



# Columbus Consolidated Government

*Georgia's First Consolidated Government*

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## **AUDIT OF SANITATION OPERATION AND FUNDING**

**APRIL 12, 2016**

### **AUDIT AUTHORIZATION**

An audit of the Sanitation Operation and Equipment was requested by Councilor Glenn Davis and authorized by City Council on February 23, 2016.

### **BACKGROUND/HISTORY**

The Director of Public Works, Ms. Pat Biegler, presented on December 8, 2015 and again January 26, 2016 the need for replacement sanitation equipment to the Columbus City Council. Noting the substantial amount of funding that would be required to fulfill the request, City Council requested that Internal Audit inspect the equipment to determine the status of existing equipment and the need for any replacement equipment. As such, the funding of any replacement equipment must also be addressed.

### **AUDIT SCOPE**

The scope of the audit included a review of existing sanitation equipment including that for collection, recycling, and disposal operations and associated costs. Any replacement equipment would require funding, via purchase or lease. Funding includes the portion required for each operation and the equipment to sustain such operation. Elements reviewed include collection operations for garbage, recycling, inert (yard) waste, grab all items and white goods. Disposal operations include landfill operations, recycling operations and the closure and post-closure costs for each landfill. The closure and post-closure costs associated with landfills is addressed separately from landfill operations as those costs do not occur until the end of the life of a landfill,

however, such costs are substantial when they do occur, and should best collected and reserved over the life of a landfill.

## **AUDIT PROCESS**

The Internal Auditor developed the preliminary audit program to include items suggested by and outside consulting advisor familiar with heavy equipment operation and maintenance. The initial focus was on waste collection vehicles to included garbage, recycle and grab all trucks. It became apparent that other equipment was also essential to the sanitation process including recycling and landfill operations. Landfill operations begins with the creation of a landfill area, the site preparation, operation and ultimately the closure and post-closure activities. Each of these activities and the equipment used in performing them have costs, and the costs are accumulated and spread over the number of customer households to determine the required fee to support and sustain the enterprise. Enterprises are intended to be self-supporting, with fee revenues used to offset the total costs of the operation. As such, an enterprise mirrors that of a business that sells goods or services to customers for a fee. We reviewed the cost of equipment, operating costs including fuel, wages and benefits, inmate labor, routine maintenance, repair costs, and worker's compensation claims related to specific equipment or working conditions. We reviewed operating trends of tonnage and cubic yards collected, recycled and disposed. We reviewed revenues from household fees, recycled materials sold, and landfill tipping fees.

## **AUDIT FINDINGS & RECOMEDATIONS**

### **A. AGED FLEET**

#### **FINDINGS**

The sanitation collection vehicles consist of 52 garbage trucks, 17 recycle trucks, and 14 grab-all trucks. The auditor reviewed and analyzed the repair and maintenance records for the collection fleet and determined the useful life of a vehicle is 7 years, with the exception that a truck exclusively used for recycle collection had an extended life of up to 10 years. Of our current fleet 46 of garbage trucks, 3 recycle trucks, and 6 grab-all trucks exceed the useful life. Prior to 2008, the City was purchased about 5 garbage trucks and one recycle truck per year. Since that time, the City has averaged 1 garbage truck per year, and no recycle trucks until the new recycling center opened, and 8 trucks were purchased that year. Grab-all trucks are purchased infrequently, without a defined purchase pattern. Purchases were curtailed due to The Great Recession and the reduced revenue trends of that period. Since then, garbage trucks have only been purchased on an emergency basis as trucks failed, and recycle trucks were only purchased concurrent with the opening of the new recycle center and the switch to single-stream recycling.

As such, the cost of major repairs has increased dramatically. In recent years, management had no option but the attempt repairing trucks that far exceeded their useful life. Several trucks

incurred annual repairs of \$60,000 to \$100,000 on trucks far exceeding their useful lives, worth only a few thousand dollars as a scrap value (see exhibit 1). Major repair costs on an annual basis have increased from approximately \$600,000 to a projected \$2,000,000 for FY2016. This amounts to throwing good money after bad, when new trucks could have been purchased for \$236,000 or leased for approximately \$36,000 each, per year. As such, annual repairs would likely have approximated previous levels when a consistent amount of trucks were replaced each year. Beyond seven years of age, garbage truck repair dollars increase steadily and beyond ten years the curve steepens considerably. Likewise, the cost per mile (see exhibit 2) and downtime days (see exhibit 3) increases even more dramatically. Owning garbage trucks beyond their useful life creates a significant cost liability for the City.

## **RECOMMEDATIONS**

Removing collection vehicles that are beyond their useful life and vehicles with high repair cost history from the fleet and obtaining new vehicles is recommended. The City currently has 53 daily garbage and recycling routes with a required 5 back-up vehicles. Currently the fleet has 15 serviceable vehicles and will need to secure an additional 43 trucks to meet the route requirements. Also, the City currently has 10 daily bulk pickup routes with a required 1 back-up vehicle. Currently the fleet has 7 serviceable vehicles and will need to secure an additional 4 trucks to meet the route requirements.

Ideally, an operating lease is desirable, whereby the vehicle is turned in at the end of lease and a new one leased to replace it. Using a lease plan, cost are reasonably consistent from one year to the next and fees are easier and more accurately calculated. This also allows management better control over the equipment required for accomplishing its mission and enables the City to schedule cash outflows for the function on a consistent basis. With modern, reliable equipment, the quantity of certain types could be reduced, eliminating equipment cost and expensive repair and maintenance.

## **B. ENGINE AND TRANSMISSION**

### **FINDINGS**

A review of repair cost and downtime by engine was also revealing (see exhibit 4 and 5). The Cummins engines were less costly and more reliable than those of Isuzu, Paccar and Caterpillar. Caterpillar was the most costly and its diagnostic software is proprietary and quite expensive, unless you have a large number of pieces of their equipment. Similarly, the Allison transmission has proved to be the least costly and most reliable, and is currently used in majority of the waste collection vehicles.

## **RECOMMENDATIONS**

The Cummins engine is the recommended brand for future purchases. Additionally, the Allison transmission is recommended for future purchases.

### **C. WASTE AND RECYCLE TRUCK BODIES**

#### **FINDINGS**

Truck Bodies of several manufacturers are currently in use, with varying degrees of success and failure. Currently, Dempster, Leach, and NewWay bodies are in use. Dempster bodies held up reasonably well, but they are no longer manufactured. The Leach bodies are in the worst condition and have failed in numerous areas, with several noted design flaws affecting longevity, difficulty to repair and high cost to repair. The NewWay bodies are the newest truck bodies with in the fleet, and have held up well thus far.

#### **RECOMMENDATIONS**

Another body (Heil) is available, superior in design, easier to access for repair, and less moving parts on the compactor. These bodies are also available on state contract at a very competitive price when compared to the others. The Heil 25 CY body is recommended for future purchases. It is also recommended that a single truck body type be obtained to service both recycling and waste pick-up to allow for fleet flexibility.

### **D. TRUCK CABS**

#### **FINDINGS**

The cabs of the trucks currently in use, are high floor with limited seating. These cabs have several issues that need to be remedied. First, with the driver and two inmates in the cab traveling to and from the route, the driver and one inmate have traditional seats while one inmate must sit on a sideways facing seat mounted on the console between the other two seats. Additionally, a truck within the fleet has experience a console fire that could have resulted in seriously injured to the inmate had the truck not been in a place to stop and be evacuated. Also, this positions the inmates within arm's length of the wiring harness, which is covered by a soft vinyl cover secured by Velcro attachments on the passenger side of the console. This gives inmates opportunity to hide contraband in that compartment. In one case, an inmate was able to disconnect the wiring connections and reconnect them in a fashion that the turn signals and other signals were reversed, which could have caused an accident. Another deficiency of the truck seating configuration is that there is no place for a trainee driver to ride with an experienced driver on route. These ride-alongs are invaluable experience and training for new drivers and allows them the opportunity to observe the driving techniques and operation by an experienced driver. Another problem is the majority of workers compensation claims are due to drivers climbing in and out of the high floor cabs. The

majority of workers compensation claims related to collection trucks is for injuries resulting from slips and falls during entering and exiting the vehicle.

## **RECOMMENDATIONS**

A better solution exists that remedies these problems, a 4-seat, low floor cab. Crane Carrier LET2 solves all of the aforementioned issues in that a driver, trainee driver, and two inmates can all be transported in the cab, with each having a seat belt, four abreast, so the driver can monitor inmate activity and transport a driver trainee . It places the inmates away from the wiring harness to limit access to storage and wiring, and the low floor should virtually eliminate most of the workers compensation claims. The Crane Carrier cab, Heil body, with the Cummins Engine and Allison transmission, using the statewide contract prices out at \$236,000 and should significantly reduce repair cost and provide safe, reliable equipment. We expect the lease price of such a vehicle would be about \$36,000 per year, per truck.

## **E. LANDFILL EQUIPMENT**

### **FINDINGS**

Landfill equipment was inspected and assessed based on its condition and the actual machine hours on each piece in relation to its expected machine hour life. Several items were sidelined with failures that are too extensive and costly to repair when compared to its remaining useful life. For example, of five bulldozers assigned to the landfills, only two are operational. This enables only one to be in use at each of the two landfills. This causes the City to be out of compliance with the requirement of a backup bulldozer to be available at each active landfill, in case of machine failure. Several other items are also beyond the machine hour life. Each of these equipment items are essential to the continuing operation of the landfill and are quite expensive.

### **RECOMMENDATIONS**

Leases again could be the financing vehicle to enable the City to keep serviceable equipment on site and have backups available from the leasing vendor in case of failure. As such, a bulldozer could be delivered to the site the same day in the event of a breakdown which would satisfy the compliance issue.

## **F. LANDFILL UTILIZATION**

### **FINDINGS**

The expansion of the Recycling Program in recent years provides ecological and financial advantages to the community. Recycled items reduce the consumption of natural resources and encourage effects maintain a cleaner, more sustainable environment for current and future

generations to enjoy. Financially, items recycled are sold and such generates revenue to offset a portion of sanitation costs. A more important financial incentive for recycling is the lengthening of the life of the landfill. Since the City expanded its recycling effort with a larger facility, single-stream collection, purchase of larger bins, and increased promotion and public awareness, the remaining life of the sanitary landfill is growing. This enables the deferral expensive landfill closing costs and enables the City to use a local, in-house facility, at a lower cost for a longer timeframe. While we currently have 30+ years at the Pine Grove Landfill, there may be no other suitable sites within the county for a future landfill. This could force the City to send its garbage to a commercial site that is further away and at a much higher cost, or to purchase land in a neighboring county for the placement of a landfill.

The Granite Bluff Landfill is the current facility of inert (yard) waste. The facility, currently at about 37.5% of capacity, was recently determine to have state waters flowing over it, thereby restricting use of about 30% on its capacity. As such, it moves it to approximately 54% consumed, leaving a useful life that could be five years or less.

## **RECOMMENDATIONS**

Continued encouragement for more recycling can push the landfill closure date further out in time. Management has established the goal to increase the remaining life of the Pine Grove Landfill from 24 to 48 years. Since the recycling program was expanded, the remaining life has already increased to 34 years.

Additional recycling bins are needed to increase the current rate of recycling from 9.3% to ultimate goal of 40%.

Closure of a landfill upon reaching is full utilization is required. This includes burying, covering and seeding with grass. This cost is estimated at \$16.59 million. Thus far, \$7.4 million has been accrued as an expense for the portion of capacity utilized, of which very a nominal amount is funded. Likewise, Post-Closure costs are estimated at \$4.77 million, of which a nominal amount is funded. Ideally, these accrued expenses should be funded so that payment can be made as the activity is performed. Schatulga Landfill has \$2.40 million of additional post-closure costs outstanding. Granite Bluff has an estimated closure cost of \$2.00 million, which is also largely unfunded.

## **G. INTEGRATED WASTE MANAGEMENT FEES**

### **FINDINGS**

As a government enterprise fund, Integrated Waste Management Fees are supposed to cover all costs of operating the various functions of the Integrated Waste System, including waste collection, transportation of the waste to the appropriate landfill or recycling facility, recycling operations, landfill construction or expansion, landfill operations, landfill closure and post-closure and the acquisition of land for future landfill needs. In the past five years, the recorded deficit for the fund

exceeds \$7 million. Fees since 2001, have only increased \$1, or which it was increased by \$0.14 in 2014 and an additional \$0.86 in 2015.

### RECOMMENDATIONS

The current fee structure will not support the expect cost for the service level provided. For FY2017, we expect expenditures to be \$19.70 per month, per household. Any fee below that level would be inadequate and would exacerbate the current deficit. It is expected that these costs will increase in future years. As such, fees should be recalculated annually as part of the budget process and enacted accordingly.

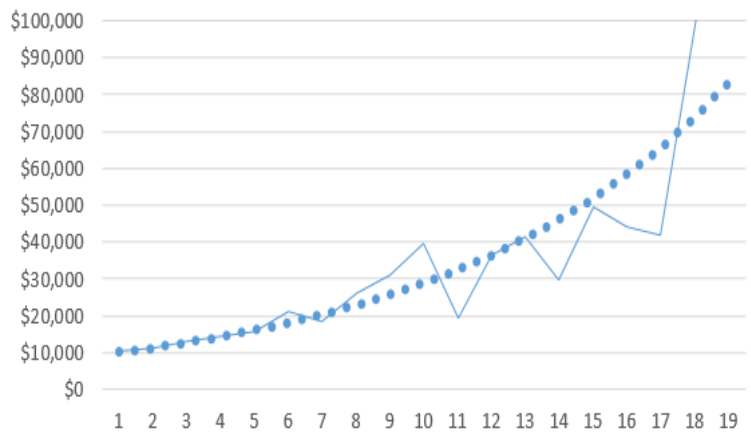
### AUDITEE RESPONSE

Auditee concurs with these findings and recommendations except for minor disagreements regarding the number of back-up vehicles.

### EXHIBIT 1

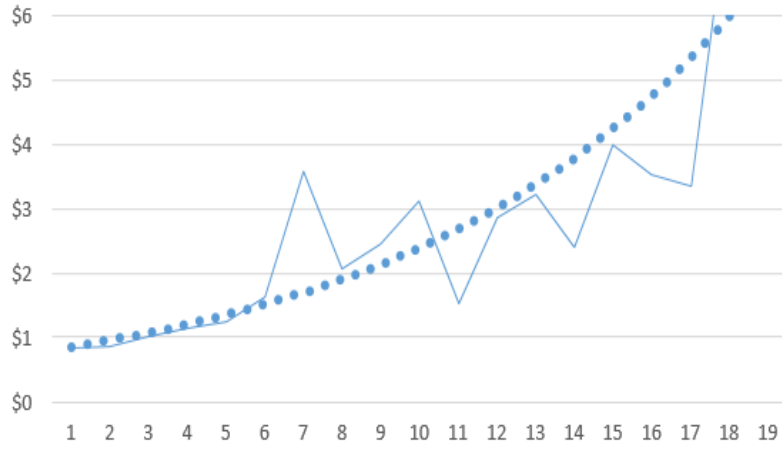
#### Fleet Repair Costs

(Adjusted for Miles Driven)



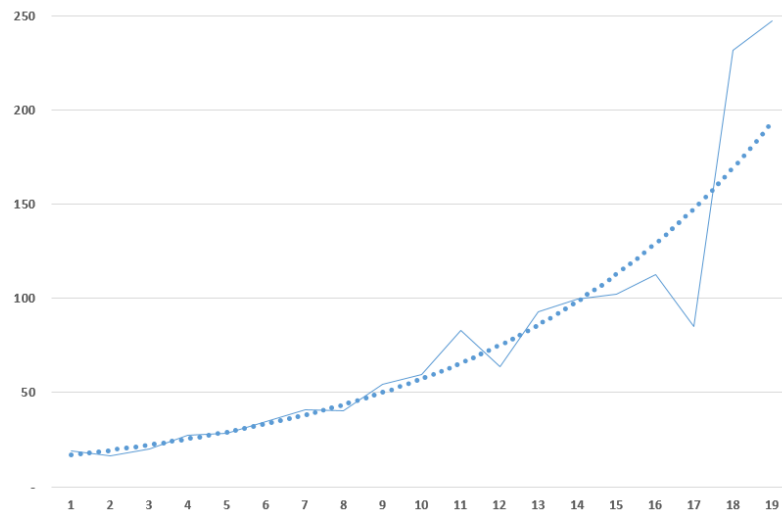
## EXHIBIT 2

### Cost of Repairs per Mile Driven (by age)



## EXHIBIT 3

### Average Down Days

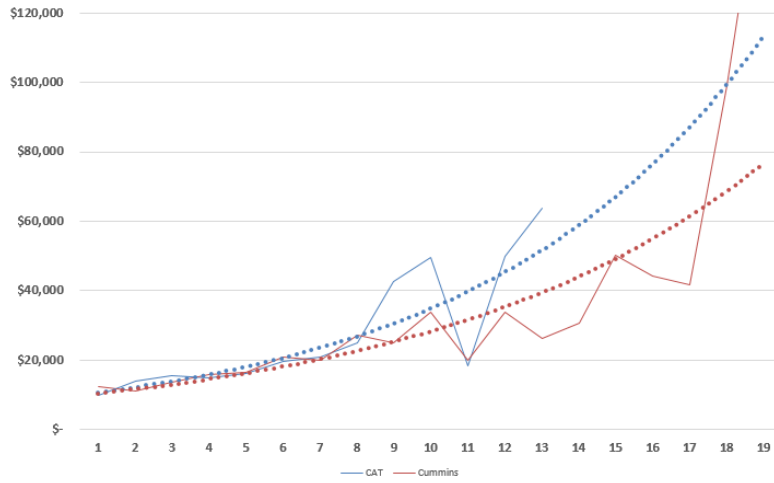




## EXHIBIT 4

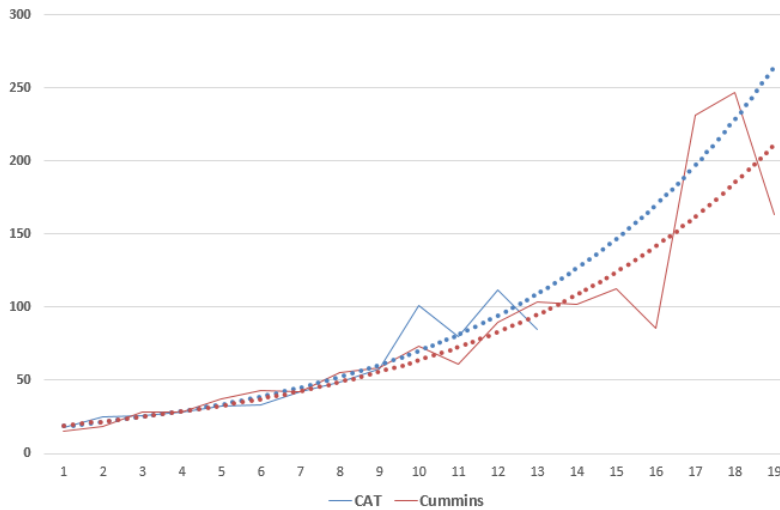
### Repair Costs - By Engine

(Adjusted for Miles Driven)



## EXHIBIT 5

### Average Days Down - By Engine



*John P. Redmond*

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*04/08/2016*

Date