development of user stories, it is likely that the improved ability to assess cost versus benefit might lead DHS ATP management to appropriately reject the development of certain user stories. We inquired of DHS ATP management whether it had attempted to calculate the average cost of story points based on the application development history, and we were informed that such an effort has not been undertaken. Even after application development has occurred, DHS ATP management may not be able to determine the development cost associated with particular user stories, because the invoices submitted by Deloitte Consulting only show the billings for major application development initiatives, termed “epics”, for a single invoice period.

Lack of Monitoring of Service Quality

DHS ATP has made a service desk available to help users with software-application-related issues. When the service desk had first been established, the majority of service desk tickets were routed to Deloitte Consulting for resolution. When DHS ATP assessed that it had developed adequate capability to resolve application issues for particular applications, ticket handling was changed such that service desk tickets were routed to the DHS ATP Application Specialists for those particular applications. The Application Specialists would only then route the tickets to Deloitte Consulting if they could not be resolved in-house. This ticket handling changed one application at a time, and it wasn’t until some point in 2019 that service desk tickets for all applications were being routed to DHS ATP Application Specialists. Closely monitoring the submission and resolution of service desk tickets would have assisted DHS ATP management in assessing Deloitte Consulting’s contractual performance. However, DHS ATP management acknowledged to us that it did not closely monitor the submission and resolution of service desk tickets during our audit period (2018).

III. Findings and Recommendations

Cause: Deloitte Consulting was not required by contract #209006 or DHS ATP to submit its invoices for payment in a prescribed format or to include specified data elements. We observed that Deloitte Consulting had submitted invoices for payment under its previous contract with the County that identified its personnel who provided services under the contract, but that practice was apparently discontinued. DHS ATP management has indicated to us that it is trusting Deloitte Consulting to allocate the appropriate personnel resources to each component of the scope of work.

The way the application development methodology has been implemented does not enable DHS to gain a good understanding of the costs associated with particular application development objectives, and therefore does not put DHS in a position to ensure that adequate value is being obtained for the resources being expended.

The reorganization of DHS ATP that began in 2017 resulted in the new DHS ATP management group assessing the state of affairs and identifying and prioritizing operational issues that needed to be addressed. DHS ATP management stated that a focus on issues of higher priority may have precluded closer monitoring of service desk tickets during our audit period.

Effect: DHS cannot determine from the invoices submitted for payment by Deloitte Consulting who performed the work under each line item by name or job title and the number of hours that they worked, so it has no indication as to whether the personnel mix used to accomplish the various scope of work components was appropriate. DHS also cannot determine from the invoices the cumulative application development costs incurred to date for particular applications, or the estimated percentage of completion or the estimated costs to complete tasks to be completed. In addition, it is not clear how certain hours that have been billed for on the invoices under the Base Costs header have been spent. The manner in which the agile application development methodology has been implemented has also resulted in DHS not being provided with cost estimates for each application development objective. Finally, DHS ATP's lack of close monitoring of the submission and resolution of service desk tickets during 2018 did not provide any insight into Deloitte Consulting's contractual performance. Each of the aforementioned issues makes it difficult for DHS to ensure that adequate value has been obtained for the resources expended. As a government, Allegheny County is accountable to taxpayers, and must ensure that taxpayers' money is not being wasted.

III. Findings and Recommendations

Recommendations: We recommend that DHS ATP management:

- Assess which data elements would be necessary for it to effectively monitor contractual performance (and could be used to demonstrate that adequate value was obtained for the resources expended) and require that Deloitte Consulting provide its invoices for payment in a format that contains those data elements.
- Use the modified invoices to assess whether adequate value is being received in connection with contract expenditures.
- Closely monitor the submission and resolution of service desk tickets to provide insight into Deloitte Consulting's contractual performance.

Management's
Response:

The DHS response begins on page 31.

III. Findings and Recommendations

Finding #3

Weaknesses in DHS' Management of the Application Development Process Have Resulted in Additional Costs

Criteria: Governments should exercise care to ensure that taxpayer-provided financial resources are utilized effectively. When governments engage in application development, the application development process should be planned and controlled to help prevent unnecessary expenditures.

Condition: We have identified a legacy application development process issue that has resulted in additional application development expenditures being incurred during our audit period as well as weaknesses in the current application development process that have the potential to result in significant wasteful expenditures.

Imprudent Development of the Synergy Application

Synergy was intended to be a DHS application that would satisfy the needs of multiple DHS program areas by standardizing the processing of certain functions, such as the capturing of client assessment information. However, we were advised that DHS ATP management had suspended any new development of the Synergy application because it had determined that the application had been imprudently customized to incorporate specific elements requested by and only applicable to certain DHS program offices. It was believed that continuing to develop the Synergy application in the way it was being developed would have required the County to routinely incur a high level of application development expenditures that would not have been sustainable over the long term. Although new Synergy application development had been suspended, any development in process was intended to continue to be completed.

Weaknesses in the Current Application Development Process

Team Foundation Server ("TFS") is a commercial off-the-shelf (COTS) application developed by Microsoft Corporation which DHS ATP management utilizes to track application development. When we were provided with a demonstration of the TFS application, we observed that process owners are not routinely being documented by DHS ATP for the user stories recorded in TFS.

A description of the application development objectives is entered in TFS for each user story. When the description is detailed enough for Deloitte Consulting to be able to clearly understand what is intended to be accomplished, the user story is to be pushed to the "ready to estimate" status in TFS, which triggers a review of the user story by a Deloitte

III. Findings and Recommendations

Consulting application development team. If for some reason, the application development team is unclear about what is intended to be accomplished and does not feel comfortable providing an estimate of the number of story points that it will take to accomplish the user story, the team will change the status of the user story to “999” and add questions/notes. We observed during the TFS demonstration that several user stories had a status of “999” and contained questions/notes from the Deloitte Consulting development team. Upon inquiry, we learned that any DHS ATP user of TFS is able to push user stories to the “ready to estimate” status, and there is no required review to ensure that the application development objectives have been adequately detailed before the user stories are pushed to the “ready to estimate” status.

Cause:

The previous Director of DHS ATP management had a program service background and not an IT background, and before the reorganization of DHS ATP that began in 2017, other DHS ATP managers had less authority to act. For example, the Chief Technology Officer and Chief Information Officer positions, which exist today, did not exist before the reorganization. This appears to have enabled DHS program offices to excessively influence the development of the Synergy application. It is also likely that the imprudent application development path for Synergy was not identified earlier because Deloitte Consulting has not included the cumulative application development costs associated with each application on its invoices, and DHS ATP management did not begin tracking the cumulative application development costs on its own until the reorganization of DHS ATP that began in 2017.

We were advised that there is now frequent informal communication between the DHS ATP personnel involved in the application development process and Deloitte Consulting’s offsite application development teams, and that those teams are generally aware of who is responsible on the DHS side for particular user stories. However, requiring developers of user stories to document themselves as the process owners would establish a stronger basis for maintaining accountability. We were also advised that TFS contains an “audit log” that DHS ATP management could use to determine which DHS ATP staff member pushed any particular user story to the “ready to estimate” status. While this could help to identify DHS ATP staff that are not being diligent in documenting application development objectives, or who are requesting estimates for low priority user stories that may ultimately be abandoned, it would not stop the wasteful expenditures from occurring. Restricting the ability to push user stories to the “ready to estimate” status to DHS ATP management personnel or requiring management review of user stories to be documented in TFS before DHS ATP staff could push user stories to the “ready to estimate” status would better serve to prevent wasteful expenditures.

III. Findings and Recommendations

Effect: Ineffective management of the application development process resulted in the imprudent customization of the Synergy application. Customizing the Synergy application instead of standardizing it has resulted in DHS not realizing the cost benefit that was intended to be achieved. We observed that the Excel schedule maintained by DHS ATP management to track cumulative contract costs (see Finding #2) indicates that for the period from July 1, 2014 through February 9, 2019 the County was billed \$6,754,962 by Deloitte Consulting for application development and change requests applicable to the Synergy application with at least \$1.2 million in billings for development that occurred in 2018. When new application development of the Synergy application was suspended, DHS ATP personnel were required to begin working with DHS program office personnel to develop workarounds for program-service-related items that the application does not and will not address.

While misunderstandings about application development objectives between DHS ATP and Deloitte Consulting's application development teams could always occur, the failure to consistently document process owners in TFS and the manner in which user stories are currently being pushed to the "ready to estimate" status unnecessarily increase the likelihood that wasteful expenditures will occur.

Recommendation: We recommend that DHS ATP management continue to plan and exert greater effort to control application development to help ensure that taxpayer-provided resources are utilized effectively. This should involve consistently documenting process owners in TFS and instituting control procedures to prevent user stories from being pushed to the "ready to estimate" status without an appropriate review/approval.

Management's Response: The DHS response begins on page 31.

III. Findings and Recommendations

Finding #4

DHS's Inability to Make Data Fixes In-House Has Resulted in Additional Costs

- Criteria: Software applications should be developed in a manner that provides administrators with the functionality to make data fixes to its application data as necessary.
- Condition: Based on the invoices submitted by Deloitte Consulting for payment, over \$2 million of the amount invoiced for DHS' 2017-2018 fiscal year (July 1, 2017 through June 30, 2018) was for the provision of user support and data fixes. While we believe the billings attributable to data fixes to be quite substantial during that period (see Cause below), we could not determine exactly how much was billed for data fixes for that period because data fixes and user support were included in the same cost category on Deloitte Consulting's invoices.
- Cause: DHS ATP management has advised us that while DHS is able to make some of the needed data fixes in-house, the functionality that would enable DHS to make other necessary data fixes in-house has not been incorporated into the applications developed by Deloitte Consulting. These are changes that need to be made to application data entered by users, but that cannot be made by the users because the data fields have been locked by the application. Program requirements may ordinarily prohibit changes in various fields that comprise the application data, and consequently an application may be designed to lock those fields. For example, the HMIS application, which is used by service providers and DHS to request and track homeless referrals, did not allow users to make updates to the head of household field. However, in certain circumstances, such as the death of the individual that had been designated as the head of household, a change in the head of household is permitted and appropriate. The inability to make data fixes in-house has occurred in part because the DHS personnel involved in identifying and communicating application development objectives to the Deloitte Consulting application development teams did not foresee the need to request that functionality. It is likely that DHS personnel would not have realized the need to be able to make data fixes during the time period in which the majority of service desk tickets were being routed to Deloitte Consulting for resolution (see Finding #2). Additionally, the lack of specific knowledge about the programs administered by DHS may have precluded Deloitte Consulting's offsite development teams from anticipating the need for data fixes. Deloitte Consulting's application development teams should have inquired of DHS about the potential need for data fixes on a routine basis and incorporated the functionality to enable DHS to make those data fixes in-house into the applications that were being developed.

III. Findings and Recommendations

Effect: The cost associated with data fixes made during our audit period was higher than it needed to be, and the cost continues to be higher than it needs to be to the extent that the applications developed by Deloitte Consulting do not enable DHS to make all necessary data fixes in-house. Where the need to make data fixes is significant, DHS will need to expend more financial resources for application development in order to bring about that functionality.

Recommendations: We recommend that DHS ATP management:

- Identify all of the areas where there have been a large number of needed data fixes that DHS could not make and request the Deloitte Consulting application development teams to incorporate the functionality for DHS to make those data fixes in-house into the applications.
- Consider the potential need to make data fixes and integrate the functionality to make them into the application development objectives before submitting application development requests to the Deloitte Consulting application development teams for all new application development initiatives.

We recommend that Deloitte Consulting:

- Instruct its application development teams to routinely inquire of the DHS ATP Application Specialists regarding their perceived need to make data fixes so that Deloitte Consulting can build the data fix functionality into the applications.
- Modify its future invoices to provide more detail so that DHS ATP will be able to determine exactly how much is being billed for data fixes during each invoice period.

Management's
Response:

The DHS and Deloitte Consulting responses begin on pages 31 and 36, respectively.

III. Findings and Recommendations

Finding #5

Many CYF Providers Do Not Have the Proper Equipment to Utilize the KIDS Application

Criteria: The Key Information and Demographics System (KIDS) is a fully integrated child welfare management application designed to support the records management process from the initial reporting of allegations to the delivery of and payment for Children, Youth and Family (CYF) services. Because DHS requires CYF service providers to utilize the KIDS application, it should be taking measures to ensure that the application is available for use when needed and functions efficiently.

Condition: We requested from DHS ATP management, and it provided us with, the number of user log-ins by user for each application developed by Deloitte Consulting during our audit period. We selected a sample of 20 CYF service provider program service personnel who have frequently utilized the KIDS application in order to interview them to gain an understanding of their experiences in using the application. We were able to contact and interview 15 of the 20 CYF service provider program service personnel in the sample that we had selected. Eight program service personnel (53%) working for five different CYF service providers indicated to us that they have experienced slowness when utilizing the KIDS application. To date, DHS has spent approximately \$11,165,333 to develop the KIDS application.

Cause: We were advised by DHS ATP management that application slowness can be caused by a wide variety of factors, including a range of factors associated with an end user's information technology environment, factors associated with DHS' IT environment, factors associated with the communications between those two IT environments, and the manner in which the application was developed.

End users utilizing older hardware appears to be the primary cause of KIDS slowness. Older hardware may not have a strong enough processor, enough random access memory (RAM), enough hard drive space, a newer operating system, and/or an up-to-date internet browser. There could also be poor network connections at end user locations. Those using Wi-Fi could experience slowness if there are not enough Wi-Fi connection ports. Because it takes end users utilizing older hardware longer to accomplish the tasks that they set out to accomplish in KIDS, they are a component of the user load for longer periods of time, which strains DHS' IT resources and causes other users to experience slowness. We observed that DHS ATP has communicated to end users utilizing older hardware that replacing their hardware with newer hardware would be beneficial. It is possible that the planned transition of all DHS applications (including KIDS) to the cloud may reduce slowness that end users utilizing older

III. Findings and Recommendations

hardware may experience. However, KIDS will be one of the last applications to be transitioned to the cloud, and end users utilizing older hardware will likely continue to experience significant slowness in the meantime.

Effect:

Since DHS has mandated that its CYF service providers utilize the KIDS application, its service providers should expect that the application will be routinely available for use and function properly and efficiently. This expectation is not consistently being met. Some service provider program service personnel have attempted to address the slowness that they have experienced in utilizing the KIDS application by working nonstandard work hours (working earlier in the morning or later at night), as utilizing the application when the user load is smaller reduces the slowness that they experience during their standard working hours. The application slowness and/or the working of nonstandard hours could impact the extent to which service provider program service personnel are actually able to provide program services. Application slowness also makes it more challenging for service providers to invoice the County and get paid for the program services that they provide. Because the KIDS application provides alerts intended to assist program service personnel in keeping children safe, application slowness, which could mean an inability to access that information timely, could also hamper those efforts.

Recommendations:

We recommend that DHS ATP management develop a troubleshooting guide to assist end users in identifying factors in their information technology environment that could be causing application slowness, and continue to recommend that end users consider replacing older hardware.

Management's
Response:

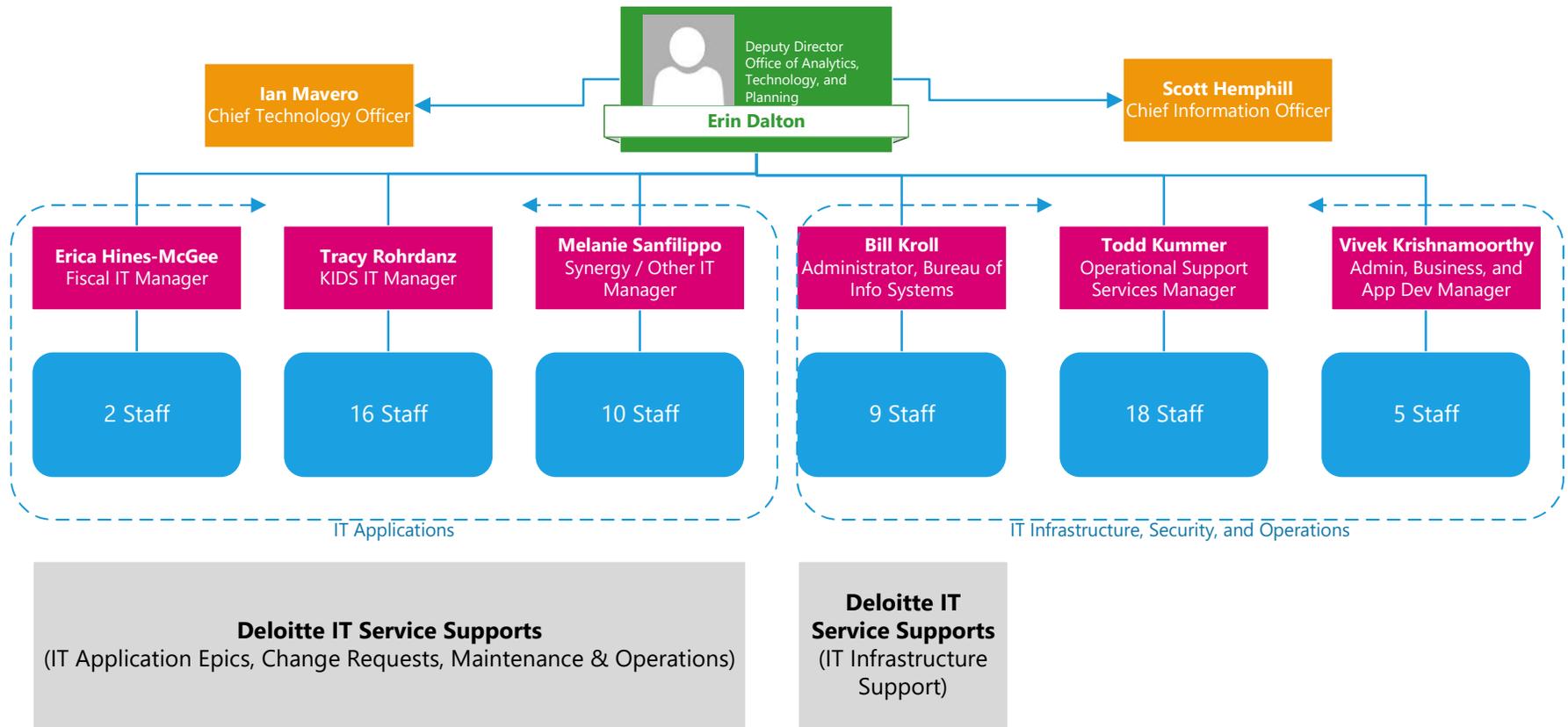
The DHS response begins on page 31.

IV. Conclusion

Our audit was initially undertaken because DHS has expended millions of dollars annually for information technology services, and the invoices for those services alone do not enable the Controller's Office to discern whether the County has received adequate value for the taxpayer-provided resources being expended. In addition to a lack of transparency in billing, there is also a lack of transparency in the decision-making process about DHS' information technology service needs. Further, a clear linkage between the applications being developed and any program service accomplishments that have been achieved as a result of those applications being developed has not been established.

Our audit has highlighted several ways in which Deloitte Consulting can and should improve its contractual performance, and better demonstrate to DHS and to County taxpayers that adequate value is being received for the taxpayer-provided financial resources being expended. Our audit has also identified several ways in which DHS ATP can improve its operations and better monitor Deloitte Consulting's contractual performance. Implementing our recommendations should both strengthen DHS ATP's operations and put it in a better position to ensure that the County obtains adequate value for the taxpayer-provided financial resources being expended under contract #209006.

Allegheny County Department of Human Services IT Staff Organization Chart as of December 2018





Invoice 8000013686
Date: February 01, 2018

Fees	Amount
Allegheny County DHS Contract #209006	
For Services from 12/17/2017 through 01/13/2018	
Benefit Derived Address: ALLEGHENY COUNTY INC, 436 GRANT ST, PITTSBURGH, PA Pennsylvania Technical Consulting Configuration - NO	727,679.00
Total Fees	727,679.00
Total Amount Due (USD)	727,679.00

All amounts represent (USD)

ALLEGHENY COUNTY DHS

TOTAL BURN from 12/17/2017 - 01/13/2018

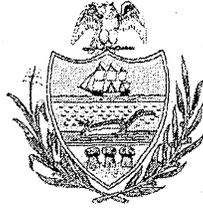
SOW CATEGORY	Sum of Hours	Total Cost
Variable Costs	8,107.75	\$509,510
Application Development	5,598.75	\$340,599
Fiscal	829.50	\$69,679
Fiscal - Single Invoice - Reporting Capabilities	115.50	\$11,519
Fiscal - Program Funded Enhancements	195.00	\$20,511
Fiscal - MPER Enhancements	291.00	\$17,016
Fiscal - Single Invoice - Automation	163.00	\$10,534
Fiscal - Single Invoice - Schedule Management	65.00	\$10,099
KIDS	1,870.25	\$112,952
P&D Service Log	33.00	\$5,280
Application Changes	1,185.00	\$65,597
Kids-Case Aide Project	576.50	\$32,951
Family Plan Addendum / Improvements	75.75	\$9,125
Other	1,265.00	\$66,385
Application Changes	610.00	\$33,233
Common Assessment Tool	16.00	\$1,634
IMT Enhancements (Phase 3)	639.00	\$31,518
Synergy	1,634.00	\$91,583
Synergy: YV Lifeset	607.00	\$26,815
Application Changes	713.00	\$45,795
CSBG 2018 Changes	314.00	\$18,973
Dashboards/Data Layers	485.50	\$35,674
Dashboards/Data Layers	485.50	\$35,674
10433 - CYF Provider Scorecard Data Layer	117.50	\$11,387
10804 - Fiscal Dashboard/Data Layer	23.25	\$3,146
211 - Enhancements to five HMIS Reports	10.00	\$556
Ad Hoc Support	12.00	\$1,279
Maintenance and Operations	159.50	\$11,405
847 - HMIS SPM Report Updates	110.25	\$5,112
175 - Update IL Dashboard / Data Layer for YV Lifeset	53.00	\$2,790
Information/Data Management (IDM)	1,675.50	\$94,422
IDM	1,675.50	\$94,422
10333 - IRES DW Integration	2.75	\$190
10443 - Physical Health new DW source	1.75	\$280
10587 - PSF Refinement - Assisted Housing	3.25	\$520
10592 - PSF Refinement - MH Jail	105.00	\$4,160
10633 - Link DW Integration	0.75	\$120
10634 - Synergy DW Integration	0.75	\$120
10662 - Detailed Referral Progression Report	0.25	\$40
10797 - AIU/HeadStart Source System Transition	19.00	\$1,150
10798 - One-time DW process to update FSC-LIFT clients	255.50	\$13,931
183 - Potential Duplicate Fact Table	64.75	\$4,839

ALLEGHENY COUNTY DHS

TOTAL BURN from 12/17/2017 - 01/13/2018

SOW CATEGORY	Sum of Hours	Total Cost
222 - KIDS DW Updates and Research	18.25	\$850
635 - DW Update for Birth Certificates	0.50	\$80
673 - Source Specific Client Dimension	201.00	\$13,447
154 - Four new CYF reports	1.25	\$163
Ad Hoc Support	118.50	\$6,153
Maintenance and Operations	367.00	\$22,709
2478 - Birth Certificate PSF Refinement	193.50	\$10,322
152 - Report Performance Tuning	169.50	\$8,245
164 - MCI and DW automated merge	148.75	\$6,543
146 - CYF Program Status Fact Refinement	3.50	\$560
Infrastructure Enhancements	296.00	\$30,902
Infrastructure Enhancements	296.00	\$30,902
TFS	2.00	\$198
Continuous Integration / Continuous Deployment	294.00	\$30,704
Security	52.00	\$7,913
HIPAA Remediation Roadmap	3.00	\$636
HIPAA Compliance Support	49.00	\$7,277
Base Costs	2,337.25	\$218,169
Development Support	620.00	\$49,182
Operations	218.50	\$25,802
PMO	214.50	\$39,384
User Support/Data Fixes	1,284.25	\$103,801
Grand Total	10,445.00	\$727,679

COUNTY OF



ALLEGHENY

RICH FITZGERALD
COUNTY EXECUTIVE

March 5, 2020

Mrs. Chelsa Wagner
Office of the Controller
436 Grant Street
#104 Court House
Pittsburgh, PA 15219

Dear Mrs. Wagner:

Enclosed for your review is Allegheny County Department of Human Services (DHS) response to the report and recommendations made by your office, related to the performance audit on contract compliance with contract #209006 between Deloitte Consulting and Allegheny County DHS (DHS) for the calendar year 2018. Before we respond to the specific recommendations in the report, we would like to take this opportunity to provide some additional context for consideration.

The Allegheny County Department of Human Services is the largest county department, serving over 200,000 of the county's most vulnerable residents. Our services span providing care and support to older adults, emergency shelters and housing for the homeless, support for individuals with a diagnosis of intellectual disability, child protection and prevention services, drug and alcohol services, mental health services, among others. In order to assist these vulnerable populations, DHS's FY18/19 approved budget was over \$983,300,000¹. To support DHS's diverse needs, Deloitte Consulting provides business-critical IT services, which in FY18/19 accounted for 1.6% of DHS's overall operating budget. Further, DHS's annual IT budget is 3.3% of the overall budget, which per Gartner, is below the State and Local Government average IT spend benchmark of 4.3% in 2018².

Not only has DHS IT spend been well within reason, but IT assets that have been created in collaboration with Deloitte Consulting services have provided value to broader Allegheny County departments. For example, the Allegheny County Jail, County Manager's Office, the Fifth Judicial District, among others, leverage investments DHS has made across technology assets. To this end, DHS's budget for Deloitte Consulting IT services represents 0.72% of the county's FY18/19 overall budget.

While IT investments made over the last few years have provided value to Allegheny County as a whole, DHS's innovative IT approaches are commonly recognized nationally, as peers in our industry seek our assistance in moving to implement similar approaches and IT assets. As a well-regarded leader in this space, DHS IT investments have been studied extensively, written about in several publications, and recognized for its innovation in information technology by Harvard University, the University of Pennsylvania and the U.S. Government Accountability Office and several other entities. This recognition

1. Allegheny County Budgets. <https://www.alleghenycounty.us/budget-finance/country-budgets.aspx>

2. IT Key Metrics Data 2019: Key Industry Measures. Government — State and Local Analysis: Multiyear. Gartner ID G00375611. <https://www.gartner.com/document/links/375611?ref=authbody&refid=3895581>

MARC CHERNA, DIRECTOR
DEPARTMENT OF HUMAN SERVICES
EXECUTIVE OFFICE

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includes awards from the Center for Digital Government and three Innovation Awards from the Ash Center for Democratic Governance and Innovation at Harvard University's Kennedy School of Government.

This audit had a scope of 1 year, however much of the report's Section I. Introduction concerns itself with a broad time span, commenting on information that spans a period of up to 16 years. It is worthwhile noting that, starting in the late 1990's, DHS was a pioneer in achieving truly integrated human service delivery. With DHS being ahead of the curve, no flexible human service IT products existed, and thus solutions had to be custom built. However, as IT products have matured in recent years, DHS has appropriately started to consider these more robust IT offerings, starting in 2017. Conjointly with this shift in strategy, and while DHS assess the current IT landscape, we have realized a reduction in Deloitte Consulting IT services spend. Since FY16/17, DHS's overall actual spend on Deloitte has decreased year over year, reducing by 23% to FY18/19.

In addition to considering a variety of IT products, DHS is committed to fostering a competitive environment when it comes to procuring IT services and solutions. For example, over the last 3 years, DHS has greatly diversified our IT vendor pool through competitive procurement procedures, as made evident by contracts with 5 new IT vendors in addition to DHS's existing contract with Deloitte Consulting. For more information, please refer to DHS's Archive of Past Solicitations: <https://www.alleghenycounty.us/Human-Services/Resources/Doing-Business/Solicitations/Archive.aspx>

A few of the audit report recommendations regarding DHS's IT development methodology are antiquated. IT solutions were once built using a waterfall methodology, spending months defining meticulous requirements, waiting months or years for the IT product to be built, then finally reviewing the end product. Over the last few years, global technology delivery methodologies have evolved to embrace change and the frequent unpredictability in building IT solutions, while simultaneously increasing collaboration and improving the ability to deliver value to end users. These best practice development methodologies, such as agile, have been adopted at DHS to increase transparency in IT development processes and improve the ability to deliver value more quickly. Any recommendations that suggest approaches that align with a waterfall methodology would set Allegheny County back and be out of alignment with current best practices.

Lastly, while the audit report notes that the Synergy application was "imprudently developed" it should be noted the application has been well received by end users. Specifically, user experience surveys conducted in 2017 – 2018 for three Synergy applications show a great satisfaction with the applications and a positive impact on worker efficiency. The vast majority of users rated the Synergy application as supporting improved work efficiency (average 87%), easy to use (average 86%), and overall satisfaction (average 89%).

We will now respond to the specific recommendations in the report.

DHS Responses

Finding #1, Recommendation 1: We recommend that DHS Analytics, Technology, and Planning (ATP) management develops a clearly defined scope of work for each new contract year.

DHS Response: No changes to be implemented because this is already in place. A scope of work, completed by Deloitte Consulting in collaboration with DHS, is and has been developed each year. It has been standard procedure for at least 6 years. DHS will continue our annual practice of developing a scope of work prior to a new contract year.

Finding #1, Recommendation 2: Include the scope of work cost estimates provided by Deloitte Consulting or other milestones in the contract amendments for each new contract year

DHS Response: No changes to be implemented. The County's contract with Deloitte Consulting is structured as a time and material contract, not a fixed price contract for set and unchangeable deliverables. DHS operates in a fluid and complex space, where we must quickly respond to changes in the needs of the clients and communities we serve, as well as respond to changes in regulations, shifting federal and state requirements, time sensitive court orders, etc. Thus, the time and material contract structure provides DHS with the necessary flexibility to better respond to these shifting requirements. Implementing this recommendation would fundamentally change the contract structure to a fixed price contract and greatly reduce DHS's agility in responding to various complex changes, ultimately reducing our ability to serve our clients and community. Further, time and material contracts are better suited with DHS's adoption of best practice IT methodologies in agile and a fixed price contract would not align with these IT practices.

Finding #1, Recommendation 3: Require Deloitte Consulting to modify its invoices to include the names and/or titles of its personnel and the number of hours that they worked for each line item, the cumulative application development costs to date by application and estimated percentages of completion or costs to complete application development initiatives in process, and/or other data elements that DHS ATP deems necessary in order for it to effectively monitor contractual performance (and could be used to demonstrate that adequate value was obtained for the resources expended).

DHS Response: No changes to be implemented. While DHS will make modifications to Deloitte's invoice requirements, as part of Finding #2, Recommendation 1, much of what is suggested in this recommendation is already required – just outside of the official invoice and contracting process. For example, DHS has been receiving monthly reports documenting the cumulative application development costs to date by new development, by change requests, by maintenance and operation costs. The monthly reports also includes by project and IT services: actual hours spent, remaining project hours and cost, projections of hours or costs above or below the initial estimated statement of work cost, and variance of projected hours and cost – compared to estimated costs. In addition, DHS generates weekly reports monitoring and tracking the progress and status of all Deloitte epics and Change Request efforts. These, and other processes, allow DHS to effectively monitor the Deloitte Consulting services that are being provided.

Finding #2, Recommendation 1: Assess which data elements would be necessary for it to effectively monitor contractual performance and require that Deloitte provide its invoices for payment in a format that contains those data elements

DHS Response: Implementing recommendation. We will institute changes to the Deloitte Consulting invoice format to increase the granularity of reporting to include hours and cost by application, especially across the current change request and maintenance and operation line items, as well as breaking out user support versus data fix costs.

Finding #2, Recommendation 2: Use the modified invoices to assess whether adequate value is being received in connection with contract expenditures

DHS Response: Implementing recommendation. DHS will use the modified invoice as well as other documentation, including user experience information to assess value.

Finding #2, Recommendation 3: Closely monitor the submission and resolution of service desk tickets to provide insight into Deloitte Consulting's contractual performance

DHS Response: Implementing recommendation. DHS has been looking for ways to improve reporting out of our iService product to enable better monitoring of service desk tickets, not only related to Deloitte Consulting, but across all service desk tickets. This work will continue.

Finding #3, Recommendation 1: DHS ATP management continue to plan and exert greater effort to control application development to help ensure taxpayer-provided resources are utilized effectively. This should involve consistently documenting process owners in TFS and instituting control procedures to prevent user stories from being pushed to "ready to estimate" status without an appropriate review/approval.

DHS Response: Taking other approaches to resolve. As DHS has done in the past, we will continue to actively monitor and control application development as we strive to deliver high value application changes by weighing overall business impact and relative effort to implement the changes. DHS does this via best practice agile development methods, which are standardized across all Deloitte Consulting development teams. To that end, DHS and development teams work collaboratively in frequently prioritizing the highest value changes, and thus teams must estimate relatively small decomposed application changes. DHS will continue to allow teams to collaborate in this way. Further, 'process owners,' defined as "the DHS person to be held accountable for the request" is consistently documented in TFS by way of the User Stories "Assigned to" field as well as the automated History tab on every User Story, which contains an audit trail of every User Story status and who advanced a given User Story to a status. Between these two existing fields, it's possible to always find a DHS owner or contact related to a given User Story.

Finding #4, Recommendation 1: Identify all of the areas where there have been a large number of needed data fixes that DHS could not make and request the Deloitte Consulting team to incorporate the functionality for DHS to make those data fixes in-house into the applications

DHS Response: Taking other approaches to resolve. Before this audit occurred, DHS had already put in places process changes to achieve this recommendation. Since January 2018, changes to enable DHS's data fix capability have been deployed in: KIDS, MPER, Synergy Applications (YSP, HCM, CSBG, FSC, IL), and HMIS applications. DHS will continue to assess applications which have significant data fix needs and conduct a value-based assessment on what makes sense to custom develop rules to allow business users to edit data.

Finding #4, Recommendation 2: Consider the potential need to make data fixes and integrate the functionality to make them into the application development objectives before submitting application development requests to Deloitte Consulting

DHS Response: Taking other approaches to resolve. DHS will continue to consider potential benefits of custom-building functionality to allow DHS to update data within applications. While empowering DHS to make updates to data could be beneficial, it is not always prudent, nor cost effective, to build this functionality. DHS has been exploring and engaged in procurement processes since December 2018 to find more cost-effective products that could achieve this same objective of better empowering DHS to update and manage data as well as the data's corresponding applications.

Finding #5, Recommendation 1: DHS ATP management develop a troubleshooting guide to assist end users in identify factors in their information technology environment that could be causing application slowness, and continue to recommend that end users consider replacing older hardware

DHS Response: Taking other approaches to resolve. We will continue to partner with our provider community and support reasonable IT hardware assets and continue to encourage providers to upgrade hardware where appropriate.

Conclusion

As the report indicates, and as any healthy organization should, DHS has continuously learned and improved IT procedures and processes over time. In this spirit, we look forward to implementing some of these recommendations, which will help to improve our processes and expand visibility to other county stakeholders.

Signed,



Marc Cherna
Director

cc: Honorable Patrick Catena, President, County Council
Honorable Robert J Macey, Vice President, County Council
Honorable Rich Fitzgerald, Allegheny County Executive
Mr. William McKain, County Manager, Allegheny County
Ms. Jennifer Liptak, Chief of Staff, County Executive
Ms. Mary Soroka, Director, Office of Budget and Finance
Mr. Kenneth J. Varhola, Chief of Staff, County Council
Ms. Sarah Roka, Budget Manager, County Council
Ms. Lori Churilla, Assistant Deputy Controller, Allegheny County Controller's Office



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March 3, 2020

The Honorable Chelsa Wagner
Allegheny County Controller
104 County Courthouse
436 Grant Street
Pittsburgh, PA 15219

Controller Wagner:

Thank you for the opportunity to respond to two of the recommendations in your performance audit of Deloitte Consulting's compliance with the requirements of contract #209006, for the period from January 1, 2018 through December 31, 2018.

We are proud of the work we have done for Allegheny County.

For over 20 years, Deloitte Consulting has collaborated with the Department of Human Services (DHS) to develop, maintain, and enhance the information technology systems that provide some of the most critical benefits and services to County residents. The systems DHS and Deloitte Consulting have worked together to implement have improved efficiency, streamlined processes, and enhanced services for thousands of recipients and providers in the County.

Deloitte Consulting's collaboration with DHS has helped to enhance DHS operations, apply significant policy and practice changes, and comply with ever-changing state and federal regulations.

Deloitte Consulting's responses to the recommendations for audit findings #1 and #4 are provided below.

Recommendation for Finding #1: We recommend that Deloitte Consulting modify the invoices that it submits to the County for payment so that the invoices conform to a format to be prescribed by DHS ATP management and are easily understandable.

Deloitte Consulting's Response: Deloitte Consulting will work with DHS ATP management to revise the invoice format as agreed upon with DHS.

Recommendations for Finding #4: We recommend that Deloitte Consulting:

- Instruct its application development teams to routinely inquire of the DHS ATP Application Specialists regarding their perceived need to make data fixes so that Deloitte Consulting can build the data fix functionality into the applications.

- Modify its future invoices to provide more detail so that DHS ATP will be able to determine exactly how much is being billed for data fixes during each invoice period.

Deloitte Consulting's Response:

Deloitte Consulting will work with DHS ATP Application Specialists to review business scenarios resulting in data updates being requested and determine feasible system modifications to address these scenarios.

Deloitte Consulting will work with DHS ATP management to revise the invoice format as agreed upon with DHS.

Thank you for the opportunity to provide this response and for including it in your final audit report.

Sincerely,

A handwritten signature in black ink, appearing to read "N. Suriya", with a horizontal line drawn underneath the signature.

Nagen Suriya
Managing Director
Deloitte Consulting LLP