

**OFFICE OF INDEPENDENT INTERNAL AUDIT**

**Audit of Sewer Cleaning Contracts 971933, 971934 and 971935**

Report No. 2018-010-WM

January 2019

**DEKALB COUNTY GOVERNMENT**

Watershed Management Department

**FINAL REPORT**



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Chief Audit Executive

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**AUDIT OF SEWER CLEANING CONTRACTS  
971933, 971934, and 971935  
AUDIT REPORT NO. 2018-010-WM**

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## **What We Did**

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In accordance with the Office of Independent Internal Audit (OIIA) Audit Plan for 2018, we conducted a performance audit of the Sewer Cleaning Contracts 971933, 971934, and 971935 in support of the Consent Decree imposed by the United States (U.S.) Environmental Protection Agency (EPA). We examined the contracts to determine whether they were awarded and administered effectively to help ensure the County meets the Consent Decree in the most economical manner.

We reviewed the contract files for the current and previous sewer cleaning contracts. We examined the abstract of bid prices, performed a comparative analysis of the contract line items' quantity estimates in the current solicitation to the actual quantities invoiced for the current and prior contracts, and County's sewer pipe inventory records. In addition, we examined vendor invoices along with the supporting data and the Watershed Management Department (WMD) contract inspection process.

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## **What We Found**

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We determined that the sewer cleaning contracts 971933, 971934, and 971935 were not awarded and administered effectively to help meet the intent of the Consent Decree imposed by the U.S. EPA. Specifically, two of the three awarded contractors, namely Crawford Enterprises, Inc (hereafter referred to as 'Crawford Enterprises') and Pipe Logistics, Inc (hereafter referred to as Pipe Logistics) submitted bids which were materially unbalanced on the Invitation to Bid (ITB) Number 3003449. The factors contributing to the material unbalanced bids were

- Inaccurate quantity estimates used in the solicitation as a basis for the unit bid prices.
- Lack of an independent cost estimate to assist procurement agents in evaluating bid prices.

We found an error made by the procurement agent, in the bid tabulation that understated one awarded contractor's bid price by \$252,000.

In addition, inspection procedures and contract specifications needed improvement. Specifically:

- Inadequate validation/inspection of invoiced sewer and manhole cleaning was not conducted prior to payment.
- Some invoices had inaccurate quantity and / or dollar amounts resulting in overstatement in amount paid to vendor.

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- Questionable invoiced outputs quantities not identified and reviewed. For example, contractors with the higher prices for some line items were invoicing a significantly higher quantities for those items and conversely contractors with lower prices were invoicing a small portion of those work units.
- Two of the three contractors did not submit invoices consistent with bid schedule as they did not provide sufficient details to determine the specific line item service performed.

Contributing to these conditions was a lack of:

- Key controls and process as per best practices to ensure adequate inspection/validation of invoiced work.
- Clear definition of what constitutes some service items such as manhole cleaning.
- Reviews of individual invoices to ensure contractors were paid accurately and consistently with the submitted bid prices.
- Periodic analytical reviews of invoices paid to identify unusual trends and patterns or to detect questionable output levels over time.

Because of the inadequate award and administration procedures, the County:

- Paid more for sewer and manhole cleaning than necessary.
- Experienced potential funding shortfalls which impacted the available monies to perform cleaning services. No cleaning services were performed by vendors for a six-month period ended June 2017 which increased the County's risks of not meeting the Consent Decree.

### **What We Recommend**

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We recommend that the Watershed Management Department interim director:

- Review historical quantity outputs, County pipe inventory records, spill/overflow data and any other relevant factors/information to help ensure more accurate quantity estimates for sewer and manhole cleaning in future solicitations.
- Prepare an independent cost estimate to assist the procurement agent as a basis to evaluate bid prices submitted.
- Strengthen contract surveillance procedures to ensure that sewer pipe and manhole cleaning was conducted prior to payment.
- Incorporate provisions in future bid solicitations/contracts to clearly specify requirements for manhole cleaning.

In addition, we recommend that the Purchasing and Contracting Department director:

- Ensure that independent cost estimates are obtained from the user departments, request the user department review the cost estimate if there are significant variations between the vendor prices and historical prices.
- Evaluate bids by utilizing the independent cost estimate and competitor's unit prices to detect unbalanced bids.

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- Request the user department to review the accuracy of the quantity estimates if there is significant deviation between the independent cost estimate and the competitors' prices.
- Reject any bid price that is materially unbalanced including not exercising options to renew contracts based on unbalanced bids.
- Ensure that submitted bid prices are calculated correctly.

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**BACKGROUND AND INTRODUCTION**

In 2011, DeKalb County entered into a Consent Decree with the EPA that is designed to ensure compliance with the Federal Clean Water Act and the Georgia Water Quality Control Act to improve the long-term viability of the County sewer system. To help meet the requirements of the Consent Decree, the County awarded two iterations of sewer line and manhole cleaning contracts. On June 14, 2012, the County issued Invitation to Bid (ITB) Number 3002366. Subsequently on November 28, 2012, the County awarded the solicitation to two separate contractors, Crawford Enterprises and Southeast Pipe Survey, Inc (hereafter referred to as Southeast Pipe Survey) which resulted in Contract Numbers 875074-12 and 875072-12, respectively. Each contract was for a two-year period scheduled to end November 30, 2014. Prior to the expiration of the two-year period, the contracts were subsequently extended to the end of May 31, 2015.

On February 5, 2015, the County issued another solicitation, ITB Number 3003449, for the second iteration of sewer and manhole cleaning. The solicitation was for one annual period with the option to renew two additional annual periods. The County received seven bids and on June 9, 2015, awarded the solicitation to three separate contractors, Crawford Enterprises, Pipe Logistics, and Southeast Pipe Survey (for a total amount of \$12 million (\$4,000,000 to each contractor) which resulted in Contract Numbers 971933, 971934, and 971935, respectively.

On May 10, 2016, the County approved the first option to renew for a total not to exceed (NTE) \$3.9 million (\$1,300,000 awarded to each contractor) and on April 25, 2017, approved the second option to renew for an amount NTE \$4,680,000 (\$1,560,000 awarded to each contractor). On April 24, 2018, the County approved Change Order 1 to the three contracts which provided additional funding of \$3,240,000 (\$1,080,000 awarded to each contractor) and extended the contract through December 31, 2018.

ITB Number 3003449 primarily contained nine contract line items for sewer and manhole cleaning for vendors to submit bid prices. The solicitation required vendors to submit unit prices per linear foot (LF) for sewer cleaning and a unit price per each manhole. The table on the following page illustrates the bid schedule that required vendors to submit unit prices along with the various categories, sizes, and estimated quantities for each contract line item.

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ITB Number 3003449- SANITARY SEWER CLEANING Line Items					
Item Number	Description	Estimated Quantity	Unit	Unit Price	Total Bid Price
1	6 Inch thru 12 Inch sewer inside the Right of way (ROW)/Highway/Utility Easement	1,000,000	LF		
2	6 Inch thru 12 Inch sewer outside the OW/Highway/Utility Easement	500,000	LF		
3	15 Inch thru 24 Inch sewer inside the ROW/Highway/Utility Easement	400,000	LF		
4	15 Inch thru 24 Inch sewer outside ROW/Highway/Utility Easement	100,000	LF		

MANHOLE CLEANING					
5	6 – 10 FEET DEEP	10,000	EACH		
6	11 – 15 FEET DEEP	3,000	EACH		
7	16 – 20 FEET DEEP	1,000	EACH		
8	21 – 25 FEET DEEP	500	EACH		
9	>25 FEET DEEP	50	EACH		

**County Sewer and Manhole Inventory**

According to information received from the Geographic Information System (GIS) provided by WMD, the County owns about 12.9 million linear feet (LF). Of this amount, the County has about:

- 11.4 million LF of 6-12 inch pipes (of which 4.5 million LF is outside ROW).
- 803,000 LF of 15-24 inch pipe (of which 745,000 is outside ROW).

The County also owns about 64,000 manholes, or roughly a manhole about every 200 LF of sewer pipe. Of this amount, about:

- 32,000 are 6-10 feet deep.
- 18,000 are 11-15 feet deep.
- 4,000 are 16-20 feet deep.
- 1,200 are 21-25 feet deep.
- 250 are greater than 25 feet deep.

For the three-year period ended June 30, 2018, the contractors' have invoiced the County for cleaning about 9.4 million LF of sewer lines and 15,871 manholes costing about \$16 million. For the sewer and manhole cleaning contracts, the user department within the County, WMD, was responsible for the development of the specifications and post award contract oversight. The Department of Purchasing and Contracting is responsible for issuing

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the solicitation, awarding the contract(s), exercising the renewal option years and processing change orders.

### **AUDIT RESULTS**

We determined that ITB Number 3003449 awarded sewer cleaning contracts 971933 (Crawford Enterprises), 971934 (Pipe Logistics), and 971935 (Southeast Pipe Survey Inc) were not awarded and administered effectively to help meet the Consent Decree imposed by the U.S. EPA. Specifically, we found that:

- Two of the three awarded contractors (Crawford Enterprises and Pipe Logistics) submitted bids which were materially unbalanced on ITB Number 3003449.
- Tabulations prepared by the procurement agent understated one awarded contractor's bid price by \$252,000.
- Inspection procedures and contract specifications needed improvement to verify contractor performance and validity of the vendors' invoices.

The factors contributing to these conditions was that the solicitation did not contain:

- Accurate quantity estimates to base the contract awards.
- An independent cost estimate to assist procurement agents in evaluating bid prices.

The primary underlying causes to these conditions was that there were no:

- Reviews of historical outputs from the current contract and previous contracts and County's inventory data to ensure reasonable quantity estimates.
- Procedures and policies within the County requiring independent cost estimates.
- Adequate reviews of bids to detect or question unreasonable bid prices.

In addition, the inspection process and contract specifications needed improvement to verify contractor performance and validity of the vendors' invoices. This contributed to questionable outputs billed by vendors, vendors' invoices inconsistent with the unit bid schedule, and paying contractors higher prices than the bid prices submitted.

As a result, the County paid more for sewer and manhole cleaning than necessary and experienced potential funding shortfalls which impacted the available monies to perform cleaning services. No cleaning services were performed for a six-month period ended June 2017 increasing the County's risks for not meeting the Consent Decree.

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FINDING: 1 CONTRACT AWARD PROCEDURES

**Objective:** To determine whether the County's sewer cleaning contracts 971933, 971934, and 971935 were awarded effectively to help meet the Consent Decree imposed by the U.S. EPA.

**Criteria:** Better procurement practices<sup>1</sup> cite that any bid may be rejected, in writing, if the contracting officer determines that it is unreasonable as to price, the total price of the bid (initial or option period) and the prices for individual line items. Bids may be rejected as non-responsive if the prices are materially unbalanced between line items. A bid is materially unbalanced when it is based on prices significantly less than cost for some work and prices which are significantly overstated in relation to cost for other work, and if there is a reasonable doubt that the bid will result in the lowest overall cost to the Government even though it may be the lowest evaluated bid. Procurement agent (PA) is responsible for evaluating the reasonableness of the offered prices.

To ensure the reasonable of prices, the PA can compare vendors' bid prices to prices received in response to the solicitation or to an independent cost estimate. The quantity estimates in the solicitation should be questioned by the PA if there are significant bid prices amongst the line items in the bid schedule. User departments are responsible for developing quantity estimates and providing them to procurement officials. User departments can develop quantity estimates from reviewing historical outputs and receiving input from technical personnel. When evaluating whether to exercise an option to renew contracts for additional periods (option periods), the PA may determine that an offer is unacceptable if the option prices are significantly unbalanced. If so, the PA has the right to not exercise the option(s) to renew.

Another procurement practice<sup>2</sup> states that procurement officials must investigate bids or proposals that appear abnormally low.

**Condition:** We determined that the sewer cleaning contracts 971933, 971934, and 971935 were not awarded effectively. Specifically, we found the following:

Unbalanced Bid Prices. Two contractors, (Crawford Enterprises and Pipe Logistics) submitted unreasonable unit prices (highlighted in red/bold) for line item numbers 3 through 9, when compared to the average bid price of the seven vendor bids received.

The chart on following page illustrates the line item bid prices submitted by the three awarded companies along with the average line item bid price for all seven competing vendors.

<sup>1</sup> Federal Acquisition Regulation

<sup>2</sup> The National Institute for Public Procurement

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Line item bid prices submitted by three awarded contractors (ITB Number 3003449)					
#	Line Item	Southeast Pipe Survey Contract Number 971935	Crawford Enterprises Contract Number 971933	Pipe Logistics Contract Number 971934	Average Bid Price
1	6-12 inch pipe (inside ROW)	\$1.54 per LF	\$1.60 per LF	\$1.60 per LF	\$1.80
2	6-12 inch pipe (outside ROW)	\$1.54 per LF	\$1.45 per LF	\$1.60 per LF	\$1.93
3	15-24 inch pipe (inside ROW)	\$1.55 per LF	<b>\$0.70 per LF</b>	\$1.60 per LF	\$1.88
4	15-24 inch pipe (outside ROW)	\$2.20 per LF	<b>\$0.70 per LF</b>	\$1.70 per LF	\$2.14
5	Manholes, 6-10 feet deep	\$75 per MH	\$75 per MH	<b>\$10 per MH</b>	\$65 per MH
6	Manholes, 11-15 feet deep	\$75 per MH	\$75 per MH	<b>\$10 per MH</b>	\$76 per MH
7	Manholes, 16-20 feet deep)	\$75 per MH	<b>\$50 per MH</b>	<b>\$10 per MH</b>	\$82 per MH
8	Manholes, 21-25 feet deep	\$75 per MH	<b>\$50 per MH</b>	<b>\$10 per MH</b>	\$98 per MH
9	Manholes, > 25 feet deep	\$75 per MH	<b>\$50 per MH</b>	<b>\$10 per MH</b>	\$144 per MH

Furthermore, Crawford Enterprises was a contractor on the previous sewer cleaning contract (Contract Number 875074-12). The company submitted bid prices on the previous contract which were reasonable for 15-24 inch sewer pipe cleaning and manholes with depths of 16 feet and greater which further supports that the line item bid prices on the current contract are unbalanced. The following chart shows the company's line item prices submitted for its current contract compared to the line item bid prices on previous contracts.

Crawford Enterprises' bid prices on previous and current contract.			
#	Line Item	Previous Contract	Current Contract
3	15-24 in pipe (inside ROW)	\$1.90 per LF	\$0.70 per LF
4	15-24 in pipe (outside ROW)	\$2.00 per LF	\$0.70 per LF
7	Manholes 16-20 feet deep	\$75.00 per MH	\$50 per MH
8	Manholes 21-25 feet deep	\$100.00 per MH	\$50 per MH
9	Manholes >25 feet deep	\$125.00 per MH	\$50 per MH

Contributing factors to the unbalanced bids were that:

- Quantity estimates provided by WMD for some contract line items were significantly inaccurate.

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- No independent cost estimate was prepared for the solicitation to assist the procurement agent.

### Inaccurate Quantity Estimates

The quantity estimates in the solicitation for the current contract were significantly overstated for 15-24 inch sewer pipe cleaning (for both inside and outside the ROW) and manhole cleaning, particularly for manholes 16 feet and deeper. In addition, 6-12 inch pipes quantity estimates were also understated when compared to actual quantity of work performed for each line item for current contract. We examined the available invoices<sup>3</sup> from the previous contract(s) for a 30-month period ended May 2015 (when the previous contract expired) and the available invoices from the current contract(s) for a 36-month period to June 2018 to determine the actual quantities cleaned for each line item. We subsequently converted the total actual quantities from the previous contract(s) and current contract(s) to an actual annualized amount. Our work showed that annual estimates for several of the line items were significantly understated or overstated. For example, line items for cleaning

- 6-12 inch sewer pipes inside the ROW and outside the ROW were understated by 106 percent and 109 percent respectively when compared to the actual annualized quantities of the current contract.
- 15-24 inch sewer pipes inside the ROW and outside the ROW were overstated by 97 and 69 percent respectively when compared to the actual quantities of the current contract and 98 and 96 percent respectively when compared to the actual quantities of the previous contract.
- Manholes with depths greater than 15 feet were overstated by 74 to 96 percent when compared to the actual amounts of the current and previous contract.

A chart illustrating the differences between the estimated quantities in the solicitation to the actual amounts for the current and previous contracts for each line item is illustrated in Appendix IV.

In addition to comparing the solicitation's quantity estimates to the historical actual output amounts, we examined the County's inventory records to the estimated quantities. Our examination of the GIS records provided by WMD Engineering personnel showed that the estimated quantities for 15-24 inch sewer pipe were significantly overstated. The solicitation estimated that 15-24 inch pipe represented 500,000 LF, or about 25 percent of the total solicitation estimated quantity of 2 million LF. According to the GIS records, the 15-24 inch sewer pipe represents only about 6.6% of the total actual inventory.

A chart illustrating the line item percentage allocation of the estimated quantities in the solicitation to the actual inventory per GIS data is illustrated in Appendix V.

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<sup>3</sup> Three invoices were unavailable for current contracts and one invoice on the prior contracts was unavailable.

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Lack of an Independent Cost Estimate

Our examination showed that WMD did not prepare/obtain an independent cost estimate to assist the Department of Purchasing and Contracting. Both the WMD and the Department of Purchasing and Contracting informed us that no independent cost estimate was prepared. An independent cost estimate will help identify unbalanced bids or unreasonable bid prices for each line item. To illustrate the need for an independent estimate, unit bid prices for the contract line item for cleaning manholes 25 feet deep and greater ranged from \$10 per manhole to \$325 per manhole.

We addressed the necessity of having independent cost estimates in OIIA Report 2017-008-PC. The current draft Procurement Ordinance dated September 27, 2018 requires the:

- User departments to prepare and provide the Purchasing and Contracting Department with independent cost estimates for each project.
- Director of Purchasing and Contracting Department to utilize independent cost estimates for the evaluation of bids and proposals.
- User departments to investigate bids that appear abnormally high or low.

Bid Tabulation Error. The procurement official made a mistake in the bid tabulation which understated one awarded contractor's bid price by \$252,000. Crawford Enterprises submitted a unit bid price of \$.70 to clean 15-24 inch sewer pipes inside the ROW which had an estimated quantity of 400,000 LF. On the abstract of bids and the bid evaluation form, the procurement agent calculated a total bid price of \$28,000 for this line item. The bid price for this line item should have been \$280,000 (400,000 \* \$.70). The contractor's total bid price of \$3,732,000 was one of the three lowest aggregately priced bids and second lowest overall. It should have been \$3,984,000, which is \$252,000 higher than the tabulated bid price. While the corrected bid amount would still have been second lowest overall, it is imperative that procurement agents review the bid tabulations carefully to protect the County's interest and mitigate potential bid protests.

**Cause(s):** WMD personnel informed us that they were unaware how the quantity estimates were developed as the estimates were prepared by prior WMD staff in 2015. Our audit indicates that a review of historical vendor outputs of pipe and manhole cleaning from the previous and County inventory records were not considered in developing solicitation quantity estimates. In addition, the current County purchasing policy does not require an independent cost estimate. There is no indication that the bid tabulation was subjected to supervisory review.

**Consequence:** The impact of the material unbalanced bids was that the County paid more for services than necessary. Our examination showed that one unsuccessful contractor would have cost the County about \$419,000 less for the current contract when compared to one of the awarded contractors using the awarded contractor's invoiced quantities at the unsuccessful contractor's bid prices. Similarly, the same unsuccessful bidder would have cost the County about \$346,000 less in sewer pipe cleaning when compared to another awarded contractor's actual invoiced quantities.

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Another consequence from the unbalanced bids is the impact of available funding to perform cleaning services. Because of the large variations in bid prices for the same line items, we noted that contractors whom bid the lowest or lower prices were completing a small percentage of the outputs for those line items while contractors with the highest or higher bid prices performed most of the work for that line item resulting in funding shortfalls earlier in contract term. Our review showed that no cleaning services for this contract were submitted for a six-month period ended June 2017 due to a lack of available funding, thereby potentially impeding the County's ability to meet the Consent Decree. The following chart illustrates the percentage of work completed along with the unit bid prices for the contract line items in which we deemed are materially unbalanced:

Line Item Description	Bid Price	Highest or Lowest Bid Price	Percentage of line Item(s) Completed	Dollar Amount Executed	Percentage of Dollars Spent for Line Item
15-24 inch pipe (inside ROW)	.70 per LF	Lowest	30 <sup>1</sup>	8.1K	10%
15-24 inch pipe (inside ROW)	1.55 per LF	2nd Highest	51	\$64.1K	76%
15-24 inch pipe (outside ROW)	.70 per LF	Lowest	39 <sup>1</sup>	\$36K	17%
15-24 inch pipe (outside ROW)	2.20 per LF	Highest	61	\$124K	83%
All manhole depths	10.00 (each)	Lowest	2	\$3.8K	.3%
All manhole depths	75.00 (each)	Highest	60	\$713K	61.3%

<sup>1</sup> Zero outputs of this line item were completed by vendor since October 2016

**Recommendation:**

The Watershed Management Department interim director should ensure on all current and future pipe cleaning contracts that:

- Quantity estimates are developed (in consultation with all relevant stakeholders and external expertise as necessary) by reviewing historical output quantities, County pipe GIS inventory records, spill/overflow data and any other relevant factors/information.
- Independent cost estimates are prepared for each contract line item number on the solicitation.
- Adequate documentation should be maintained to support the process used, stakeholder involvement, and key factors considered in developing quantity estimates and Independent cost estimate.

The Purchasing and Contracting Department director should implement the following:

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- Ensure that independent cost estimates are obtained from the user department.
- Evaluate bids by utilizing the independent cost estimate, the competing vendors' prices, and historical awarded prices to detect unbalanced or unreasonable bids.
- Evaluate the bid prices and follow-up with the user departments to ensure the accuracy of quantity and cost estimates when unusually low or unbalanced bids are received.
- Reject vendor's bids that are materially unbalanced. Prohibit renewing the option periods if material unbalanced bidding was detected after the commencement of the contract.
- Ensure evaluation of bids are subjected to documented supervisory review and sign-off to help detect errors in bid tabulation, unbalanced bidding and other potential vendor procurement schemes.

**Other Audit Observations:**

During our audit, we observed that the previous contracts and the current contracts which provided identical services, were charged against different general ledger accounts. According to the previous ITB 3002366 awarded contract files, contracts 875072-12 and 875074-12 were charged against and funded by the bond funds through Capital Improvement Program (CIP) Line 42 of the Consent Decree Program. The current contracts (971933, 971934, and 971935) were categorized as a maintenance project and not charged against or funded by CIP. We will address the financial management structure of the Consent Decree contracts in a future audit.

**Additional Assistance Provided by OIIA**

We provided WMD personnel our analysis of actual vendor outputs on both the previous and current sewer cleaning contracts. We also emphasized the need to discuss the estimated quantities in future solicitations with the WMD engineering personnel and review GIS data prior to submission of the solicitation.

On August 27, 2018, the County issued Solicitation Number 18-100988 for the next iteration of sewer cleaning contracts. Our review showed that WMD personnel revised the estimated quantities which appear to be much more reasonable and based upon historical outputs when compared to the estimated quantities in the current contracts. In addition, they consolidated the line items for manhole cleaning which is logical considering the very low totals of actual deep manhole cleaning historically. The chart illustrating the contract line item bid schedule on the upcoming solicitation is illustrated in Appendix V.

**FINDING: 2 CONTRACT ADMINISTRATION PROCEDURES**

**Objective:** To determine whether the County's sewer cleaning contracts 971933, 971934, and 971935 were administered effectively to help meet the Consent Decree imposed by the U.S. EPA.

**Criteria:** The NIGP states that contract administration is a vital process that ensures contractors are providing the required services for payments rendered. It also emphasizes governments to measure and track performance against the established measures and

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objectives. Section 7.2. of the Georgia Procurement Manual states that the contract administrator and project management is responsible for:

- Monitoring contract performance.
- Monitoring invoice payment reports for timeliness and accuracy.
- Managing the contract, including renewing multi-year options as appropriate.
- Documenting all actions taken regarding the contract and maintain such documentation as part of the official contract file.
- Performing inspections to ensure contractor's work was performed in accordance with the specifications.

EPA memo EPA 832-F-99-031 dated September 1999, advocates an inspection program using various methods such as closed-circuit television (CCTV), cameras, and visual inspection techniques.

**Condition:** We found that the sewer cleaning contracts 971933, 971934, and 971935 were not administered effectively. Specifically, we identified the following:

*Inadequate validation/inspection of work performed.* The County did not adequately validate if the invoiced sewer and manhole cleaning services were performed by vendors. Our discussions with WMD personnel indicated that they only conducted occasional spot checks to verify contractors were at the agreed upon location.

*Inaccurate/inconsistent invoice unit prices, quantity, totals not timely detected.* Some invoices had inaccurate quantity and/ or dollar amounts resulting in overpayments to vendors. For example, in 2015 and 2016, Pipe Logistics billed the County \$15 per manhole for cleaning 313 manholes which was more than the bid unit price submitted of \$10 per manhole cleaned for all depths, resulting in total overpayments of \$1,565. Beginning in 2017, the contractor invoiced manholes at the correct price of \$10 per manhole.

In addition, we identified five other invoices out of 206 invoices examined that contained errors which were not identified prior to payment, resulting in total overpayments of \$3,453.

For example, under Contract Number 971933 (Crawford Enterprises):

- Invoice Number 2016-10 dated October 28, 2016 showed a total amount of \$156,944.40. The invoice showed a subtotal amount of \$153,572.80 which was the correct total. Our examination of Payment Number 300001578 showed \$156,944.40 as the paid amount, which was \$3,371.60 higher.
- Invoice Number 2015-CB-3, dated September 28, 2015, showed a line item \$100 claim for cleaning manholes 16-25 feet deep, but no quantity of outputs completed. Our examination showed that Payment Number 44394 did include the \$100 claim.
- Invoice Number 2016-5, dated May 27, 2016, included a paid total of \$155,324.80. The invoice line item listed \$1,300 to clean 11 manholes 16-25 feet deep. Using the unit bid price of \$50 per manhole for this line item, the total claim should have been \$550, which is \$750 less than the claimed amount. Payment number 30000342 showed a total of \$155,324.80 which included the \$1,300 claim.

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- Invoice Number 2017-9 dated September 29, 2017, showed an invoiced total of \$38,722.60 for cleaning 24,136 LF of 6-12 inch pipe inside the ROW. Using the vendor's unit bid price of \$1.60 per LF would equate to a total of \$38,617.60, or \$105 less than the invoiced amount. Payment Number 3004599 showed a payment total of \$38,722.60 which reflected an overpayment of \$105.

Under contract 971934, Invoice Number 13699, dated May 16, 2016, showed an invoiced amount of \$72,628.80 for cleaning 45,939 LF of 6-12 inch sewer pipe at \$1.60 per LF. The correct total should have been \$73,502.40, or \$873.60 higher than the invoiced amount.

Questionable invoiced output quantities not identified and reviewed. Based on an examination of submitted invoices, we determined that contractors with the higher unit bid prices for some line items were billing most of the work for those items and conversely contractors with lower prices were billing a small portion of those work units. Of the 15,871 manhole cleaning invoiced for the three-year period, Pipe Logistics, who had the lowest unit price of \$10 per manhole, only invoiced 388 manholes. This translated to one manhole cleaning for every 7,500 LF of pipe cleaned since the contractor cleaned about 2.9 million LF. Contrarily, Crawford Enterprises and Southeast Pipe Survey, who submitted unit prices ranging from \$50 to \$75 per manhole, invoiced 15,500 manholes for cleaning about 6.5 million LF of sewer line, which equated a manhole cleaning per 400 LF of sewer line. While we could not validate whether the three contractors cleaned the manholes, these questionable outputs and differences should be examined and questioned based upon a thorough examination of the invoices.

Format and details of some invoices inconsistent with bid schedule. Our examination showed that two of the three contractors (Pipe Logistics and Crawford Enterprises) did not submit invoices consistent with bid schedule. For example, Pipe Logistics consolidated the cleaning of 6-12 inch pipes for inside the ROW and outside the ROW into one line item on the invoice. The solicitation had inside the ROW and outside the ROW as two separate line items (as discussed in the Criteria section in the preceding Finding). In addition, Pipe Logistics did the same for the line items for 15-24 inch pipes and the contractor only specified the manhole depth on 79 of the 388 manholes invoiced manholes, or about 20 percent. Crawford Enterprises consolidated the two manhole depth line items of 6-10 feet and 11-15 feet into one line item as 6-15 feet on their invoice and consolidated the two line items of 16-20 and 21-25 feet deep manholes into one line item of 16-25 feet deep on their invoices.

**Cause:** Key controls/processes were not in place to ensure contractors performed required services as required by best practices. WMD did not have an adequate inspection process to ensure that scheduled cleaning was performed. WMD personnel informed us that they only conducted spot checks to validate the work was performed.

In addition, the solicitation did not have provisions specifying:

- A clear understanding for vendors of what constituted manhole cleaning. The current contracts do not specify what constitutes manhole cleaning.

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- The format and level of detail for contractor invoice submissions to ensure consistency with bid schedule. As a result, there's no knowledge of the work performed and WMD personnel have no basis to develop accurate quantity estimates for future solicitations.

Also, the WMD did not adequately review individual invoices to ensure billings were accurate and consistent with the submitted bid prices. In addition, no periodic analytical review is done on invoices paid to identify unusual trends patterns or to detect questionable output levels over time.

**Consequence:** Without a formal inspection system and adequate contract provisions, the County had no assurance that scheduled cleanings were performed as required by the contract. In addition, inadequate reviews of invoices contributed to the County paying higher prices than necessary for services rendered and inadequate review of invoices prohibits the County from identifying questionable outputs invoiced by contractors and determining the actual outputs for the line items.

**Recommendation:**

The Watershed Management Department interim director should develop contract administration procedures to ensure that sewer pipe and manhole cleaning is performed at the lowest possible prices. Specifically, the director should:

- Implement an inspection process (i.e. CCTV type or comparable system) to ensure that sewer cleaning was performed as required by the contract specifications. Inspections should be documented in a log book referencing date, time, and location. Visual inspections should be conducted of both surface and internal inspections if used.
- Incorporate provisions in future solicitations to require photographs of manholes (both pre and post cleaning) prior to payment and ensure invoices are consistent with the unit bid schedule.
- Review the manhole photographs to ensure cleaning was conducted.
- Ensure invoices are consistent with the contract line items in the bid schedule.
- Review the invoices to identify inconsistent pricing between the invoices and unit bid prices and questionable outputs invoiced by the contractors.

**Other Areas of Concern**

During our audit, we found that one contractor, (Crawford Enterprises) submitted three invoices totaling about \$305,000 in which the invoice dates ranged from two to six months after the cleaning services were provided. Invoice submitted significantly after the service date are more difficult to verify to support payment. This billing process reduces the County's ability to ensure the services were performed.

**Additional Assistance Provided by OIIA**

We held discussions with WMD personnel emphasizing the need to revise the solicitation provisions to ensure that invoiced manhole cleaning is supported with adequate documentation and that contractors' submitted invoices are consistent with the unit bid schedule. Our review of Solicitation Number 18-100988 showed that WMD did incorporate provisions requiring contractors to:

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- Take photographs of manholes prior to and after cleaning as proof of cleaning prior to submission of invoice.
- Submit invoices consistent with the unit bid schedule.

In addition, it stated to prospective vendors that CCTV inspections will be performed by an independent third party for scheduled sewer line cleaning.

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## APPENDIX

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### Appendix I- Purpose, Scope and Methodology

#### Purpose

The purpose of this engagement was to:

- Determine whether the County's sewer cleaning contracts Numbers 971933 (Crawford Enterprises), 971934 (Pipe Logistics), and 971935 (Southeast Pipe Survey), were awarded and administered effectively to help meet the intent of the Consent Decree imposed by the U.S. Environmental Protection Agency.
- Identify opportunities to strengthen the effectiveness and efficiency of the sewer cleaning contracts.

#### Scope and Methodology

The scope of this engagement was to examine the DeKalb County Contract Number(s) 971933, 971934 and 971935. In addition, we examined the prior sewer pipe cleaning Contract Numbers 875072-12 and 875074-12, to obtain historical outputs and unit bid prices. **We did not review the accuracy and validity of the data input on the invoices for the current contracts.**

Our methodology included, but not limited to the following:

- Review of the unit bid prices and specifications for contract numbers 875072-12, 875074-12, 971933, 971934, and 971935.
- Review of the specifications and estimated quantities for Solicitation Number 3003449 and 18-100988.
- Comparison of the estimated quantities in solicitation number 3003449 to the actual quantities from contract numbers 875072-12, 875074-12, 971933, 971934, and 971935.
- Review of the invoices for contract numbers 971933, 971934, and 971935 for a three- year period ended June 2018.
- Interviews with appropriate Watershed Management Department and Purchasing and Contracting Department personnel.
- Review of the Federal and state of Georgia contracting regulations and policies.
- Reviewing other applicable documentation.

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**Appendix II- Management Response**



**Office of the Chief Executive Officer**

Zachary L. Williams  
Executive Assistant, Chief Operating Officer

**Chief Executive Officer**  
Michael L. Thurmond

**Board of Commissioners**

District 1  
Nancy Jester

District 2  
Jeff Rader

District 3  
Larry Johnson

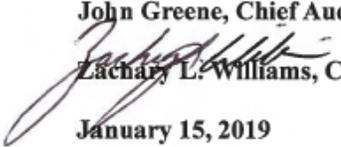
District 4  
Steve Bradshaw

District 5  
Mereda D. Johnson

District 6  
Kathie Gannon

District 7  
Gregory Adams

**MEMORANDUM**

**TO:** John Greene, Chief Audit Executive  
**FROM:**  Zachary L. Williams, Chief Operating Officer  
**DATE:** January 15, 2019  
**SUBJECT:** MANAGEMENT RESPONSE TO AUDIT OF SEWER CLEANING CONTRACTS #971933, 971934 AND 971935

The contracts and processes audited date back to 2015, prior to CEO Michael Thurmond taking office. The County agrees that there was room for improvement and since January 2017, actions have been taken ensure more effective contract award and administration procedures. The County has improved the bidding process and CEO Thurmond established sewer cleaning as a top priority in the County's Consent Decree Strategy. Since January 2017 the County has removed 1,685 tons of debris out of the sewer system. As a result we have seen a significant decrease in the number of blockage related spills. The Director of Watershed Operations along with key members of his staff met with OIIA staff upon the initiation of this audit in the Spring of 2017. Immediate changes were made to mitigate the OIIA's concerns. Those changes included the development of a new bid form and template that documents historical usage and current needs. Those documents were immediately put into use with the 2018 solicitations for sewer cleaning contracts. The County has improved interdepartmental operations by conducting regular meetings with Watershed Management, Purchasing and Contracting and the Law Department to ensure all departments are connected and moving in tandem.

It is important to note that although the ITB was developed under past DWM leadership, it is our current understanding that; estimated quantities were provided by DWM based upon historical knowledge of service use. Although a formal independent cost estimate was not provided: (a) DWM performed a price and cost analysis of submitted bids in anticipation of assigning work pursuant to assigned geographical areas (b) The Department reviewed the total price for all responsive and responsible bidders and (c) each line item cost was evaluated. The Department's resulting award recommendation was based upon this three part analysis and submitted in favor of the lowest, responsive and responsible bidders. Upon contract award, all awarded vendors were assigned to provide services within assigned geographical locations and pursuant to their submitted prices.

As indicated above, the contract awards were made in anticipation of assigned geographical areas and services to be provided therein and not based upon individual line items as would be more typical in a commodities award. Awarding based on geographical area is most practical because it allows for more accountability and to avoid finger pointing regarding damages; quality control

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and effective contract management. It also minimizes the cost of mobilization and demobilization.

	Finding and subcomponents	Management Response and Remediation Status
F1	Contract Award Procedures	Comprehensively, the Chief Procurement Officer and Watershed Management addressed and responded to the audit recommendations as follows:
F1.1	Unbalanced Price Bid	<p>Purchasing and Contracting took steps including :</p> <ul style="list-style-type: none"> <li>• Per the auditors recommendation, the evaluation checklist form was revised to include comparison review of the cost estimates and competitor’s unit prices to detect unbalanced bids;</li> <li>• <i>The recommended process for rejecting any bid price that is materially unbalanced including not exercising options to renew contracts based on unbalanced bids is already in place. A thorough evaluation for responsiveness and responsibility is conducted on all solicitations. Any bids deemed non-responsive or non-responsible are rejected and not further considered. The vendor is notified and provided with the specific causes for non-responsive or non-responsible details.</i></li> </ul>
F1.2	Inaccurate Quantity Estimates	<p>Watershed Management has taken the following steps including:</p> <ul style="list-style-type: none"> <li>• Developing a method to improve and obtain more accurate quantity estimates for each bid line item and management reviewing data from previous years to examine the workload history, scope, and inspection schedule results. This information allowed management to generate a more precise annual projection regarding linear footage and the amount of manholes to be cleaned prior to solicitation</li> </ul> <p>Conjunctively, Purchasing and Contracting took steps including:</p> <ul style="list-style-type: none"> <li>• The recommended process for user departments conducting reviews for accuracy of quantity estimates to identify significant deviations between independent cost estimates and competitors’ prices is already in place.</li> <li>• Additionally, the pre-solicitation checklist agenda form includes estimated quantities and the user departments are provided with the “draft” solicitation for use to add, change and edit sections (SOW, requirements, estimated quantities, etc.) to ensure it meets their procurement needs. The user departments must sign-off on the pre-solicitation checklist agenda form and final approval of the solicitation prior to advertisement.</li> </ul>
F1.3	Lack of Independent Cost Estimate	Watershed Management took steps including:

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		<ul style="list-style-type: none"> <li>• In order to address the audit team’s expressed concerns regarding the ability to obtain competitive cost estimates for each line item listed on the bid schedule:               <ol style="list-style-type: none"> <li>i. Management studied bids received from 8 contractors and subsequently reviewed the data from the bid results.</li> <li>ii. Management effectively used the averages of the data to obtain a representation of the industry standard pricing for a project of this magnitude.</li> </ol> </li> </ul> <p>Purchasing and Contracting took steps to include:</p> <ul style="list-style-type: none"> <li>• Revising the pre-solicitation checklist agenda form to include receipt of cost estimates upon submission of procurement requests from user departments.</li> </ul>
F1.4	Bid Tabulation Error	<p>Purchasing and Contracting has taken the following steps:</p> <ul style="list-style-type: none"> <li>• Ensuring submitted bids are calculated correctly as Procurement Managers are required to review assigned staff evaluation and recommendation findings to ensure that the results are accurate. Purchasing staff has been instructed and trained to thoroughly evaluate and document to ensure clear and accurate assessments have been conducted.</li> </ul>
F2	Contract Administration Procedures	<p>Watershed Management has taken the following steps:</p> <ul style="list-style-type: none"> <li>• Including language in the contract/ technical specifications to ensure contractors are fully aware of all cleaning requirements and the penalty related to unsatisfactory cleaning.</li> <li>• Having CCTV inspections performed. The purpose of the CCTV inspections is to determine whether or not sewer lines are being properly cleaned. In the event of an unsatisfactory cleaning discover during the CCTV inspection, the contractor will not be paid until the sewer lines are re-cleaned.</li> </ul>
F2.1	Questionable Invoiced Output Quantities not Identified and Reviewed	<p>Watershed Management took steps including:</p> <ul style="list-style-type: none"> <li>• Establishing the goal of having one invoice format for all contractors since this contract is drafted to be awarded to three contractors. As a result, management established a mandate that all contractors must submit invoices/pay applications in the form of AIA Document G702.</li> </ul>
F2.2	Format and Details of Some Invoices Inconsistent with Bid Schedule	

As previously indicated, Office of Internal Audit findings concerning a need for improvement in contract award and administration procedures were recognized and immediately addressed. DeKalb County Watershed Management and Purchasing and Contracting continue to welcome the opportunity to work with the Office of Independent Internal Audit as we continue to make improvements for the best interest of DeKalb County citizens.

ZLW/rw/zg

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cc: CEO Michael L. Thurmond  
La'Keitha D. Carlos, Chief of Staff  
Ted Rhinehart, Deputy COO  
Reginald Wells, Interim Director, Watershed Management  
Talisa Clark, Director, Purchasing & Contracting

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**Appendix III- Definitions and Abbreviations**

Key Definitions

**Right of Way:** The legal right, established by usage or grant, to pass along a specific route.

**Invitation to Bid:** A method of formal solicitation requesting prospective third-party suppliers to submit formal sealed price bids in which the award is made to the lowest responsible and responsive bidder based on the criteria set forth in the Invitation to Bid.

**Option Year:** A period which follows the initial contract performance period which the procurement official has the option to extend or renew.

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**Appendix IV - Comparison Estimated Quantities to Actual Outputs**

Line Item	Annual Quantity Estimates Per ITB Number 3003449 (A)	Previous Contracts ITB Number 3002366		Current Contracts ITB Number 3003449		Percentage Difference Between Estimated and Annualized Actual Quantities	
		Total Actual Quantity over 30 month period (B)	Annualized Actual Quantity (Column B Divided by 30 months multiply by 12 months) (C)	Total Actual Quantity over a 36 month period (D)	Annualized Actual Quantity (Column D divided by 36 months multiply by 12 months) (E)	Previous Contract (C – A) / A X %	Current Contract (E – A) / A X %
<b>Sewer Cleaning</b>							
6-12 inch pipe inside ROW	1M LF	2,297,567	919,027	6,171,473	2,057,158	-8%	106%
6-12 inch pipe outside ROW	500 K LF	1,314,904	525,962	3,127,978	1,042,659	5%	109%
15-24 inch pipe inside ROW	400K LF	22,756	9,102	38,548	12,849	-98%	-97%
15-24 inch pipe outside ROW	100K LF	87,764	35,106	92,101	30,700	-65%	-69%

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**Manhole Cleaning**

Line Item	Annual Quantity Estimates Per ITB Number 3003449 (A)	Previous Contracts ITB Number 3002366		Current Contracts ITB Number 3003449		Percentage Difference Between Estimated and Annualized Actual Quantities	
		Total Actual Quantity (B)	Annualized Actual Quantity (Column D Divided by 30 months times 12 months) (C)	Total Actual Quantity (D)	Annualized Actual Quantity (Column D divided by 36 months times 12 months) (E)	Previous Contract Previous Contract Columns (C – A) / A X %	Current Contract Current Contract Columns (E – A) / A X %
Manholes6-10 feet deep	10,000	10,105	4,042	12,059	4,020	-60%	-60%
Manholes11-15 feet deep	3,000	1,423	569	2,990	997	-81%	-67%
Manholes16-20 feet deep	1,000	382	153	764	255	-85%	-74%
Manholes21-25 feet deep	500	51	20	85	28	-96%	-94%
Manholes greater than 25 feet deep	50	12	5	23	8	-90%	-84%

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**Appendix V- Comparison Estimated Quantities to Inventory Data**

Line Item	Quantity Estimates Per ITB Number 3003449 (A)	Percentage of Total Pipe  (Quantity Column A Line Amounts Divided by Column A Total of 2M LF)	Actual Inventory Quantities Per GIS Data (B)	Percentage of Line Item of Total  (Line Item Quantity Column B Divided by Column B Total of 12.2M LF)
<b>6-12 inch pipe inside ROW</b>	1M LF	50%	6.9M LF	56.5%
<b>6-12 inch pipe outside ROW</b>	500K LF	25%	4.5 M LF	36.9%
<b>15-24 inch pipe inside ROW</b>	400K LF	20%	58K LF	0.5%
<b>15-24 inch pipe outside ROW</b>	100K LF	5%	745K LF	6.1%
<b>Totals</b>	2M LF	100%	12.2M LF	100%

LF = linear feet

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**Appendix VI- Quantity Estimates of new ITB issued August 2018 compared to the current ITB Quantity Estimates and Actual Invoiced Quantities**

Bid Schedule on <u>NEW</u> ITB Number 18-100988 Issued August 27 2018				Bid Quantity Schedule on Current ITB Number 3003449 estimated and actual invoiced quantities over 36 month period	
ITEM NO.	SERVICES	UNIT	ESTIMATED NUMBER OF UNITS	Annual Quantity Estimates on Current ITB Number 3003449	Annualized Actual Quantity Current Contract (see Appendix IV, Column E)
<b>SANITARY SEWER CLEANING</b>					
1	6 Inch thru 12 Inch SEWER inside the ROW	LF	2,000,000	1,000,000	2,057,158
2	6 Inch thru 12 Inch SEWER outside the ROW	LF	1,000,000	500,000	1,042,659
3	15 Inch thru 24 Inch SEWER inside the ROW	LF	15,000	400,000	12,849
4	15 Inch thru 24 Inch SEWER outside the ROW	LF	30,000	100,000	30,700
<b>MANHOLE CLEANING</b>					
5	6-15 FEET DEEP	EA	6,000	13,000	5,017 <sup>4</sup>
6	>16 FEET DEEP	EA	400	1,550	291 <sup>5</sup>

<sup>4</sup> (Total of 4,020 manholes 6-10 feet deep and 997 manholes 11-15 feet deep on Column D from chart on Appendix IV)

<sup>5</sup> (Total of 255 manholes 16-20 feet deep, 28 manholes 21-25 feet deep, and 8 manholes greater than 25 feet deep on Column D from chart on Appendix IV)

## **DISTRIBUTION**

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### **Action Official Distribution:**

Reginald D. Wells, Director of the Watershed Management Department

Talisa Clark, Chief Procurement Officer, Purchasing and Contracting Department

### **Statutory Distribution:**

Michael L. Thurmond, Chief Executive Officer

Nancy Jester, Board of Commissioners District 1

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William (Ted) Rhinehart, Deputy Chief Operating Officer for Infrastructure

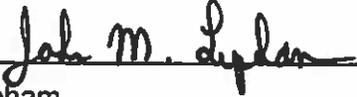
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AUDIT OF THE SEWER CLEANING CONTRACTS 971933, 971934, AND 971935  
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**PROJECT TEAM**

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This report submitted by:

  
\_\_\_\_\_  
John Lipham  
Senior Internal Auditor  
Office of Independent Internal Audit

1/23/2019  
Date

This report reviewed by:

  
\_\_\_\_\_  
Lavois Campbell, CIA, CFE, CPA-CGA  
Performance Audit Manager  
Office of Independent Internal Audit

1/23/2019  
Date

The report approved by:

  
\_\_\_\_\_  
John Greene, CIA, CIG, CGAP, CGFM  
Chief Audit Executive  
Office of Independent Internal Audit

1/23/19  
Date

## **STATEMENT OF ACCORDANCE**

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### **Statement of Accordance**

*The mission of DeKalb County is to make the priorities of the citizens of DeKalb County; the priorities of County government - by achieving a safer DeKalb, building stronger neighborhoods, creating a fiscally accountable and more efficient county government and uniting the citizens of DeKalb County.*

*The mission of the Office of Independent Internal Audit is to provide independent, objective, insightful, nonpartisan assessment of the stewardship or performance of policies, programs and operations in promoting efficiency, effectiveness and integrity in DeKalb County.*

*This performance audit was prepared pursuant to DeKalb County, Georgia - Code of Ordinances / Organizational Act Sec. 10A. - Independent Internal Audit, Georgia Statutes. We conducted this performance audit in accordance with generally accepted government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives.*

*This report is intended for the use of the agency to which it was disseminated and may contain information that is exempt from disclosure under applicable law. Do not release without prior coordination with the Office of Independent Internal Audit.*

*Please address inquiries regarding this report to the Office of Independent Internal Audit at 404-371-2765.*