



November 2024

DeKalb County Government
Sanitation
Division Public Works
Department

AUDIT OF COUNTY RECYCLING PR CESSES FINAL REPORT



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Lavois Campbell
Chief Audit Executive

SANITATIONS DEPARTMENT AUDIT OF COUNTY RECYCLING PROCESSES AUDIT REPORT NO. IA-2023-181-PW

FINAL DRAFT

HIGHLIGHT SUMMARY

Why We Performed the Audit

In accordance with the Office of Independent Internal Audit (OIIA) annual audit plan, we conducted a performance audit of DeKalb County's Sanitation – Recycling Process. The objective of this audit was to determine if internal controls over the county's recycling program are adequately designed and operating as intended, as well as to identify opportunities to increase awareness and participation by county residents.

How We Performed the Audit

Our audit focused on Sanitation and recycling management, processes, and procedures from January 1, 2021, to July 31, 2024.

Our methodology included, but was not limited to:

- Interviewed relevant Vendor and County personnel.
- Site observations of Sanitation and Vendor facilities.
- Reviewed current processes and procedures.
- Researched related best practices.
- Tested a sample of processes for compliance with current procedures and/or best practices.
- Reviewed supporting documentation.
- Conducted a County-wide residential recycling survey

Background

The DeKalb County Sanitation Division (Sanitation) administers the County's recycling program in partnership with a third-party vendor (Pratt Industries). The County has a formal contractual agreement with the vendor outlining the roles, responsibilities, guidelines, and expectations for recycling. The County is responsible for collecting recyclable materials from residential and commercial entities and delivering them to the vendor for sorting and processing. The vendor charges the County per ton of material delivered for processing and provides applicable discounts based on the contract terms.

In 2023, the vendor invoiced the County for 8,104 tons of material it received from the County, an increase of 33% over the prior year.

What We Found

Our audit noted that the County has procedures in place for managing its recycling program. However, our audit also identified opportunities for improvements in current practices that could pose financial risks to the County if not addressed.

Audit Findings

1. Terms of Recycling Vendor Contract That Provide Potential Revenue and Cost Savings Were Not Utilized.
2. The Vendor Contract was Not Finalized in a Timely Manner, Resulting in Extra Financial Costs to the County.
3. Improvement Needed in Controls for Effective Review and Verification of Vendor Invoices.
4. Vendor's Materials Composition Audit Revealed a **38%** Contamination Rate in Recycling Material Collected by County from Residential and Commercial Customers.
5. Responses from Sanitation Staff and Residential Customers Indicate a Need to Enhance Commingling Prevention and Detection Controls.
6. Opportunities Exist to Further Strengthen County Residents' Awareness of Recycling Requirements and Best Practices.

What we Recommend

We recommend management:

- Conduct an economic feasibility study to determine the net cost/benefit of delivering already separated commercial cardboard to the vendor.
- Collaborate with Purchasing and Contracting to ensure timely formation of future contracts.
- Implement oversight of the quarterly composition audits performed by the Vendor.
- Implement additional controls to prevent and detect comingling of recycling by both residents and sanitation crew workers.
- Further strengthen education, awareness, and incentives for residents to enhance resident engagement and compliance with the county's recycling program requirements.



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BACKGROUND AND INTRODUCTION

Recycling is the process of converting waste materials into new, usable products, thereby reducing the need for raw materials and minimizing the amount of waste sent to landfills or incinerators. The main benefits of recycling include the:

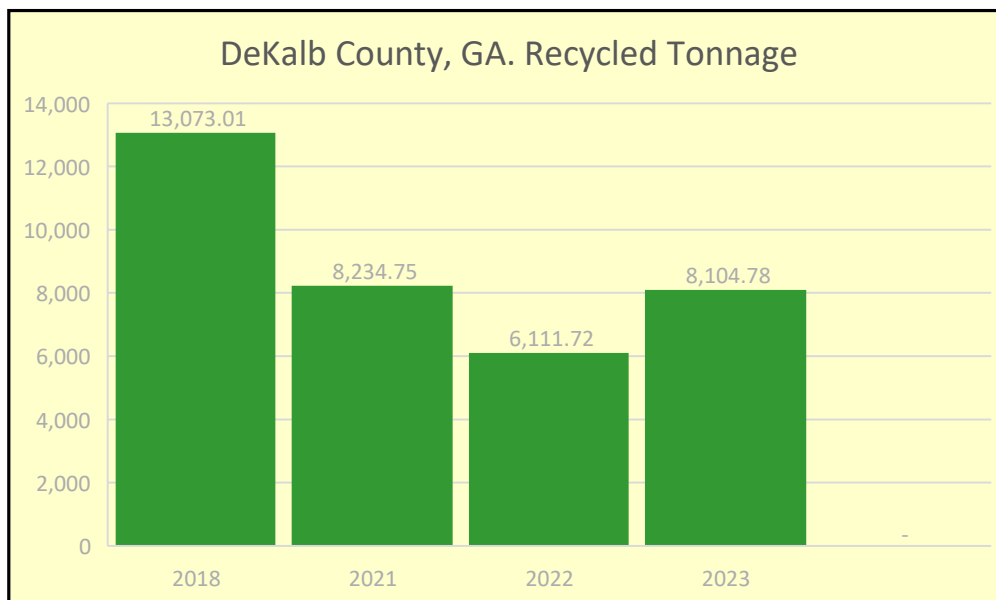
- Promotion of environmental conservation.
- Preservation of natural resources and energy.
- Reduction of waste that is sent to landfills.
- Creation of jobs, tax revenues, and cost savings.

Key steps in a typical recycling process include:

- 1) **Collection:** Waste materials are collected from homes, businesses, and other sources.
- 2) **Sorting and Separation:** Once collected, the waste materials are sorted by type, such as mixed paper, cardboard, plastic, and metal.
- 3) **Cleaning and Processing:** The sorted materials are cleaned to remove contaminants, such as food residues or labels. After cleaning, they are processed into forms that can be used in manufacturing.

The DeKalb County Sanitation Division (Sanitation) of the Public Works Department administers the County's recycling program in partnership with a vendor (Pratt Industries). The County is responsible for collecting recyclable materials from residential and contracted commercial entities and transferring them to the vendor's material recovery facility (MRF), where they are sorted, cleaned, and processed for recycling. The vendor then charges the County monthly, with applicable discounts based on the contract's pricing terms. In 2023, the vendor invoiced the County for 8,105 tons of material it received from the County, an increase of 33% over the prior year.

Figure 1: Tons of material Delivered to the Vendor for Recycling



Source: County/Vendor invoices weight records



The County offers single-stream recycling where all recyclable materials—such as mixed paper, cardboard, plastics, and metal cans—are collected together in roll carts rather than being sorted by consumers. Glass is recycled separately and must be brought to designated drop-off locations. The County also offers recycling services to commercial businesses for a fee. County residents and commercial entities interested in recycling can register via Sanitation’s website and email, USPS mail, or in person at Sanitation’s office or event locations. Residential customers receive a free 35-gallon roll cart and can also pay a one-time \$25 fee for the 65-gallon recycle roll cart. Commercial clients make monthly payments for all services plus a \$150 container delivery fee.

Exhibit 1: Residential Roll carts



Commercial Recycling Dumpster and Roll cart



Exhibit 2: DeKalb County Sanitation Truck



Source: Youtube.com



Figure 2: provides an overview of the recycling process, from signing up for recycling services to paying the vendor's invoice.

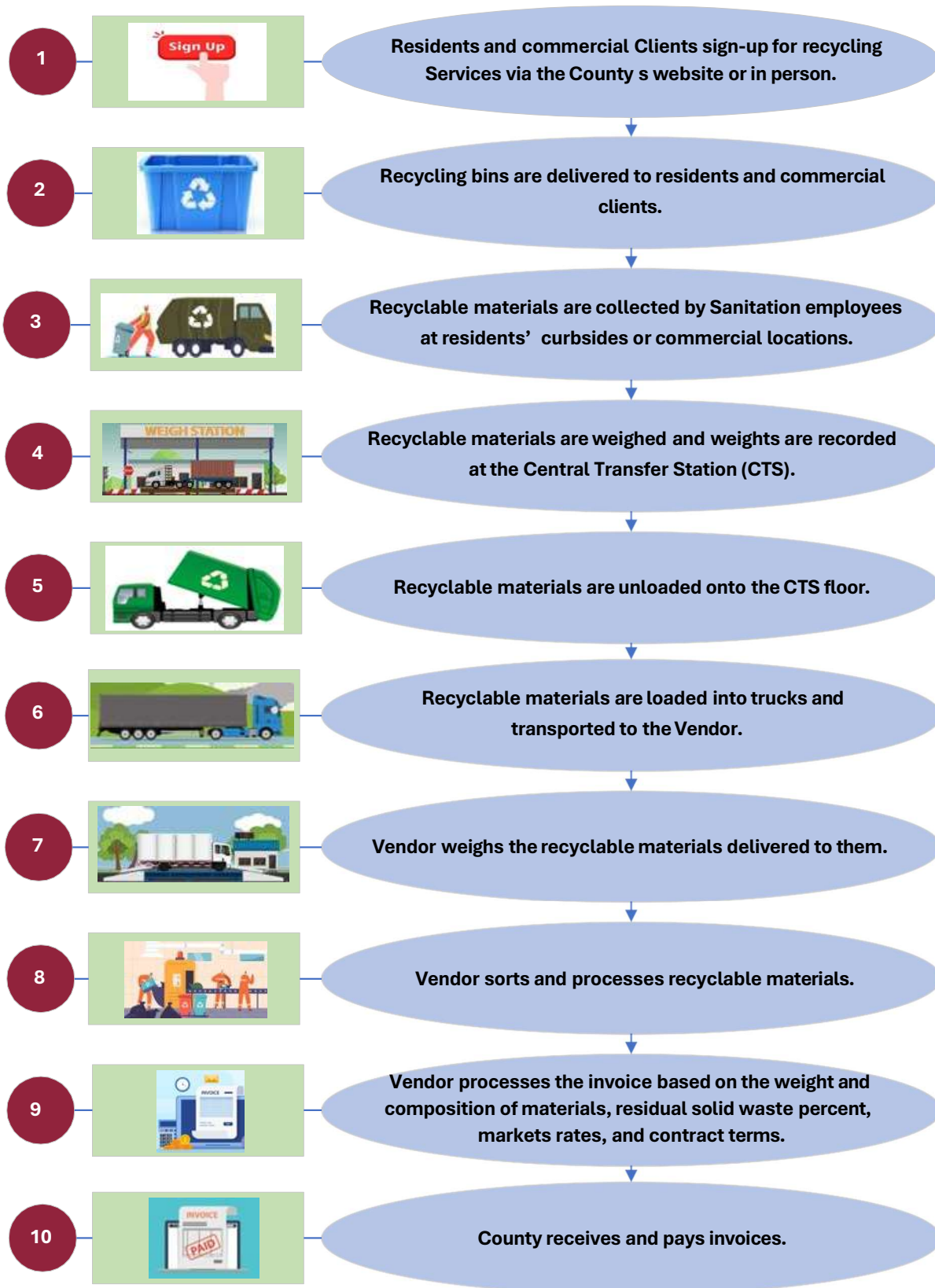




Exhibit 3:



Exhibit 3: The Exterior of the DeKalb County Central Transfer Station (CTS) located in Decatur, Georgia.

Source: [DeKalb County Central Transfer Station](#)

Exhibit 4:



Exhibit 4: The interior of the DeKalb County Central Transfer Station where recyclable materials are dropped-off, loaded onto trailer trucks, and transported to the Vendor.

Source: Photo taken by the OIIA at the CTS.

Recyclable material that is delivered to the CTS is weighed and then inspected for contamination. If heavily contaminated, it is added to the solid waste pile; if not, it is added to the recycling pile. Currently, all commercial cardboard collected from businesses is also added to the residential recycling pile (see **Finding 1** below). Recyclable material is then loaded onto the trailers and delivered to the vendor for sorting and processing. The County is invoiced by the vendor at the rate per ton based on the terms specified in the contract.



The contract provides revenue share discounts to the County for recycling material. The revenue share is based on the monthly High Yellow Sheet Rate (i.e., the market rate for the recycling material) and the percentage of contaminated material delivered to the vendor). Vendor records indicate that from January 2023 through July 2024, the County delivered 18,930 tons of recyclable material to the vendor for sorting and recycling and paid \$981,642 (inclusive of a \$399,429 reduction resulting from the revenue share discount).

Exhibit 5:



Exhibit 5: The conveyor belt used to sort recyclable materials at the Vendor's location.

Source: Photo taken by the OIIA at the Vendor's location.

Exhibit 6:

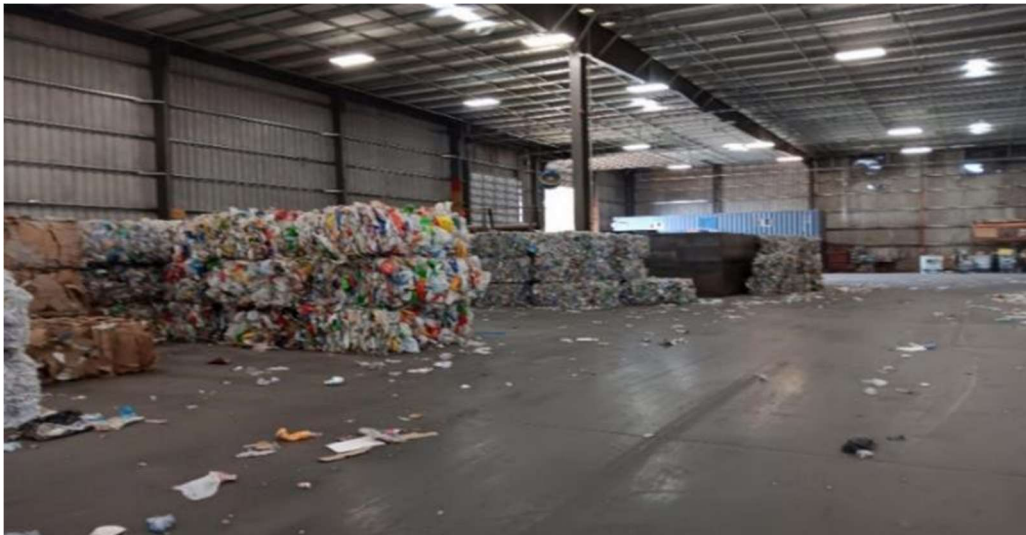


Exhibit 6: Bails of sorted recyclable materials awaiting further processing at the Vendor's location.

Source: Photo taken by the OIIA at the Vendor's location.

AUDIT OBJECTIVES, SCOPE, AND METHODOLOGY

Given the environmental and financial benefits and impact associated with recycling materials, this audit focused on assessing the adequacy of internal controls to maximize cost savings and reduce contamination of the recycling stream, as well as opportunities to



increase recycling by County residents. Our audit scope focused on activities from January 1, 2021, through July 31, 2024.

Our methodology included, but was not limited to:

- Interviewing relevant Vendor and County personnel.
- Conducting site observations of County Sanitation and Vendor Processing facilities.
- Reviewing current processes and procedures.
- Researching related best practices.
- Testing a sample of processes for compliance with current procedures and/or best practices.
- Reviewing supporting documentation.
- Conducting a County-Wide residential recycling survey.

OIIA Conducted a County-Wide Residential Recycling Survey that was sent to **over 11,457 randomly selected DeKalb County Residents** across all County Zip Codes. We received 493 responses. Therefore, **we are 97% confident that the results from our sample accurately reflect the views of the entire population** of approximately 763,000, within a small margin of error.

Figure 3: Survey request card that was delivered to a sample of County



Source: Designed by OIIA



The key controls that were evaluated included but were not limited to:

Figure 4: Recycling Process Key Internal Controls.



AUDIT RESULTS

Our audit noted that there are several stakeholders involved in the recycling process including: Sanitation employees, residential and commercial customers, and the recycling vendor. In addition, we determined that both sanitation crew workers and residential recycling customers contributed to the contamination of recyclable materials with other types of prohibited materials (e.g. solid waste).

We noted that the County has some processes in place for its recycling program, including:

- A county website with information on registering for the recycling program and identifying prohibited and allowed items for recycling.
- Various recycling awareness events such as school district career days, household



hazard waste events, paper shredding events, and Homeowner Association Partnerships.

- Trucks are equipped with GPS to determine whether drivers assigned to collect recycling material unloaded the collected material at only the central transfer station (CTS) as required.
- All employees must review and sign the standard operating procedures (SOP) for commingling recyclables and yard waste, including penalties for violations.

However, we also noted opportunities for improvement. This report details the audit findings and recommended actions to further improve Sanitation's internal controls and resident awareness and engagement to help ensure reduced contamination of the recycling stream and reduced costs.

FINDING 1: Terms of Recycling Vendor Contract That Provide Potential Revenue and Cost Savings Were Not Utilized.

The county has not utilized contract terms that provide potential revenue for the sale of commercial cardboard. The current and previous vendor contracts with the recycling vendor included clauses that provide revenue to the County for each ton of cardboard delivered separately to the vendor. According to these contracts, the County would receive the monthly market price (High Yellow Sheet (HYS) price) plus an additional \$10 per ton, and after July 2023, the HYS price minus \$20 per ton of cardboard delivered separately to the vendor.

Our audit revealed that the sanitation crew **already collects commercial cardboard separately and weighs it separately when it is delivered to the County's Central Transfer Station (CTS). However, sanitation crew workers mix the cardboard with other single-stream residential recycling material at the CTS before delivering it to the vendor.** The vendor confirmed that cardboard has never been delivered separately, making it ineligible for the revenue allowances provided by the contract.

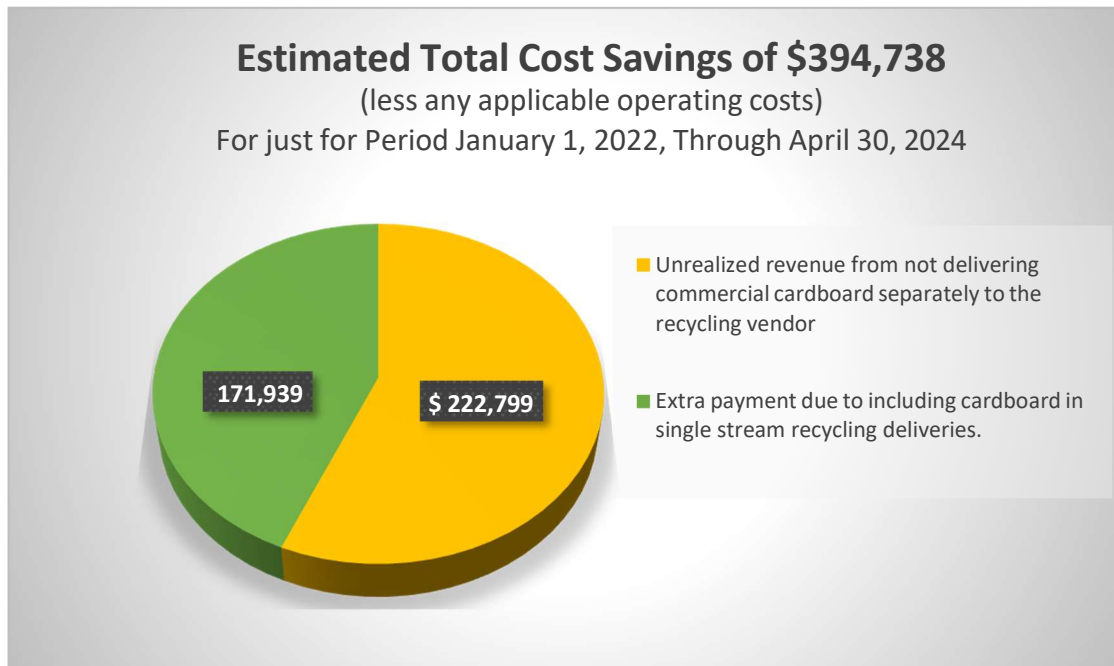
Discussions with Sanitation management indicated that they believe that storing and delivering cardboard separately to the vendor is not cost-effective because of the potential costs associated with doing so. We noted that a formal documented cost-benefit analysis has not been conducted to support management's assertions. It should also be noted that the Sanitation division included the contract clause that provided the financial benefit of delivering commercial cardboard separately to the vendor.

To illustrate the potential unrealized financial benefit, we reviewed Sanitation's incoming scale weight records for the period January 1, 2022, through April 30, 2024, which indicated that 2,646 tons of commercial corrugated cardboard were collected and delivered to the CTS in a separated state (i.e. not mixed with other solid waste or other



recyclables.) The following chart gives a summary of the estimated **(a) gross revenue** (*before deducting potential associated costs*) and **(b)** cost savings that were not realized by the county during this period.

Figure 5: Estimated combined financial impact of not taking advantage of contractual revenue for cardboard.



Source: Sanitation scale data and vendor data.

a) Potential revenue (less associated costs) of \$222,799 not realized from not delivering cardboard to the vendor separately.

Based on the contract terms and applicable vendor discounts, we estimate that the County could have received approximately \$222,799 in revenue (*less associated costs*) for the recorded 2,646 tons of separated cardboard delivered to the CTS during the period. This issue is ongoing, and the County will continue to forfeit potential revenues (*less associated costs*) until the cardboard is delivered separately to the vendor.

b) \$171,939 extra vendor recycling processing charges incurred due to the additional weight of commercial cardboard that the county comingled with residential recycling material before delivery to the vendor.

By mixing the commercial cardboard with the residential recycling, Sanitation increased the tonnage of the deliveries to the vendor for processing. So, instead of receiving revenue, the County is currently paying a recycling processing fee for the extra weight of the cardboard mixed in by the County. For example, we noted that the county paid the vendor approximately \$171,939 extra, after any standard discounts, due to the mixing of 2,646 tons of commercial cardboard, collected separately but then mixed with single-stream recycling materials collected just for January 1, 2022, through April 30, 2024. The following chart- figure 6- gives further details:



Figure 6: Estimated cost of including commercial cardboard with recycling material

Overpayments Due to Mixing Commercial Cardboard with Single-Stream Recycling Material			
Period	Weight of Cardboard (Tons)	Price per Ton	Amount Overpaid
January 1, 2022, to December 31, 2022	713.70	\$60.00	\$42,822.00
January 1, 2023, to July 31, 2023	1421.71	\$60.00	\$85,302.60
August 1, 2023, to October 31, 2023	276.35	\$130.00	\$35,925.50
November 1, 2023, to April 30, 2024	233.85	\$33.73	\$7,888.54
Total			\$171,938.64

Source: Auditor analysis of Sanitation scale data and vendor data.

Recommendations:

We recommend that Sanitation management do the following:

1. Conduct a formal cost-benefit study to determine the net cost/benefit of delivering already separated commercial cardboard to the vendor. As part of the study, management and/or an external consultant should determine the net financial benefit, considering:
 - Potential revenues from the sale of already separated cardboard and the reduced charges resulting from a reduction in the weight of single-stream recyclable material delivered to the vendor.
 - Associated operational costs that Sanitation would incur by delivering the already separated cardboard to the vendor from CTS.
2. Implement procedures requiring Sanitation trucks carrying commercial cardboard to deliver their load directly to the vendor for processing *where* routes are geographically efficient and close to the vendor recycling plant.

Sanitation Management Response:

Management Agreement	Description of Management's Action Plan to Address Finding	Estimated Timeline to implement Action Plan
<input checked="" type="checkbox"/> Agree <input type="checkbox"/> Disagree	The Sanitation Division will review the current recycling contract to identify any previous unrealized revenue from not delivering commercial cardboard separately. Further, the Division will conduct an internal review aimed at identifying the net cost/benefit of a direct cardboard hauling arrangement with Pratt. The review will include the cost for purchasing trucks, hiring drivers, creating a new collection route, creating a sort-separation process for businesses, and purchasing/providing cardboard Containers for businesses.	The results of the internal study will be provided in 90 days.
Reason For Disagreement: N/A		



FINDING 2: The Vendor Contract was Not Finalized in a Timely Manner, Resulting in Extra Financial Costs to the County.

The County operated without a recycling contract with the vendor from August 1, 2023, through October 31, 2023. The County's Purchasing and Contracting Department indicated that this was due to the contract's expiration on July 31, 2023, and the time to select a vendor and finalize revised contract terms.

Due to the lack of a contract during that period, the vendor charged the County an increased fee per ton for all recyclable materials delivered to them. As a result, the County paid at least **\$168,761** more than it would have paid if the contract had been negotiated in a timely manner, as shown below:

Figure 7: Additional costs incurred for late renewal of contract

Amount Overpaid by the County Due to Lack of Timely Contract Formation (August 2023 to October 2023)						
Invoice Date (M/Y)	Invoiced Tonnage	Cost Per Ton Paid by the County	Amount Paid by the County (A)	Cost per Ton the County would have paid with a contract	The amount that the County Could have paid with a contract in place (B)	Amount Overpaid by the County (A-B)
Aug-23	557.66	\$130.00	\$72,495.80	\$65.00	\$36,247.90	\$36,247.90
Sep-23	754.51	\$130.00	\$98,086.30	\$65.00	\$49,043.15	\$49,043.15
Oct-23	1,284.15	\$130.00	\$166,939.50	\$65.00	\$83,469.75	\$83,469.75
		Total	\$337,521.60	Total	\$168,760.80	\$168,760.80

Recommendations:

We recommend that Sanitation management collaborate with the Purchasing and Contracting Department to administer the next recycling contract sufficiently in advance of its expiration date to ensure that the next contract is finalized before the prior contract expires.

Sanitation Management Response:

Management Agreement	Description of Management's Action Plan to Address Finding	Estimated Timeline to implement Action Plan
<input checked="" type="checkbox"/> Agree <input type="checkbox"/> Disagree	<p>Recycling contract # 2000131 with Pratt Recycling is current. A contract extension was approved on October 8, 2024, until Immediate October 31, 2025.</p> <p>The Sanitation Division will collaborate with the Purchasing and Contracting Department to ensure that future recycling contract bidding processes are timely and efficient, and new contracts are finalized and executed prior to the old contract expiring.</p>	Immediate
Reason For Disagreement: N/A		



FINDING 3: Improvement Needed in Controls for Effective Review and Verification of Vendor Invoices.

The vendor's invoice billing is calculated based on the vendor-recorded monthly weight of materials received, multiplied by the contracted processing fee per ton, with applicable discounts deducted. Accurate county-recorded weights facilitate the verification of the accuracy of vendor weights and invoice billing. Sanitation management stated that it is their standard process to automatically record the net weight of all incoming truckloads in the county scale system. The type of material on the incoming trucks is manually noted in the system (e.g., recyclables, solid waste, yard trimmings, and commercial cardboard). Management stated that it also records the weight of all *outgoing* recycling material transferred from the County Central Transfer Station (CTS) to the vendor's recycling plant for processing. Management also stated that it performs a weekly reconciliation of its weight against the vendor's recorded weights.

However, the auditor obtained the recorded incoming and outgoing net weights *directly* from the Sanitation scale house system operator at the CTS. Our audit determined the following internal control deficiencies that would prevent management from accurately verifying vendor tons billed:

a) Inconsistent and Inaccurate Weight Recording by Sanitation:

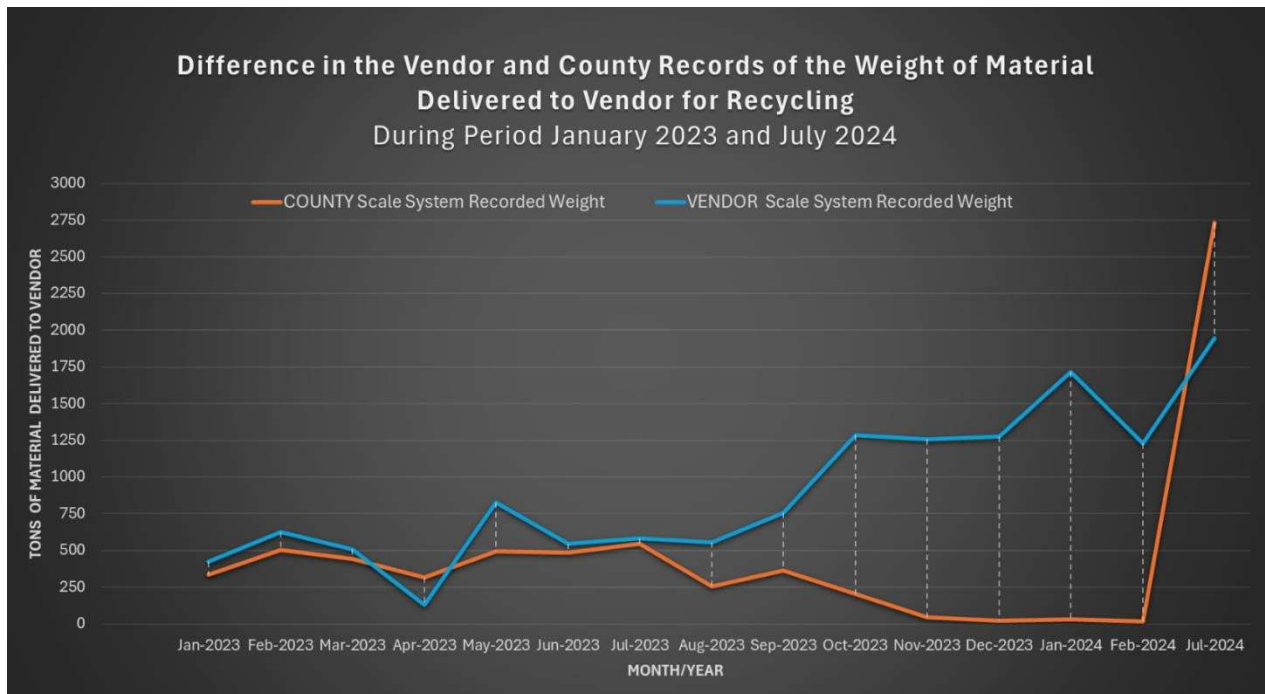
- Incoming truck load **weights are not consistently categorized by type**. We noted 8,518 tons of materials from May 2018 to February 2024 were categorized under the code “-1” or “None,” leaving the material type unknown.
- Outgoing truck weights are manually recorded on daily load sheets, as the outgoing weight scale is not directly connected to the recording system. The weights are called into the scale operator, who manually records them. However, the scale operator also informed us that **weights are not consistently called in and recorded into the scale system**.

b) Differences were found between the monthly outgoing truck weights recorded in the County's scale system and those recorded by the vendor's scale system.

- For the period under review, we requested but **did not receive documented evidence to verify that the outgoing recyclable material weights were reconciled weekly against the vendor's recorded weights to identify discrepancies**.
- We compared the outgoing truck weights from the County's scale house system-generated reports to the weights recorded on vendor invoices. Our results (Figure 8) revealed discrepancies between the vendor-recorded weights and those recorded by the County's scale system from January 2023 to July 2024.



Figure 8: Difference in the Vendor and County Records of the Weight of Material Delivered to the Vendor for Recycling.



Source: County recorded weights and vendor scale data from January 2023 to July 2024.

During the audit, we also requested the County’s scale weight records from April to June 2024 but did not receive those records from Sanitation.

Incomplete and inaccurate recorded weights would prevent the County from effectively reconciling and verifying the accuracy of vendor weights and help prevent overbilling.

Recommendations:

We recommend that Sanitation management:

- Ensure all outgoing truck weights per County’s scales are consistently entered into the County’s scale system. Management should implement procedures to connect the outgoing scales to the County’s scale system so that the net weights are automatically recorded in the scale system when the trucks are weighed.
- Document monthly reconciliations of vendor weights to Sanitation’s outgoing weights. Investigate all significant variances and document investigation steps and resolutions.
- Implement procedures to help ensure scale house operators specify the type of contents being weighed. The type “none “or “-1” option should not be used.



Sanitation Management Response:

Management Agreement	Description of Management's Action Plan to Address Finding	Estimated Timeline to implement Action Plan
<input checked="" type="checkbox"/> Agree <input type="checkbox"/> Disagree	<p>Standard operating procedures are in place to ensure proper internal controls that facilitate accurate documentation and reconciliation of weights and invoice billing. Procedures include:</p> <ul style="list-style-type: none"> All incoming trucks to the transfer station identify the load type, i.e., recycling, garbage, etc. Every truck weight and type of material is documented, maintained, and tracked on a spreadsheet. Weight tickets from Pratt Recycling are submitted by every driver to the scale house operator. Weight tickets are reconciled at the end of each month against the monthly report and invoice from Pratt. Should there be variances in weight statistics, an investigation will be conducted and the issue resolved. 	Immediate
Reason For Disagreement: N/A		

FINDING 4: Vendor's Materials Composition Audit Revealed a 38% Contamination Rate in Recycling Material Collected by County from Residential and Commercial Customers.

Since November 2023, the vendor has conducted “market value and waste composition audits” every three months. These audits assess the recycling materials received by the vendor to determine how much is recyclable *versus* non-recyclable (residual solid waste). The vendor audit results impact the revenue share discount on the processing fee the vendor charges the County for the subsequent three months. From November 2023 to June 2024, the vendor reported an average contamination rate of 31%. **The contamination rate recorded for July to September 2024 is 38%, with the next vendor composition audit scheduled for October 2024. See Figure 9 on the following page, which illustrates the contamination rates.**

A higher contamination rate results in a lower vendor discount and a higher processing fee for the county. In addition, the vendor charges the county to process **all** materials received, including the non-recyclable residual waste. The contract allows for **residual waste** (non-recyclable) **material to be return by the vendor to the County landfill for a fee paid** to the County. However, there has been **no cost recovery for the County**, as the vendor is not obligated to use and has not used the county’s landfill to dispose of residual non-recyclable waste.

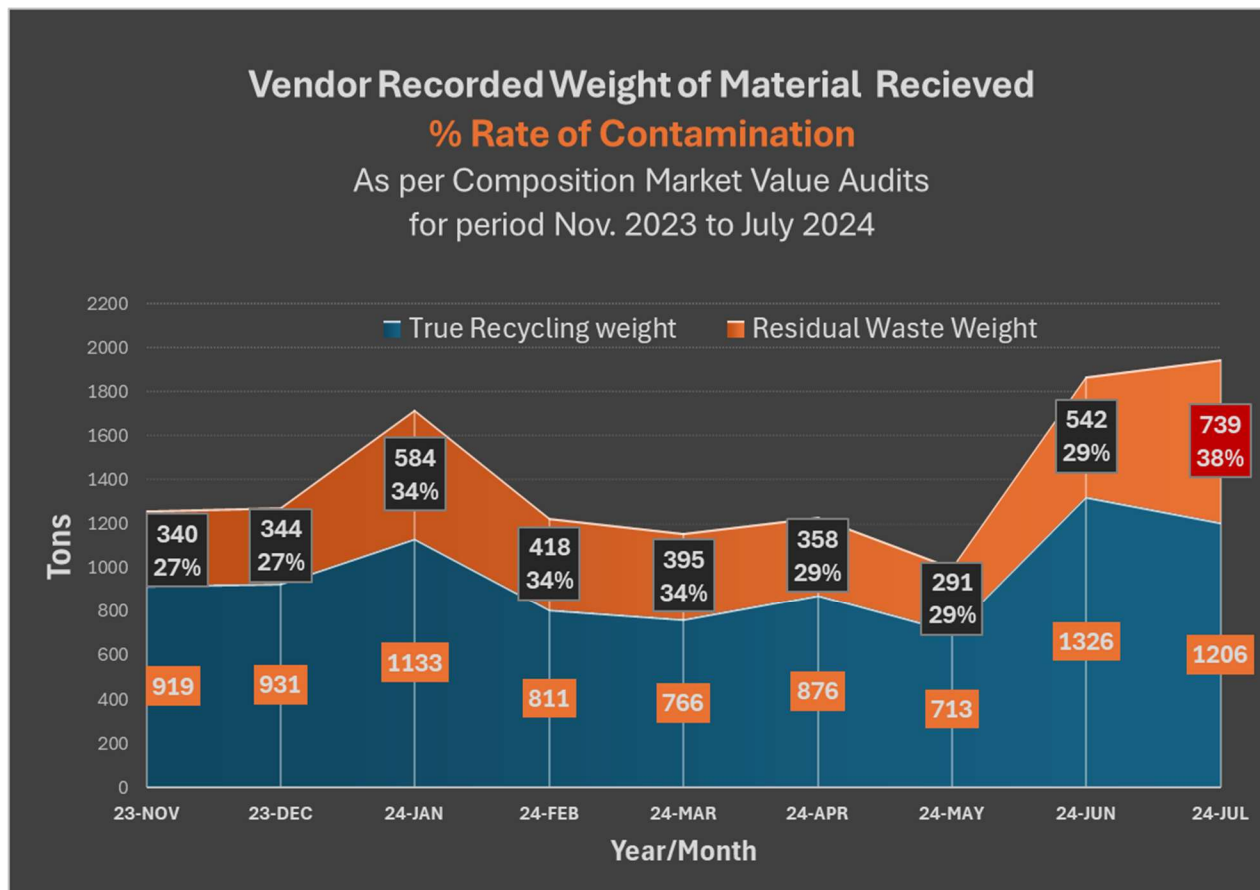
In addition, we noted that the vendor material composition **audits are performed solely by vendor personnel with no independent oversight** or verification of results.

While a “zero” contamination rate is impractical, **the benchmark percentage for contamination in single-stream residential recycling typically ranges from about 15% to 25%.** However, it can vary depending on the region and specific programs. For instance,



Sarasota, Florida, has reported a contamination rate of approximately 16.6% in its single-stream recycling program.¹ Waste Management, the largest recycling company in North America, reported seeing a 16% contamination rate across its processing facilities.²

Figure 9: Vendor Recorded Weight of Material Received and % Rate of Contamination



Findings # 5 and 6 of this report indicate that various factors can contribute to the county's **38%** contamination rate, including but not limited to.

- Contamination by County residents who may be unaware of proper recycling guidelines and requirements, despite the current education efforts of the County. (See finding # 6)
- Potential contamination by residential customers and Sanitation workers at curbside collection. (See finding # 5)

Recommendations:

We recommend that Sanitation management:

- Address the recommendations noted in Findings 5, 6.
- Ensure at least one County employee or an independent third-party person is present to observe and verify the quarterly composition audits conducted by the vendor.

¹ <https://www.recyclingtoday.com/news/sarasota-florida-studies-single-stream-recycling-composition/>

² <https://resource-recycling.com/recycling/2021/10/19/wm-details-shifts-in-recycling-stream-and-end-markets/>



Sanitation Management Response:

Management Agreement	Description of Management's Action Plan to Address Finding	Estimated Timeline to implement Action Plan
<input checked="" type="checkbox"/> Agree <input type="checkbox"/> Disagree	Effective January 2025, the Sanitation Division is committed to participating in monthly audits at the Pratt facility. The Division's representative will be instrumental in observing the quarterly recycling composition audits per the contract's requirement.	Immediate
Reason For Disagreement: N/A		

FINDING 5: Responses from Sanitation Staff and Residential Customers Indicate a Need to Enhance Commingling Prevention and Detection Controls.

We interviewed a sample of Sanitation crew members, who noted that they were aware of collectors and/or drivers who commingled recyclable material with other materials (e.g., solid waste and yard trimmings).

We surveyed a sample of County residents to obtain feedback on the County's recycling program during May-June 2024. Survey respondents corroborated the statements by crew members. The survey results indicated that:

118 (24%) of 493 residential customers **witnessed commingling of recycling material by Sanitation crew workers.** In comparison, 375 (76%) respondents indicated they did not personally witness County Sanitation personnel co-mingling recycling and regular waste/yard trimmings into the same truck. The 118 respondents who witnessed commingling prior to the date of the survey responded as follows:

- 29 (25%) indicated they witnessed commingling more than twelve (12) months prior.
- 58 (49%) indicated they witnessed commingling within the last six (6) to twelve (12) months prior.
- 27 (23%) indicated they witnessed commingling within the last two (2) months prior.

In addition, we noted that backup cameras were installed on some sanitation trucks, which is good for crew safety, allowing drivers to view the truck's backend while reversing. The trucks do not have additional cameras to monitor crew activity while loading roll carts into the truck, which is an industry best practice. These monitoring cameras can help detect and deter comingling by crew members; some can even use smart sensors to automatically detect contamination of load, provide video evidence to address incidents and customer complaints, and ensure crew members follow comingling guidelines.

Recommendations:

We recommend that Sanitation management **implement additional controls to detect and deter comingling. The following are some examples for management to consider if they are deemed cost-effective for the county:**



- Installing additional cameras on recycling trucks can help monitor the behavior of sanitation crews and ensure that recyclables and non-recyclables are properly sorted at the curb. Some systems provide real-time footage, allowing supervisors to spot potential co-mingling issues as they happen.
- Equipping trucks with sensors or smart systems that detect the weight or type of material in bins. This technology can signal whether a bin contains contaminants, helping crews or supervisors identify noncompliance.
- Empowering residents to report suspected co-mingling incidents through public apps, hotlines, or online incident reporting form on the County website. This adds a layer of oversight and encourages both residents and crews to comply with recycling guidelines.

Sanitation Management Response:

Management Agreement	Description of Management's Action Plan to Address Finding	Estimated Timeline to implement Action Plan
<input checked="" type="checkbox"/> Agree <input checked="" type="checkbox"/> Disagree	<p>The Sanitation Division is committed to ensuring all stakeholders are fully vested in the recycling program, and DeKalb maintains its ranking as one of the most “green” counties in the southeast region. Further, the Division remains committed to investing time and effort (based on resource availability) toward ensuring our shared goal of a sustainable DeKalb.</p> <p>The following will assist with ensuring a sustained focus on recycling education:</p> <ul style="list-style-type: none"> • Enhance the Division’s website, social media platform, and other online recycling education resources. • Elevate the Division’s recycling outreach education as resources allow. • Encourage residents to report instances of commingling observed within their communities. 	Immediate
<p>Reason For Disagreement: While technological advances, such as cameras, sensors, smart systems, etc., can be instrumental in detecting and deterring commingling, the cost involved in the implementation of such resources will be significant and cannot be supported by the Division’s budget at this time.</p>		

FINDING 6: Opportunities Exist to Further Strengthen County Residents' Awareness of Recycling Requirements and Best Practices.

We noted that Sanitation utilized various mediums to engage and educate residents about recycling guidelines, including but limited to the following:

- The Sanitation webpage that provides information on the program, registration, and guidelines on acceptable/unacceptable materials.
- Recycling roll carts have a list of acceptable items affixed to the roll carts
- Sanitation participates in various school career days, household hazard waste events, paper shredding events, and Homeowner Association Partnerships to educate the County’s residents on its recycling program.

We surveyed residents from across the County to obtain feedback on the recycling program



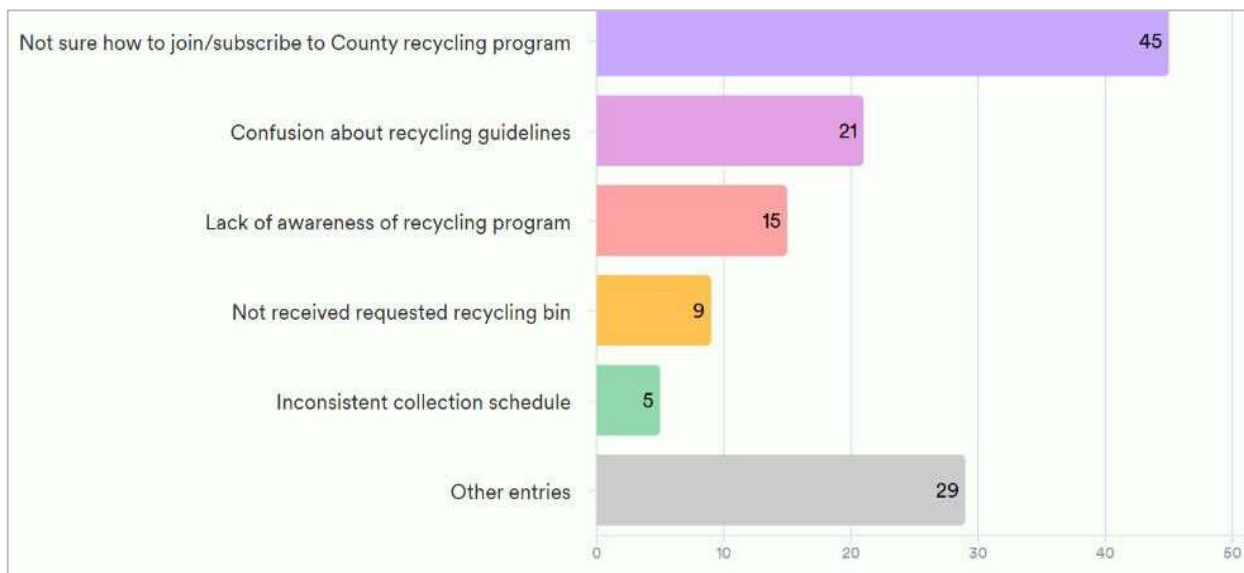
and assess the effectiveness of the County’s activities in educating and encouraging residential recycling. Survey results indicated that 421 of 493 (85%) respondents participated in the County’s Residential Recycling Program, and **15% of Dekalb County residents did not participate in recycling.**

The survey results also indicated opportunities for improvement, with recommendations from the residents on how to improve their engagement in the recycling program. The following sections give more details about the challenges and opportunities:

a) Some Residents Experienced Challenges/Barriers to Participating in the County’s Recycling Program.

The 72 (15%) of survey respondents who indicated that they did not participate in the recycling program indicated that their top challenges to recycling included the following:

Figure 10: Indicates responses from resident to the question “Top challenges or obstacles that prevent you from recycling? (Selected all that apply).”



Source: OIIA 2024 Residential Survey Results

“Other entries” in figure 10 included:

- “The online application must be completed, downloaded, and emailed as an attachment back to Sanitation. There is no option to submit the completed form directly from the website.”
- “Not sure why I should recycle” or “too time-consuming.”

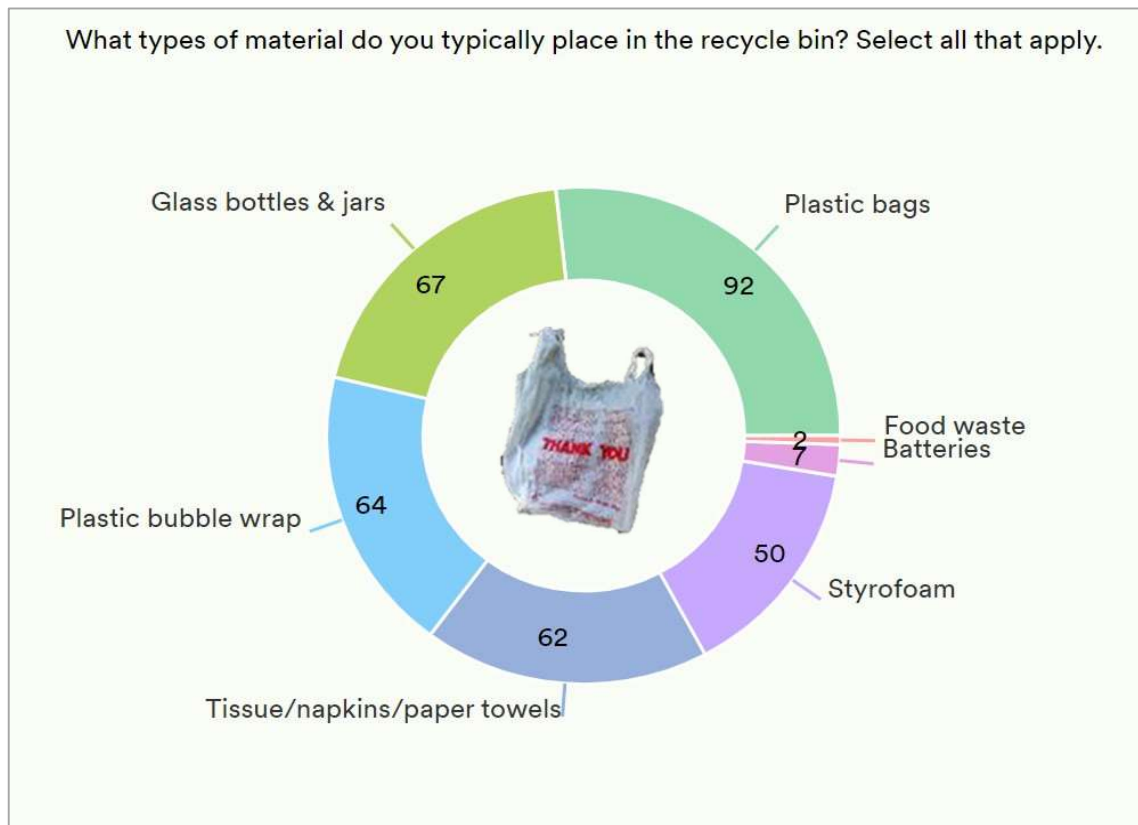
In a separate survey question, 109 of 493 (22%) survey respondents indicated that recycling instructions or guidelines were **NOT** easily located and understood.



b) Survey Responses Also Indicated Commingling/Contamination of the Recycling Load by County Residents

A total of **344** of 421 (82%) of residents who responded reported that they **included plastic bags** and other **unacceptable items³ in County recycling roll carts**, as shown in **Figure 11 below**.

Figure 11: Indicates responses to the question, “What types of materials do you typically place in the recycle roll cart?”



Source: OIIA 2024 Residential Survey Results

³ <https://www.dekalbCountyga.gov/Sanitation/why-how-recycle>



c) The Top Six (6) Responses Received When Asked About How to Improve the Participation and Quality of Recycling by County Residents.

Figure 12: Residents recommended the following to improve recycling in the County.



Source: OIIA 2024 Residential Survey Results

When residents face challenges with recycling or include unacceptable materials with recyclable material, it can lead to contamination of recyclable waste streams, increased waste management costs, and reduced recycling program efficiency. This hampers environmental sustainability efforts and undermines community initiatives aimed at reducing landfill waste and conserving resources. Continued education and accessible recycling resources are essential to address these issues and improve overall recycling outcomes.

To further enhance education and awareness around recycling, procedures should be implemented to strengthen residents' awareness and compliance. The **County should consider the residents' recommendations in Figure 12** of the report. Also, consider implementing the following additional activities:

- **Conduct Targeted Outreach to High-Contamination Areas:** Use data (including OIIA survey results) to identify areas with high resident contamination rates and focus targeted educational efforts in these communities. This could include door-to-door information distribution, special workshops, or direct mail campaigns with tips and guidelines.
- **Revise the recycling registration process on the website** to allow the registration forms to be submitted directly from the website without having to be downloaded and emailed separately.



- **Establish a regular frequency for disseminating** information (monthly or quarterly) through various delivery mediums and conduct periodic surveys (e.g., sending flyers through US mail, texts, or emails with a QR code or link to the feedback form on the County website).

Other ideas for management to *consider only if feasible*:

- **Establish incentive programs**, such as rebates or reductions in solid waste collection taxes **or fines for residents with repeated noncompliance**.
- **Establish a chatbot service** where residents can quickly get answers to their recycling-related questions, find recycling glass drop-off locations, and receive information on County recycling efforts, such as tons recycled for the year to date.
- **Recycling competitions** —Introduce community-wide recycling challenges in which neighborhoods compete to reduce contamination or increase recycling rates. Offer incentives such as recognition, awards, or discounts on Sanitation services for top-performing communities.

Sanitation Management Response:

Management Agreement	Description of Management's Action Plan to Address Finding	Estimated Timeline to implement Action Plan
<input checked="" type="checkbox"/> Agree <input type="checkbox"/> Disagree	<p>Recycling program awareness and engagement remains one of the Division's top priorities. Various opportunities exist for the Division to further strengthen the residential recycling program's best practices.</p> <p>With the addition of two public outreach employees within the Beautification Unit, who will work in partnership with the Sanitation Division Communications team, the Division will engage in targeted recycling-related outreach in high-contamination areas. Further, the Division will leverage resources, such as the DeKalb County Board of Commissioners' constituent services teams, DeKalb County Television, city government communications, and homeowners' associations, among others, to ensure recycling education within DeKalb communities is ongoing, purposeful, productive, and rewarding.</p> <p>Additional recycling public outreach initiatives will be implemented as funding and staffing resources allow.</p>	Ongoing
Reason For Disagreement: N/A		



APPENDICES

Appendix I – Objective, Scope, and Methodology

Purpose: Our audit focused on the County’s Sanitation and recycling processes and procedures.

Objective:

The objective of this audit was to determine if internal controls over the County’s recycling process were adequately designed and operating as intended.

Scope

Our audit focused on recycling processes and procedures from January 1, 2021, to July 31, 2024.

Methodology

Our methodology included, but was not limited to, the following:

- Interviewing relevant Vendor and County personnel.
- Conducting site observations of County Sanitation and Vendor Processing facilities.
- Reviewing current processes and procedures.
- Researching related best practices.
- Testing a sample of processes for compliance with current procedures and/or best practices.
- Reviewing supporting documentation.
- Conducting a County-Wide residential recycling survey.



Appendix II – Management Response



November 22, 2024

Lavois Campbell
Chief Audit Executive
Office of Independent Internal Audit
1300 Commerce Drive, Suite 300
Decatur, Georgia 30030

RE: Management Response to “Audit of County Recycling Processes No. IA-2023-181-PW”

Dear Mr. Campbell:

In accordance with DeKalb County, Georgia – Code of Ordinances / Organizational Act Section 10A-Independent Internal Audit, this is our response to the audit named above provided in this document. As required by the ordinance, our response includes 1) a statement regarding our agreement or disagreement along with reasons for any disagreement, 2) our plans for implementing solutions to issues identified, and 3) the timetable to complete such plans.

If you have any questions about this response, please contact me.

Sincerely,



Appendix III – Abbreviations and definitions

Recycling – the action or process of converting waste into reusable material.

Single Stream recycling - a collection system that mixes all recyclable paper fibers and containers together in a roll cart at the curb and in the collection truck.

Vendor- the third-party organization that the County delivers recyclable material for sorting and processing.

Solid Waste - the garbage, refuse, and similar solid waste discarded from residential, commercial, institutional and industrial sources.

Yard Trimmings- the eaves, brush, grass clippings, shrub and tree pruning, discarded Christmas trees, nursery and greenhouse vegetative residuals, and vegetative matter resulting from landscaping development and maintenance other than mining, agricultural and silvicultural operations.

Residual Solid Waste- the non-recyclable material that is found within the recyclable materials delivered to the Vendor after sorting.

Revenue share discount- the amount that is subtracted from the price per ton to determine the amount that will be charged per ton on the invoices. The discount is based on a formula that includes the HYS prices for the type of recyclables that were delivered (e.g., mixed paper, aluminum, steel, etc.) and the residual solid waste percentage.

High Yellow Sheet - the market price for recycled material or products.

Spotter- the supervisor assigned to observe and inspect the delivery of recyclable materials at the CTS.

Central Transfer Station (CTS) - the location used to deliver all recyclable materials collected by County drivers.

Revenue share discount – a contractual agreement provision which allows for possible reductions in the balance owed to the Vendor by the County.

Contamination: Recyclable materials become contaminated with food waste, chemicals, organic matter, and yard waste, making them unsuitable for recycling and reducing their quality.

CCTV - Closed-circuit television (CCTV), also known as video surveillance.
Composite Market Value



Acceptable and Unacceptable Items for Recycling



Sanitation Division Administrative Office



35-gallon roll cart



65-gallon roll cart

Recycling Container Options



CNG Station - Seminole Road Landfill



Sanitation Division CNG Fleet



Glass Recycling Program

Customized Commercial Recycling Programs

DeKalb County School District
DeKalb Senior Center Recycling Program
Institutions of Higher Education Recycling Program
And more



DeKalb County
GEORGIA
Public Works Department • Sanitation Division



DeKalb
single-stream recycling
A Sanitation Division Initiative

RESIDENTIAL SINGLE-STREAM RECYCLING PROGRAM

- Do not place hazardous materials in roll cart
- Place all items (except shredded paper) loosely in roll cart
- Place shredded paper in clear plastic bags prior to placing in roll cart
- Remove all liquids from cans and bottles prior to placing in roll cart

ACCEPTABLE ITEMS

- Cardboard
- Shrink wrap
- Packing paper (no wax)
- Paper containers and cups
- Milk, juice and soup cartons
- Steel and aluminum bottles/cans
- Plastic bottles, cups and containers (1-5; 7)
- Mixed paper (newspaper/insert, phone book, junk mail, magazine, printer & copy paper, loose-leaf paper, notebook, etc.)

UNACCEPTABLE ITEMS

- Batteries
- Paint cans
- Light bulbs
- Electronics
- Food waste
- Plastic bags
- Bubble wrap
- Medical waste
- Electrical wires
- Plastic strapping
- Toner/ink cartridges
- Polystyrene (plastic #6)
- Construction debris or waste
- Tissue/napkins/paper towels
- Glass of any kind (please visit www.dekalbsanitation.com for information on how to recycle glass)



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12/2/24

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Lavois Campbell, CIA, CFE, CISA, CGA -CPA
Chief Audit Executive
Office of Independent Internal Audit

Date



STATEMENT OF ACCORDANCE

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 Ordinances/Organizational Act Section 10A- Independent Internal Audit. 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 404-831-7946.