



MEETING OF DECEMBER 18, 2018

TO: Mayor and City Council
THRU: Don Marr, Chief of Staff
FROM: Peter Nierengarten, Sustainability Department Director
DATE: November 29, 2018
SUBJECT: Recycling and Trash Collections Rate Study

RECOMMENDATION:

Staff recommends approval of a resolution adopting the Recycling and Trash Collections Rate Study prepared by MSW Consultants.

BACKGROUND:

The City's Recycling and Trash Collections Division operates an integrated solid waste management program that services Fayetteville residents and businesses. In addition to providing the collection of refuse, recyclables and yard waste from residential and commercial customers, the City also owns and operates several waste management facilities, including a transfer station, recycling center, compost facility and two recycling convenience centers. The Recycling and Trash Collections Division is experiencing growth in accounts and has recently completed the regulatory process to increase the permitted tonnage limit at its transfer station. The Recycling and Trash Collections Division is funded through user fees charged to the residents and businesses directly receiving services. Although the City's rate structure allows it to appropriately and comprehensively charge users for the services received, the City has not conducted a formal cost-of-service and rate study for over twenty years.

In early 2017 the City Council adopted the Solid Waste Reduction, Diversion and Recycling Master Plan. The plan identified several additional programs that would be necessary to divert more materials from the landfill, notably expanded recycling, food waste compost program and construction and demolition waste recycling. To adequately fund implementation of these programs the City needed to understand the anticipated operational costs of these programs. In anticipation of upcoming enhancements to the system as a result of Master Plan implementation, and because of the time elapsed since the prior cost-of-service study, the City retained MSW Consultants in 2018 to conduct a Recycling and Trash Collection Rate Study that would comprehensively evaluate the solid waste systems full cost of service, and to develop a five-year financial plan and collection and disposal rate recommendations.

DISCUSSION:

The process that MSW Consultants utilized to develop the Recycling and Trash Collections Rate Study contained the following steps and objectives:

- Review collection and disposal operations and other ancillary programs provided by the Recycling and Trash Division, including staffing levels and administration, to obtain a detained understanding of the operation requirements of the system.
- Compile historical and projected revenues, expenses, and capital purchases from budget documents and historical reports for the Recycling and Trash Division, including residential and commercial collections and the disposal and recovery operations at the transfer station, recycling center and compost facility.
- With input from City staff, integrate the projected costs of new programs associated with implementing the Master Plan.
- Establish test-year revenue requirements as well as projected full costs for a five-year planning period to identify the rate revenues that will be needed to cover direct operating expenses, capital purchases, and targeted operating reserve levels and assure the financial health of the system.
- Recommend adjustments to the current rate structure as well as a five-year rate path to cover revenue requirements, provide the City's residents and businesses with appropriate incentives to utilize the recycling program, maximize rate equality, and minimize shock to existing customers.

MSW Consultants provided a detailed analysis of the existing waste collection services, facilities and rates for each major service type. The consultant also provided a cost of service analysis and projected the rates needed to fund the various services. This included identifying the costs associated with new or expanding commercial, organics, commercial glass and multi-family recycling services - all supported in the 2017 Solid Waste Reduction, Diversion and Recycling Master Plan. And lastly, final collection and disposal rate recommendations are provided for all facilities and collection services.

Implementation of the Recycling and Trash Collections Rate Study will enable the Recycling and Trash Collections Division increase waste diversion by implementing following service enhancement:

- All-inclusive trash and recycling for multi-family and small commercial complexes (previously these customers had to pay extra for recycling services)
- Expanding curbside recycling to apartment complexes with 24 units or less
- Discounted commercial cardboard and paper recycling
- Transition commercial food waste composting pilot to full service
- Transition commercial glass recycling pilot to full service
- Increase transfer station tip fees to encourage diversion (out-of-City transfer station rate includes a premium for use of City resources)

BUDGET/STAFF IMPACT:

The overall rate impact of the recommended rates is a 9.1% increase over current rates. The table below shows the rate impact on the various service categories.

Service	Current Rate Revenue	Recommended Rate Revenue	Recommended % Increase
Single Family	\$4,600,834	\$4,832,347	5.0%
Multi-Family Residential (includes Drop-offs)	\$1,544,641	\$1,515,913	-1.9%
Commercial Trash & Recycling (combined)	\$3,079,898	\$3,565,379	15.8%
Temporary Containers	\$58,900	\$61,845	5.0%
Drop-Box	\$1,267,628	\$1,436,785	13.3%
Scale/Tip Fees	\$906,295	\$1,085,936	19.8%
Total for 2019	\$11,458,196	\$12,498,206	9.1%

Additionally, to maintain rates that continue to cover increasing cost of service, the rate study recommends applying the Consumer Price Index (CPI) increase to all customer classes and rates – previously the CPI had only been applied to residential rates.

Attachments:

Recycling and Trash Collection Rate Study by MSW Consultants



Prepared for



**CITY OF
FAYETTEVILLE
ARKANSAS**

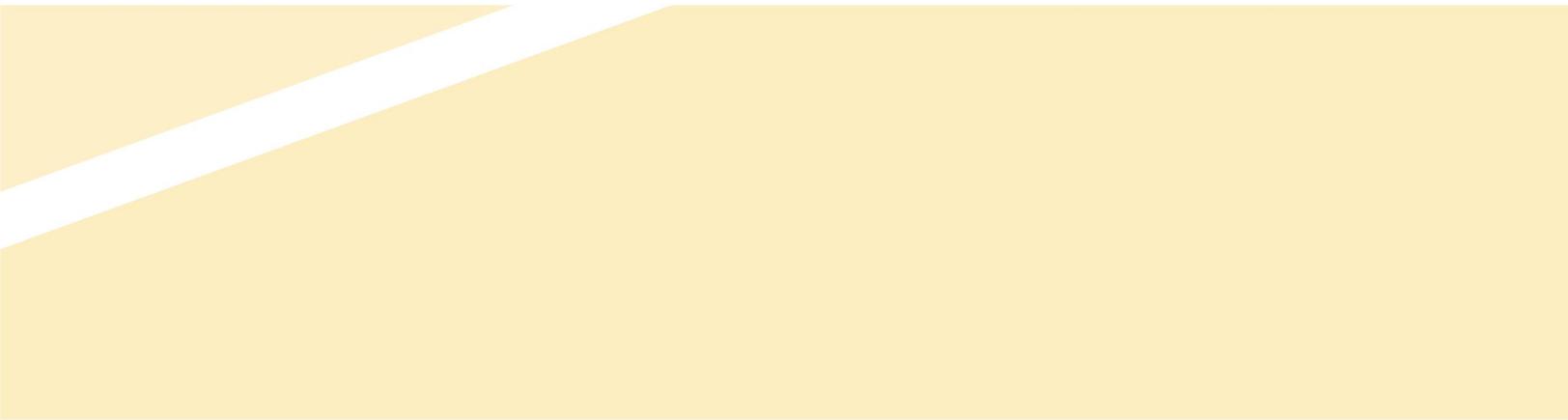
Recycling & Trash Collection Rate Study

November 26, 2018

Final Report



11875 High Tech Avenue
Suite 150, Orlando, FL 32817



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1. INTRODUCTION

1.1 BACKGROUND

The City of Fayetteville, Arkansas operates an integrated solid waste management program servicing its citizens and businesses as well as a few accounts in the surrounding area. In addition to providing collection of refuse, recyclables and yard wastes from residential and commercial customers, the City also owns and operates several waste management facilities, including a transfer station, recycling center, compost facility and two recycling convenience centers. The City is experiencing growth in accounts and for the second time in recent years, has completed the regulatory process to increase the permitted tonnage limit at its transfer station.

The City's Recycling and Trash Division completed a Solid Waste Reduction, Diversion and Recycling Master Plan that was approved by the City Council in early 2017. The Plan highlighted several programs to divert more materials from landfilling and the Division has been moving toward implementation of these programs. In order to adequately fund implementation of these programs, the City needed to know the impact on current operational costs.

The City funds its solid waste programs through facility tip fees and through user fees charged to the residents and businesses directly receiving services. Although the City's rate structure allows it to appropriately and comprehensively charge users for the services received, the City has not conducted a formal cost-of-service and rate study for over twenty years. In anticipation of upcoming enhancements to the system as a result of Master Plan implementation, and because of the elapsed time since the prior cost-of-service study, the City retained MSW Consultants to comprehensively evaluate the solid waste system full cost of service, and to develop a five-year financial plan and rate recommendation.

1.2 OBJECTIVES

This report contains the results of the cost-of-service and rate study. The objectives of the study included the following:

- ◆ Review collection and disposal operations and other ancillary programs provided by the Recycling and Trash Division, including staffing levels and administration, to obtain a detailed understanding of the operational requirements of the system.
- ◆ Compile historical and projected revenues, expenses, and capital purchases from budget documents and historical reports for the Recycling and Trash Division, including residential and commercial collections and the disposal and recovery operations at the transfer station, recycling center and compost facility.
- ◆ With input from City staff, integrate the projected costs of new programs associated with implementing the Master Plan.
- ◆ Establish a test-year revenue requirement as well as projected full costs for a five-year planning period to identify the rate revenues that will be needed to cover direct operating expenses, capital purchases, and targeted operating reserve levels and assure the financial health of the system.
- ◆ Recommend adjustments to the current rate structure as well as a five-year rate path to cover revenue requirements, provide the City's residents and businesses with appropriate incentives to utilize the recycling program, maximize rate equality, and minimize shocks to existing customers.

1.3 REPORT ORGANIZATION

The remainder of the report provides detail and findings and has been organized into the following sections:

1. INTRODUCTION

- ◆ **Section 2 - Waste Management System Description:** This section reviews the City's collection services to residential and commercial customers, the City's solid waste facilities, provides rates and accounts serviced for each major service type, and findings from the route observations.
- ◆ **Section 3 - Cost of Service Analysis:** This section summarizes the City's projected financial performance and identifies the primary inputs to the financial analysis undertaken to validate service rates. This section also identifies the costs associated with the new or expanding commercial organics, commercial glass and multi-family recycling services.
- ◆ **Section 4 - Conclusions and Recommendations:** The final rate recommendation is provided in this section for all facilities and collection services. Rates are provided for disposal of municipal solid waste (MSW) and brush and yard waste at the transfer station and compost facility, as well as collection rates for residential and commercial trash and recycling. Additional general recommendations for the ongoing financial management of the City's Recycling and Trash Division are also provided.

2. WASTE MANAGEMENT SYSTEM DESCRIPTION

2.1 INTRODUCTION

This section briefly describes the City’s solid waste management program, including the facilities owned and operated by the City, as well as the collection services offered. Current rates are summarized.

The information in this section has been assembled from a combination of data and reports provided by the City to MSW Consultants during the project. Additionally, MSW Consultants attended a kickoff meeting with the City’s Chief of Staff and Recycling and Trash Division leadership on March 13, observed collection operations on a limited number of routes, toured City solid waste facilities, and maintained ongoing contact with City staff in the performance of this analysis.

2.2 SOLID WASTE FACILITIES

The City owns the following solid waste facilities:

2.2.1 TRANSFER STATION

The City owns and operates a transfer station that is used by its collection vehicles as well as being open to the public. The transfer hauling and disposal is contracted out to Waste Management, who subcontracts the hauling to MBI. At the time of the site visit, the transfer station was permitted for 80,000 tons per year and had received near that amount in 2017. The City has since applied for permit expansion for up to 100,000 tons annually. During busy times of the day, there is a line of traffic entering the facility at the scale house and waiting for an open bay to offload materials. Small trucks with trailers often offload by hand and could take an hour or more to empty a load of bulky items or shingles, for example. There are 2.5 FTE (Full Time Equivalent) staff assigned to the transfer station.

Figure 2-1 and Figure 2-2 show scenes from the transfer station during the site visit.

Figure 2-1 Vehicles Waiting to Weigh in at Scales



Figure 2-2 Truck Backing to Empty in Transfer Station



The current rates charged at the transfer station are provided in Table 2-1. The City’s contract with Waste Management for transportation and disposal of wastes from the transfer station costs \$35.58/ton.

Table 2-1 Transfer Station Rates

Material/Item	Rate
Refuse	\$46.80/ton
Minimum Fee	\$29.95/load

2. WASTE MANAGEMENT SYSTEM

2.2.2 COMPOST FACILITY

The City operates a compost facility that receives waste from City yard waste collections as well as public haulers. The compost pad is approximately 3 acres. The facility accepts brush, leaves and grass and recently began processing food waste as part of a pilot collection program to expand organics composting. The facility is adjacent to the container maintenance shop and container storage area. There are 2 FTE (Full Time Equivalent) staff assigned to the compost facility.

Figure 2-3 and Figure 2-4 show scenes from the compost facility during the site visit.

Figure 2-3 Windrow Turner, Windrows Compost Processing Pad



Figure 2-4 Private Haulers Unloading at Compost Facility



The City sells the finished compost product and also sells mulch in bulk as long as supplies are available. The current rates charged at the compost facility for incoming material are provided in Table 2-1.

Table 2-2 Compost Facility Rates Per Load Size

Leaves/Grass/Brush	Rate
Compact Pickup Truck	\$5.00
Full Sized Pickup Truck	\$8.00
Trailers up to 14' long	\$10.00
Trailers greater than 14' long	\$15.00

2.2.3 RECYCLING CENTER

Fayetteville operates a recycling center that receives curb-sorted recyclables, commercial OCC and materials the City from two public recycling drop-off facilities. The operators bale materials for marketing and coordinate the transport of bulked glass to a glass processor, currently Ripple Glass. There are 3 FTE (Full Time Equivalent) staff assigned to the recycling center.

Figure 2-5 and Figure 2-6 show a load of commercial cardboard unloading at the baler as well as the baled materials on site prepared for marketing.

2. WASTE MANAGEMENT SYSTEM

Figure 2-5 Commercial Cardboard Truck Offloading at the Recycling Center



Figure 2-6 Baled Materials Ready for Marketing



2.2.4 CITIZEN RECYCLING DROP-OFFS

The City operates two recycling drop-off sites, one adjacent to Trash and Recycling Division headquarters and the Marion Orton Recycling Center on the north side of town. The sites are manned, with City staff providing oversight and guidance to citizens dropping off materials as well as maintaining site cleanliness. Materials are collected in roll-off containers and recycling center operators are dispatched to service the containers as needed. The Marion Orton Recycling Center was very busy during the time observed. Figure 2-7 and Figure 2-8 show the recycling drop-off centers during the site visit.

Figure 2-7 Attendant Assisting Citizen at North Street Drop-Off



Figure 2-8 Recycling Drop-off Adjacent to Division Headquarters



2.2.5 SUMMARY

Table 2-3 summarizes the tonnage by facility for the most recent annual period. As shown, these facilities managed over 91,000 tons of material.

2. WASTE MANAGEMENT SYSTEM

Table 2-3 2017 Tonnage by Facility

Facility	Tons
Compost Facility	7,516
Transfer Station	77,791
Recycling Center	6,080
TOTAL	91,387

2.3 COLLECTION SERVICES

The City operates full-service refuse, recycling and yard waste collection programs for the citizens and businesses of Fayetteville and the immediate vicinity. There are 44.5 FTE staff assigned to collections.

2.3.1 RESIDENTIAL REFUSE

Seven automated residential refuse routes run Monday through Thursday, covering collection throughout the City and a few surrounding accounts. A few commercial businesses and multi-family locations that use carts are serviced by the residential trucks as they are in the area. Review of historical truck weights revealed the automated sideloaders used for residential refuse collection average approximately 8.65 tons per load. Figure 2-9 and Figure 2-10 show a typical residential setout of recycling and refuse and an automated collection of refuse in process.

Figure 2-9 Refuse Cart and Recycling Bin Setout



Figure 2-10 Automated Trash Collection



The Fayetteville residential refuse rate structure is a Pay-As-You-Throw (PAYT) system with three cart size options (32-, 64- and 96-gallon) with additional charges assessed for materials loaded above the top of the bin and extra bags placed outside the container. They also offer an exemption to curbside placement for citizens having gone through an approval process. Figure 2-11 and Figure 2-12 display a driver out of the cab handling additional bags and providing service to a location with exemption.

2. WASTE MANAGEMENT SYSTEM

Figure 2-11 Driver Out of Cab Depositing Extra Bags into Cart to Tip



Figure 2-12 Driver Returning to Truck After Returning “Exempt” Bin to Citizen’s Door



2.3.2 RESIDENTIAL RECYCLING

Similar to refuse, curbside recycling routes run Monday through Thursday. The City provides a curb sort system, so that residents set out materials with containers in a City-provided bin and fiber materials either in a second bin, flattened and stacked, or in a paper bag. Eleven one-person routes provide this service, stopping at each set out and sorting materials into compartmentalized trucks before proceeding to the next stop. Figure 2-13 and Figure 2-14 display a driver out of the cab curbsorting materials and an overflowing bin with materials placed together rather than separated into containers and fibers as should be to comply with the program guidelines.

Figure 2-13 Driver Curbsorting Residential Recycling



Figure 2-14 Residential Recycling Set Out Incorrectly in One Bin



2.3.3 RESIDENTIAL YARD WASTE

The City operates two-yard waste collection routes Monday through Thursday. Residents may place materials out in paper bags or bundled. The site visit was conducted in mid-March, prior to consistent weather for yard work, but several sizeable piles observed while following the yard waste route were indicative of the spring-like weather the area had experienced the days leading up to the site visit. Figure 2-15 displays the two-man residential yard waste collection service.

2. WASTE MANAGEMENT SYSTEM

Figure 2-15 Yard Waste Collection



2.3.4 RESIDENTIAL BULKY

The City offers a fairly extensive bulky collection program to residents with various options available:

- ◆ Eight neighborhood bulky item collections per year, one Saturday in the spring and fall at four different areas of the City.
- ◆ One free item picked up curbside per year by calling in or optionally bring five items to the transfer station at no charge, providing their water bill for proof of residency. Items are categorized as bulk household, bulk metal and bulk brush.
- ◆ Additional items can be scheduled for curbside collection for a fee.

Figure 2-16 shows the grapple truck collecting a pile of bulk brush during route observations.

Figure 2-16 Bulky Brush Collection



2.3.5 RESIDENTIAL SUMMARY

Fayetteville services approximately 24,000 residential accounts, providing weekly refuse, recycling and yard waste collection and bulky wastes. The number of accounts by cart size and existing rates are presented in Table 2-4. The City also serves a few hundred accounts outside the City limits that are not shown in the table.

2. WASTE MANAGEMENT SYSTEM

Table 2-4 Residential Refuse Customer and Rate Summary

Service Level	Number of Accounts	Rate
32 gal. Trash & 96 gal. Recycling	6,087	\$9.68/month
64 gal. Trash & 96 gal. Recycling	12,724	\$14.78/month
96 gal. Trash & 96 gal. Recycling	5,276	\$20.98/month
Extra Waste/Bags Outside Cart (4 free/yr)		\$6.40/ea.
Exchange to Larger Container Fee		\$20.00/ea.
Bulk Waste Pickup (1 free/yr)		\$45.00
Total	24,415	

Residential rates are allowed to be increased by a Consumer Price Index adjustment annually by Ordinance, or Council may opt to waive the increase.

Tonnage information was provided by the City for materials collected. Table 2-5 reflects the quantities collected from residential customers for calendar year 2017.

Table 2-5 Residential Quantities Collected

Service	Tons
Refuse	14,960
Recycling	3,062
Bulky Waste	101
Yard Waste	2,150
Total	20,273

2.3.6 COMMERCIAL AND MULTI-FAMILY REFUSE CONTAINER COLLECTION

Commercial collection is provided Monday through Friday with six frontloading dumpster routes and two routes on Saturday for high-volume customers. Both residential and commercial routes collect containers at multi-family locations, depending on whether the location uses carts or frontloading dumpsters. MSW Consultants observed commercial refuse and multi-family dumpster collection. Figure 2-17 and Figure 2-18 show a frontloading truck servicing a commercial dumpster and then later in the route a multifamily container.

2. WASTE MANAGEMENT SYSTEM

Figure 2-17 Commercial Refuse Service



Figure 2-18 Refuse Service at a Multi-Family Complex



Commercial routes run six days per week. Table 2-6 provides a current look at the number of commercial refuse customers at each service level. As shown, the City is currently servicing over 1,300 containers.

Table 2-6 Commercial Refuse Customer Summary

Container Size	Services Per Week						Total Containers
	1	2	3	4	5	6	
2 CY	254	22	8	3	0	0	287
4 CY	220	150	39	4	5	1	419
6 CY	178	187	39	4	5	1	414
8 CY	40	83	27	10	14	15	189
TOTAL	692	442	113	21	24	17	1,309

2.3.7 COMMERCIAL AND MULTI-FAMILY RECYCLING

Commercial routes collect Old Corrugated Cardboard (OCC) daily, and Mixed Paper one day per week. Table 2-7 provides a customer summary for the commercial OCC Recycling collection routes. The City also collects Mixed Paper from 24 four cubic yard containers once per week.

Table 2-7 Commercial OCC Recycling Customer Summary

Container Size	Services per Week					Total Containers
	1	2	3	4	5	
4 CY	64	10	18	3	2	97
6 CY	40	17	9	1	2	69
8 CY	5	9	4	2	4	24
TOTAL	109	36	31	6	8	190

2. WASTE MANAGEMENT SYSTEM

If site logistics and management allow, multifamily residents can participate in mixed recycling with large segregated recycling drop-boxes available for apartment complexes. At the time of the site visit, 7 locations were participating by allowing space for the equipment, referred to as a “battleship.”

2.3.8 DROP-BOX

The City runs two drop-box roll-off trucks Monday through Friday. Roll-offs are also deployed to collect large-volume recyclables for rates discounted from refuse rates. Private haulers compete for the drop-box business throughout the City.

2.3.9 COMMERCIAL RATE SUMMARY

Monthly rates for commercial frontload and drop-box refuse and recycling collection services are provided in Table 2-8, and Table 2-9. There are also a few accounts subscribed to weekly collection of mixed paper in four cubic-yard dumpsters for \$24 per month.

Table 2-8 Commercial Collection Rate Matrix

Material	Size	Frequency					
		1	2	3	4	5	6
Refuse	2	\$32.76	\$65.52	\$98.28	\$131.04	\$163.80	\$196.56
	4	\$65.52	\$131.04	\$196.56	\$262.08	\$327.60	\$393.12
	6	\$98.28	\$196.56	\$294.84	\$393.12	\$491.40	\$589.68
	8	\$131.04	\$262.08	\$393.12	\$524.16	\$655.20	\$786.24
OCC	4	\$32.76	\$65.52	\$98.28	\$131.04	\$163.80	
	6	\$49.14	\$98.28	\$147.42	\$196.56	\$245.70	
	8	\$65.52	\$131.04	\$196.56	\$262.08	\$327.60	

Table 2-9 Drop Box Rates

Drop Box	Rate
20 CY Pull Charge (per Pull)	\$220.00
30 CY Pull Charge (per Pull)	\$230.00
40 CY Pull Charge (per Pull)	\$240.00
Contractor Rate Pull Charge (per Pull)	\$210.00
Delivery Fee (per Occurrence)	\$50.00
Cardboard Only 20 CY Pull Charge (per Pull)	\$110.00
Cardboard Only 30 CY Pull Charge (per Pull)	\$115.00
Cardboard Only 40 CY Pull Charge (per Pull)	\$120.00
Disposal (per Ton)	\$38.25
Daily Rental Over 30 Days (per Day)	\$2.00
Monthly Rental (per Rental)	\$60.00
Relocation (per Trip)	\$50.00
Recycling Roll-off Disposal (per Ton)	\$0.00

2. WASTE MANAGEMENT SYSTEM

The City offers a locking bar for commercial dumpsters for an additional \$65 fee. The City has a ten percent franchise fee on trash and five percent on recyclables that remains in the Recycling and Trash Collection fund.

2.3.10 COLLECTION SUMMARY

The City provides full-service collection for both residential and commercial customers. The primary routes running weekly are identified in Table 2-10.

Table 2-10 Summary of Daily Collection Routes

Type of Service	Mon	Tue	Wed	Thu	Fri	Sat
Residential Garbage Collection	7	7	7	7		
Residential/Curbside Recycling	11	11	11	11		
Residential Yard Waste	2	2	2	2		
Bulk Truck	1	1	1	1		
Cart Delivery Truck (Carts & Recycle Bins)	1	1	1	1		
Container Delivery Truck (FL Dumpsters)	1	1	1	1	1	
Commercial Trash Collection - Front Load	6	6	6	6	6	2
Commercial Trash Collection - Roll Off	2	2	2	2	2	
Commercial Recycling - OCC	1	1	1	1	1	
Commercial Recycling - Paper			1			
Commercial Recycling - Glass Pilot	1*					
Commercial Recycling - Food Waste Pilot	1*		1*		1*	
Recycling Drop-off Site Collection	1	1	1	1	1	
TOTAL	35	33	35	33	12	2

* Partial Day Route

Based on MSW Consultants' assessment and observations during the kick-off meeting and site visit, the City is effectively running the facilities and the collection system is operating efficiently providing a broad range of services to the community.

3. COST-OF-SERVICE ANALYSIS

3.1 INTRODUCTION

This project included a formal solid waste management cost-of-service and rate study for the Fayetteville Recycling and Trash Division. This section summarizes the City's historical financial performance and current budget projections, and identifies the primary inputs to the financial analysis undertaken to validate service rates. This section also projects the incremental costs associated with the expansion of the organics collection and apartment recycling opportunities, which increase the cost of the system going forward.

The rate study process consists of three primary components:

- ◆ **Revenue Sufficiency Analysis:** In this step, the existing revenue stream for collection services and facility operations are assessed to determine if it is capable of meeting the projected financial requirements of the system (including operating expenses, capital improvements and vehicle replacements) during the forecast period.
- ◆ **Cost of Service Analysis:** The second step involves development of suitable methodologies to allocate system revenue requirements to the various customer classes that are responsible for funding the cost of services they are receiving, and also compiling the number of customers receiving each service. The City accounts separately for service to city residents and outer "growth" area residents for several different service levels as well as billing commercial accounts directly for collection service, so this exercise required applying the accounts based on cart size (residential) and commercial container type and service frequency to reach cost-of-service.
- ◆ **Rate Design:** Finally, specific rates and charges must be designed which provide sufficient revenue, as identified in the Revenue Sufficiency Analysis, to recover costs in a manner consistent with overall solid waste management system policies and goals.

The development of rates should, for the most part, be consistent with general rate-making principles as recognized in the industry and related literature. In general, rates designed should:

- ◆ Generate a stable revenue stream which, when combined with other sources of funds, is sufficient to meet the financial requirements and goals of the City;
- ◆ Be easy to understand by customers;
- ◆ Be easy to administer by the City; and
- ◆ Minimize customer impact.

3.2 RATE STUDY DEVELOPMENT

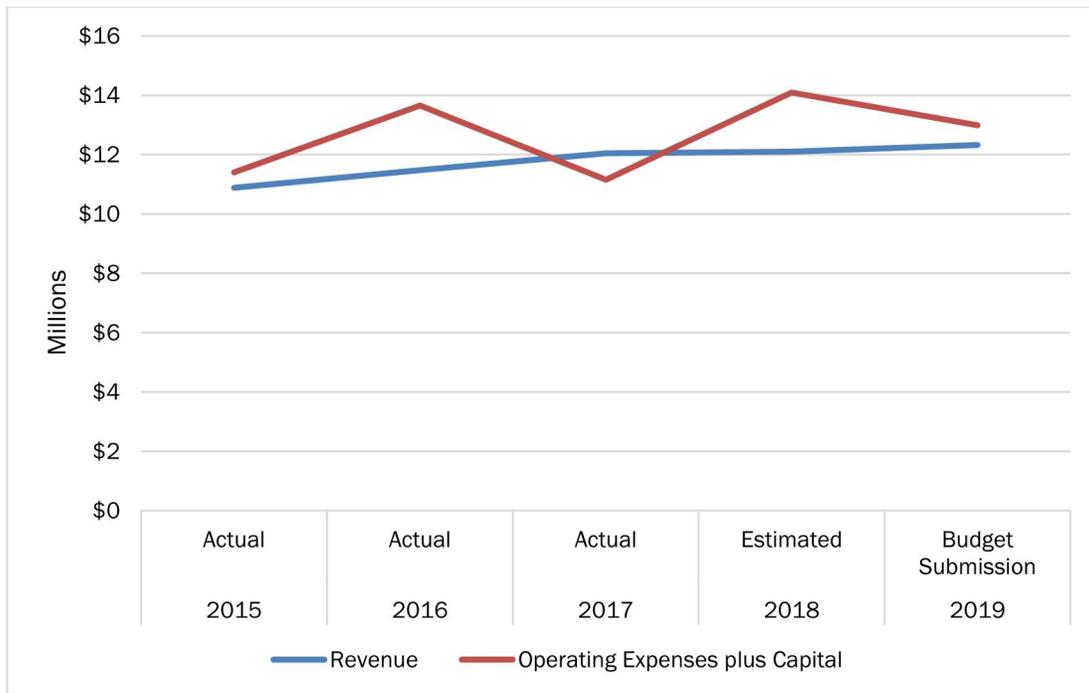
3.2.1 FINANCIAL DATA

MSW Consultants compiled historical budget data to put the overall system cost in context. The following historical data were compiled.

- ◆ **Historical Operating Results:** Figure 3-1 shows the City's historical operating revenues and operating expenses plus capital. As shown, the City solid waste operation has operated at a loss multiple times over the past five years, and fund reserves have been required to supplement revenue to cover expenses.

3. COST-OF-SERVICE ANALYSIS

Figure 3-1 Historical Operating Results



- ◆ **Operating Fund Balance:** The City has maintained conservative management of their recycling and trash collection system, accruing cash to pay for capital purchases. In recent years, the City has purchased all collection equipment, as well as its LEED certified administration building improvement, with cash. Accordingly, the historical results reflect significant spikes in the cost of the system, because cash outlays vary dramatically from year to year. At the current time, the City’s operating reserves have been drawing down, and as the program expansions occur in the next few years, additional revenue will be required. Table 3-1 displays the basis used in the cash flow analysis, as provided by the City.

Table 3-1 Estimated Basis of Operating Reserve Starting Balance, FY19

Operating Reserves FY19 Beginning of Year	\$5,200,000
Target Reserve Policy	60 days

- ◆ **Collection Customers and Material Quantities:** Collection customers by service category have been summarized in Section 2. Table 3-2 provides the historical materials processed at the compost facility, recyclable materials managed at the recycling facility, and waste received and transferred at the transfer station. This includes the projected quantities for 2019 with a two percent growth factor.

3. COST-OF-SERVICE ANALYSIS

Table 3-2 Billing Determinants: Tons Processed

Facility	2017	2018	2019
Compost Facility	7,516	7,666	7,820
Transfer Station	77,791	79,347	80,934
Recycling Facility	6,080	6,201	6,325
Total	91,387	93,215	95,079

3.2.2 CAPITAL IMPROVEMENT PLAN

City staff provided a plan for future Capital Improvements spanning the next ten years. Table 3-3 summarizes the land acquisition and facility expansions and improvements projected for the next 10 years. As shown, over \$4.4 million in capital improvements is planned.

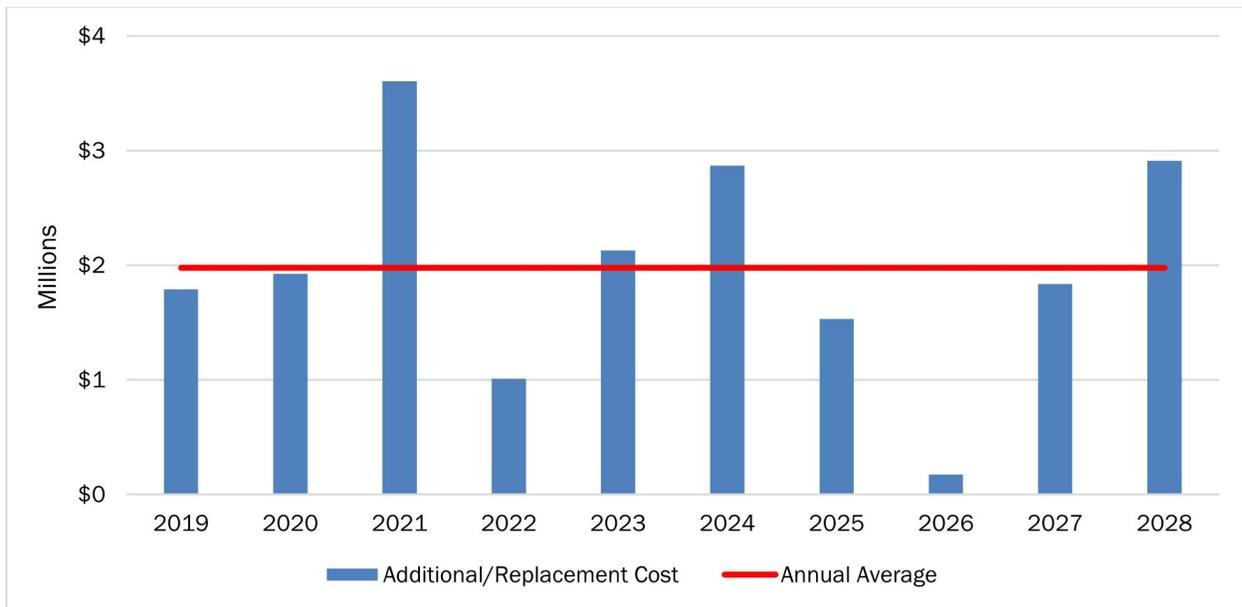
Table 3-3 CIP Summary

Item	Year	Amount
Transfer Station Improvements	2019	\$150,000
Scale House Improvements	2019	\$42,000
Organics Carts Expansion	2020	\$610,000
Compost Site Improvements	2020	\$15,000
Transfer Station Improvements	2021	\$20,000
Recycling Facility Improvements	2021	\$64,000
Recycling Facility Improvements	2022	\$420,000
None Planned	2023	\$0
Recycling Drop-Off Center	2024	\$500,000
Land Acquisition & Facility Expansion	2024	\$1,000,000
Land Acquisition & Facility Expansion	2025	\$1,000,000
Transfer Station Improvements	2025	\$620,000
None Planned	2026	\$0
None Planned	2027	\$0
None Planned	2028	\$0
10 Year Total		\$4,441,000
Annual Average CIP		\$444,100

In addition, planning for the routine replacement of collections vehicles and mobile equipment must be incorporated into full cost projections. The financial analysis performed for this project includes a detailed schedule of collection vehicles and rolling stock replacement timing and capital cost. Figure 3-2 summarizes the annual vehicle/equipment replacement schedule. As shown, the City needs to spend an average of roughly \$2 million annually to maintain its vehicle fleet, although there are peaks and valleys from year to year.

3. COST-OF-SERVICE ANALYSIS

Figure 3-2 Vehicle/Equipment Addition and Replacement Schedule



3.2.3 PROJECTED COST OF PROGRAM EXPANSIONS

The City has been collecting commercial organics at a limited number of locations as a pilot program for the past few years. The City has also been providing a commercial glass recycling collection program in select areas as a pilot. The City provided its estimate of the incremental staff and vehicle resources that are needed to ramp up these services. Table 3-4 presents the additional staffing and fleet identified for each program.

Table 3-4 Incremental Resources for Program Expansion

Program	Incremental FTE	Incremental Trucks
Organics Collection	1	1
Glass Collection		
Apartment Recycling	2	2
Curbside Recycling (growth)	2	1
Recycling Educator	1	
Total	6	4

3.3 COST-OF-SERVICE ANALYSIS

This section describes the framework and findings of the cost-of-service analysis. The purpose of this analysis was to evaluate the degree to which each facility and collection service is able to recover full costs.

3.3.1 RECYCLING AND TRASH DIVISION FUNCTIONS

The City accounts for each of the services it provides within its accounting system. These departments were used as a basis to define the specific functions to be analyzed in the cost-of-service analysis. Table 3-5 summarizes the functions included in the cost-of-service analysis.

3. COST-OF-SERVICE ANALYSIS

Table 3-5 Recycling and Trash Division Functions

Management & Administration	Collections: Automated Refuse Curbside Recycling Curbside Yard Waste Bulky Collection
Facilities: Transfer Facility Compost Facility Recycling Facility	Commercial Container Refuse Commercial Container OCC Recycling Commercial Paper Recycling Drop Box Collection Apartment Recycling Food Waste Collection Glass Collection Recycling Drop-off

3.3.2 SYSTEM NET REVENUE REQUIREMENT

“Net Revenue Requirement” is defined as the dollar amount that must be recouped via rates (i.e., collection fees, and tip fees at the transfer station and compost facility). The following methodology was used to determine the net revenue requirements and calculate rates:

- ◆ Compile gross revenue requirements as the sum of operating and non-operating expenses, plus average capital improvement, and average vehicle replacement.
- ◆ Net out non-rate revenues, which are primarily recycled material revenues, compost sales, and interest income.

As a result of these steps, the overall system cost of \$13.5 million is offset by \$673,000 in non-rate revenues (primarily revenues from the sale of recyclables), leaving a net revenue requirement of \$12.8 million which must be recouped by rates for disposal, processing and collection.

Table 3-6 Full Cost of Service for Solid Waste Fund

Item	Dollars
Full Costs	\$13,507,985
Non-Rate Revenues	\$673,040
Revenue Sufficiency	\$12,834,945

3.3.3 ALLOCATIONS

The final step in the cost-of-service analysis was to allocate all system costs to the functions defined in Section 3.3.1. MSW Consultants developed a series of allocation factors to accomplish this task, which are summarized in Table 3-7. Note that this list is not all-inclusive; however, these are the major system costs.

3. COST-OF-SERVICE ANALYSIS

Table 3-7 Allocation Methods

Method	Allocation Basis
Employee Salary	FTE Percentages
Employee Benefits	FTE Percentages
Employee Count	FTE Percentages
Truck Count	Truck Type and Use
Vehicle Cap Cost	Truck Type and Use
Vehicle O&M	Truck Type and Use
Tonnage Collected	Material Tonnage
Tonnage Processed	Material Tonnage
CIP	Assigned by Function
Container Maintenance	Assigned by Function
Routes	Assigned by Function
Admin	Percent of Division Budget
Compost Facility	Staff and Equipment
Transfer Station	Staff and Equipment
Recycling Center	Staff and Equipment
Food Waste Collection	Staff and Equipment
Disposal	Material Tonnage
Recycling Revenue	Material Tonnage
Apartment Recycling	Staff and Equipment

Table 3-8 shows the results of the cost allocation exercise. The first column (Annual Revenue Need) in the table separates the cost of system Management and Administration. The second column (Adjusted Annual Revenue Need) distributes the Management and Administrative cost across the other services so that rates we will recover the overhead expense. As shown, the City of Fayetteville must recover \$12.8 million in rate revenues to fully fund the system full cost.

3. COST-OF-SERVICE ANALYSIS

Table 3-8 Recycling and Trash Rate Revenue Requirement

Function	Annual Revenue Need	Adjusted Annual Revenue Need
Management & Administration	\$1,791,866	
Collection	\$6,617,524	\$7,691,293
Automated Refuse	\$1,835,651	\$2,133,506
Curbside Recycling	\$1,346,925	\$1,565,479
Curbside Yard Waste	\$439,170	\$510,430
Bulky Collection	\$61,611	\$71,608
Commercial Container Refuse	\$1,534,894	\$1,783,948
Commercial Container OCC Recycling	\$217,317	\$252,580
Commercial Paper Recycling	\$15,884	\$18,461
Dropbox Collection	\$566,688	\$658,639
Apartment Recycling	\$242,539	\$281,894
Food Waste Pilot	\$206,794	\$240,349
Glass Pilot	\$17,662	\$20,528
Recycling Drop-Off	\$132,390	\$153,872
Facilities	\$4,425,555	\$5,143,652
Compost Facility	\$543,362	\$631,528
Transfer Station	\$3,533,013	\$4,106,285
Recycling Facility	\$349,180	\$405,839
Total	\$12,834,945	\$12,834,945

3.3.4 SYSTEM DEFICIT

As a final step, the allocated system full cost was compared to the revenues generated with the City’s current rate structure. As shown in Table 3-9, the current rates will not generate enough revenue to fund the system, instead resulting in a deficit of over \$1.3 million or 10.7 percent.

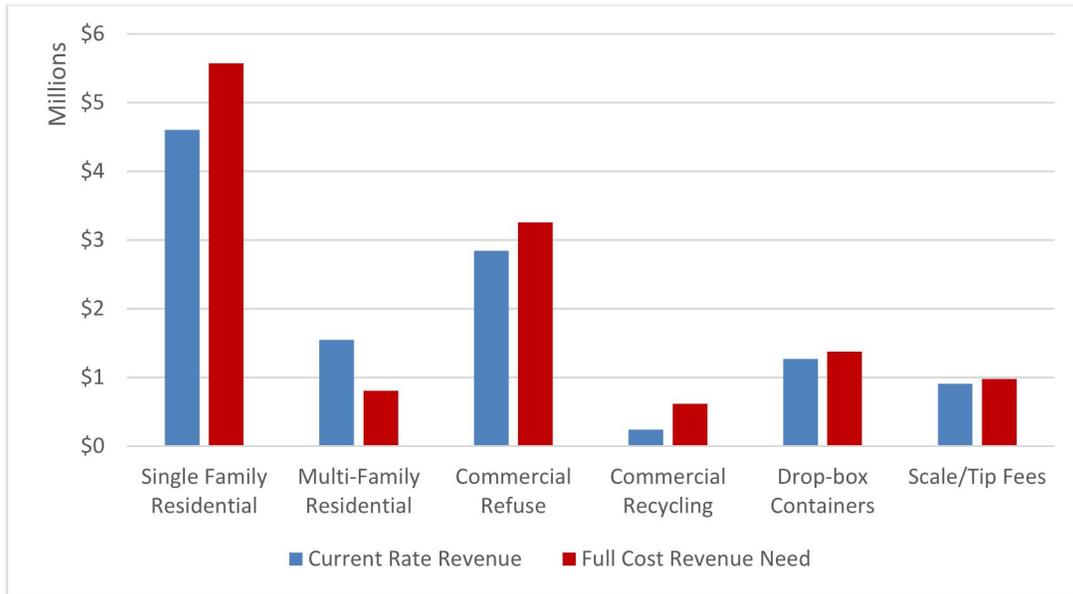
Table 3-9 System Surplus (Deficit)

Item	Dollars	Percent
Revenues at Current Rates	\$11,458,196	89.3%
Full Cost	\$12,834,945	100.0%
Surplus (Deficit)	(\$1,376,750)	(10.7%)

A detailed breakdown of revenue sufficiency by service is shown in Figure 3-3.

3. COST-OF-SERVICE ANALYSIS

Figure 3-3 Revenue Sufficiency Under Existing Rates



As shown in this figure, the revenue shortfall is relatively consistent across all collection services and facility operations. Additionally, although the multi-family sector reflects a surplus, some of the multi-family revenue covers the cost of the drop-off centers, which serve many multi-family apartments which do not have on site recycling collection.

The following section applies the results of this cost-of-service analysis to compare current rates with full-cost rates, and to subsequently recommend rate adjustments for consideration by the City.

4. CONCLUSIONS AND RECOMMENDATIONS

4.1 INTRODUCTION

The City of Fayetteville is in a fast-growing region. Material throughput at the City's transfer station has required permitting of additional tonnage capacity twice in the last five years. The City's collection routes have grown throughout this timeframe as well. Organics and glass collection pilot programs are scheduled to expand, and the City continues to implement initiatives adopted at the conclusion of its 2016 Solid Waste Reduction, Diversion, and Recycling Master Plan. This cost-of-service and rate study captures the impact of these new programs as well as other dynamics facing the system.

The remainder of this section identifies rate options and recommends new rates for the five-year planning period. Based on significant collaboration between MSW Consultants and City staff, and based on MSW Consultants' professional experience, the analysis of rates integrated the following concepts:

- ◆ **Tiered Transfer Station Tip Fees:** Tip fees should cover the full cost of transfer station operation, transportation, and disposal. However, the City's transfer station also provides a high level of convenience for out-of-City residents and businesses to avoid a longer drive to the landfill. Because the transfer station should first and foremost serve the City and its residents and businesses, there should be one rate for City-generated wastes, and a higher tip fee for out-of-City wastes.
- ◆ **Multi-family Rates:** The City's Pay-As-You-Throw (PAYT) single family residential rates cover both refuse and recycling collection, and even provide an incentive for residents to utilize the recycling program. In order to treat single family and multifamily households similarly, this study identified an all-inclusive rate structure for multi-family properties to provide the same opportunity to recycle within a given rate, rather than subscribe additionally, and the City offers a variety of recycling services (battleship roll-off, curbside, or recycling drop-off) depending on the logistics of the multi-family site.
- ◆ **All-Inclusive Commercial Rates:** Historically, commercial businesses have usually only required refuse collection. However, the City offers recycling collection to businesses that desire this service. Rather than charging separately for the commercial refuse service and the commercial recycling service, one option is to charge a single rate to all businesses and provide recycling collection under the single collection rate. This option would give businesses an incentive to recycle because the service would be free (i.e., covered by the refuse rates). However, there is a wide range of recycling service levels that are required by different businesses, so the potential for subsidization across customers is high under this option.
- ◆ **Recycling-Incentivizing Commercial Rates:** Conversely, the City could continue to charge separate rates for commercial refuse and commercial recycling. Consistent with the current fee structure, commercial trash rates could also be escalated so that recycling collection rates could be discounted. This approach spreads the cost of the commercial recycling collection to all commercial trash customers, but retains some direct charge to businesses that select the appropriate level of recycling collection, thereby reducing subsidization across commercial customers.

City staff and MSW Consultants collaborated on combinations of the above rate considerations and developed a hybrid rate path that was presented to the Water and Sewer Committee on November 13, 2018. This recommended rate path maintains the separate, incentivizing commercial trash and recycling rates for businesses, but incorporates an all-inclusive rate for the multi-family customers. The new rate structure provides more opportunity for on-site recycling as well as the trash collection without a rate increase.

Systemwide, the recommended rates represent a 9.1 percent increase, with higher increases on some services, and lower increases on others. It should be noted that in order to keep these increases as moderate as possible, there will likely be need for systemwide CPI increases within a few years.

4. CONCLUSIONS AND RECOMMENDATIONS

This section summarizes the new rate recommendations.

4.2 RATE RECOMMENDATIONS

4.2.1 RESIDENTIAL COLLECTION SERVICES

The City offers three sizes of carts to allow citizens to pay by volume, whether it be from various family sizes, or from environmentally focused families who divert a lot of material. A fee is assessed for overflowing materials or additional bags placed out beyond a base allowance per household per year. The City also services a few residential areas outside the City limits for a slight incremental difference. Each rate covers weekly curbside collection of trash, recycling and yard waste as well as some bulky waste collection. Table 4-1 displays the recommended rate structure for single-family residential accounts. These rates represent a five percent increase for each cart size.

Table 4-1 Residential Rate Recommendation

Service	Current Rates	Full Cost Rates	Recommended Rates
1x/wk Refuse 32 Gal. & Recycling Bins (per Month) - City	\$9.68	\$17.32	\$10.16
1x/wk Refuse 64 Gal. & Recycling Bins (per Month) - City	\$14.78	\$18.60	\$15.52
1x/wk Refuse 96 Gal. & Recycling Bins (per Month) - City	\$20.98	\$19.89	\$22.03
Additional Bulky Pickups Curbside (per Occurrence)	\$45.00	\$38.25	\$55.00
Extra Bag Charge (per Occurrence)	\$6.40	\$0.97	\$6.72
1x/wk Refuse 32 Gal. & Recycling Bins (per Month) - Outer Area	\$14.54	\$17.32	\$15.25
1x/wk Refuse 64 Gal. & Recycling Bins (per Month) - Outer Area	\$22.17	\$18.60	\$23.28
1x/wk Refuse 96 Gal. & Recycling Bins (per Month) - Outer Area	\$31.48	\$19.89	\$33.04

4.2.2 MULTI-FAMILY COLLECTION SERVICES

The City provides trash service to multi-family structures of three or more units. Collection is provided primarily by the commercial routes. Recycling opportunities have been developed since implementing the “battleship” program in 2011, where a multi-family location has a dedicated space for a compartmentalized roll-off container. The City is currently in the process of rolling out additional multi-family recycling opportunities through curbside bins at locations this is geographically feasible. The recommended multi-family rate is the same as the current rate, but incorporates the recycling service without additional charge. Table 4-2 provides the new all-inclusive rate structure. These rates slightly reduce the overall charge to the multi-family sector.

Table 4-2 Multi-Family Monthly Rate Recommendation

Service	Current Rates	Full Cost Rates	Recommended Rates
Trash Service with No Recycling	\$9.72	\$4.91	\$9.72
Trash Service with Battleship Recycling	\$10.69	\$6.17	\$9.72
Trash Service with Curbside Recycling	N/A	\$9.38	\$9.72

4.2.3 COMMERCIAL CONTAINER COLLECTION SERVICES

◆ Commercial Trash Container Rates

4. CONCLUSIONS AND RECOMMENDATIONS

The City’s existing commercial trash rates are low and out of balance, more so for the smaller containers. This occurs when rates are established primarily based on yardage collection costs then over time “across-the-board” increases are applied. This approach does not conform to industry standard commercial container rate development. Cost-based commercial container rates allocate collection costs based on service frequency and separately allocate disposal costs based on volume. MSW Consultants developed more equitable cost-based commercial rates to better rebalance the rate structure. Though the recommended rate does not get the smaller containers up to their full costs, they are receiving a larger increase to be brought closer to full cost. Table 4-3, Table 4-4, and Table 4-5 provide the current rates, full cost rates, and recommended rates for commercial trash collection.

Table 4-3 Current Commercial (\$/Month) Trash Rates

Container Size	Services per Week					
	1	2	3	4	5	6
2 CY	\$32.76	\$65.52	\$92.28	\$131.04	\$163.80	\$196.56
4 CY	\$65.52	\$131.04	\$196.56	\$262.08	\$327.60	\$393.12
6 CY	\$98.28	\$196.56	\$294.84	\$393.12	\$491.40	\$589.68
8 CY	\$131.04	\$262.08	\$393.12	\$524.16	\$655.20	\$786.24

Table 4-4 Full Cost Commercial (\$/Month) Trash Rates

Container Size	Services per Week					
	1	2	3	4	5	6
2 CY	\$80.33	\$160.66	\$240.99	\$321.32	\$401.64	\$481.97
4 CY	\$100.23	\$200.45	\$300.68	\$400.90	\$501.13	\$601.36
6 CY	\$120.12	\$240.25	\$360.37	\$480.49	\$600.62	\$720.74
8 CY	\$140.02	\$280.04	\$420.06	\$560.08	\$700.10	\$840.12

Table 4-5 Recommended Commercial (Monthly) Trash Rates

Container Size	Services per Week					
	1	2	3	4	5	6
2 CY	\$47.50	\$95.00	\$142.50	\$190.00	\$237.50	\$285.00
4 CY	\$88.45	\$176.90	\$265.35	\$353.80	\$442.25	\$530.70
6 CY	\$115.00	\$230.00	\$345.00	\$460.00	\$575.00	\$690.00
8 CY	\$144.00	\$288.00	\$432.00	\$576.00	\$720.00	\$864.00

◆ Commercial Recycling Container Rates

The current commercial corrugated cardboard and paper recycling container collection rates are set at 50 percent of the same container size and service level trash container rates. Based on consultation with City

4. CONCLUSIONS AND RECOMMENDATIONS

staff, it is recommended that recycling rates be further reduced to 25 percent of the trash rates. This recommendation is driven by the City's Master Plan recycling targets to increase recycling.

◆ Commercial Organics and Glass Container Rates

Consistent with corrugated cardboard and paper collection, the recommended rates for commercial organics and glass collection are subsidized by the commercial trash rates. Organic collection rates are set at 25 percent of similar trash service level rates and glass is recommended at \$5.00 per month for weekly collection of a roll cart. Small businesses also have the option of using five 18-gallon recycling bins with weekly pickup for \$5.00 per month. Table 4-6 provides the current, full cost and recommended rates for these services.

Table 4-6 Commercial Organics, Glass and 18-Gallon Bin Monthly Recycling Rates

Service	Current Rates	Full Cost Rates	Recommended Rates
Recycling Five 18 Gal. Bins 1x/wk	\$5.97	\$9.37	\$5.00
Glass 95 Gal. Cart 1x/wk (per Cart)	\$0.00	\$46.44	\$5.00
Food Waste 4 CY 3x/wk	\$0.00	\$539.44	\$66.34
Food Waste 2 CY 3x/wk	\$0.00	\$240.99	\$49.75
Food Waste 32 Gal. Cart 3x/wk	\$0.00	\$37.98	\$14.87

It is noteworthy that the full cost of the commercial food waste service appears quite high. This result is driven by the relatively small number of customers for this service in its startup phase. The total cost to provide this service is relatively low on an absolute basis, despite the high unit cost.

4.2.4 DROP BOX COLLECTION SERVICES

The City provides drop box collection to permanent customers as well as for temporary usage. Previously, a pull fee had been charged, incrementally higher based on the container size, with a tip fee per ton equal to the rate the City paid the contractor to transport the materials for disposal. It is strongly recommended that the tip fee for drop box loads be based on the full cost per ton at the transfer station, and not solely on the contracted disposal cost. This will assure that the City covers its handling costs in addition to the contracted transfer expense.

It is further recommended that the pull fees be standardized regardless of the size of the drop box. This is because it costs the City the same amount to pull any box, regardless of the size of the box. Table 4-7 provides the current, full cost and recommended rates for drop box services. Consistent with other commercial recycling rates, recycling drop-box rates are deeply discounted to provide incentive.

4. CONCLUSIONS AND RECOMMENDATIONS

Table 4-7 Drop Box Trash and Recycling Rates

Service	Current Rates	Full Cost Rates	Recommended Rates
20 CY Pull Charge (per Pull)	\$220.00	\$212.67	\$225.00
30 CY Pull Charge (per Pull)	\$230.00	\$212.67	\$225.00
40 CY Pull Charge (per Pull)	\$240.00	\$212.67	\$225.00
Contractor Rate Pull Charge (per Pull)	\$210.00	\$212.67	\$210.00
Trash Disposal (per Ton)	\$38.25	\$50.74	\$52.00
Cardboard Only 20 CY Pull Charge (per Pull)	\$110.00	\$212.67	\$95.00
Cardboard Only 30 CY Pull Charge (per Pull)	\$115.00	\$212.67	\$95.00
Cardboard Only 40 CY Pull Charge (per Pull)	\$120.00	\$212.67	\$95.00
Recycling Roll-off Disposal (per Ton)	\$0.00	\$64.16	\$20.80

4.2.5 FACILITY FEES

As discussed previously, the City wishes to have different tip fees for outside haulers as opposed to city residents bringing materials to the transfer station. Table 4-8 provides the recommended rate structure.

Table 4-8 Transfer Station Scale Rates

Service	Current Rates	Full Cost Rates	Recommended Rates
Disposal (Resident) (per Ton)	\$46.80	\$50.74	\$52.00
Disposal (Out of Town) (per Ton)	\$46.80	\$50.74	\$60.00

The City does not scale public vehicles bringing materials to the Compost Facility. An attendant estimates the load volume and provides a ticket based on vehicle type and/or volume. Table 4-9 provides the current and recommended rates. The recommendation is based on estimated expenses and represents a five percent increase.

Table 4-9 Compost Facility Rates (per Load)

Service	Current Rates	Recommended Rates
Compact Pickup Truck	\$5.00	\$5.25
Full Size Pickup Truck	\$8.00	\$8.40
Trailers Up to 14 FT	\$10.00	\$10.50
Trailers Greater Than 14 FT	\$15.00	\$15.75

4.3 PROJECTED FINANCIAL PERFORMANCE

In order to confirm the appropriateness of the above rate recommendations, the financial model projects the impact of these rates on the growing customer base for a five-year period. Figure 4-1 provides the projected operating expenses as compared to the operating revenues. Some years result in a surplus and some in a deficit, but the goal is to average out the five-year anticipated funding needs and maintain fund

4. CONCLUSIONS AND RECOMMENDATIONS

reserves to cover deficit years while following the planned vehicle replacement, Master Plan expansion and Capital Improvement Plan. The projected billing determinants (i.e., tonnages and customer counts) associated with this operating performance are detailed in Exhibit 1. Growth in tonnage and in the customer, base is based on two percent annual increases.

Figure 4-1 Projected Operating Results

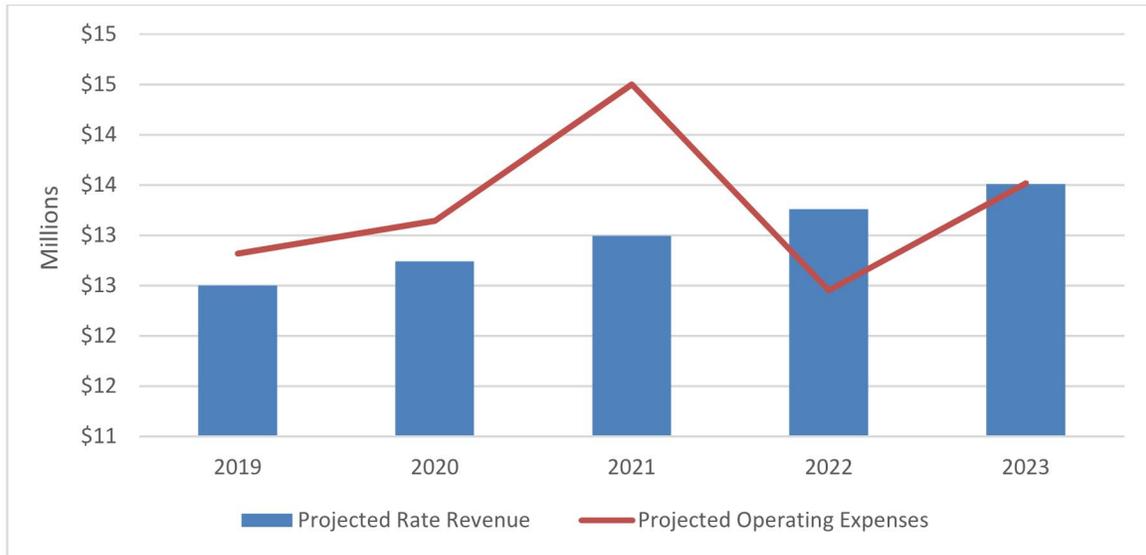
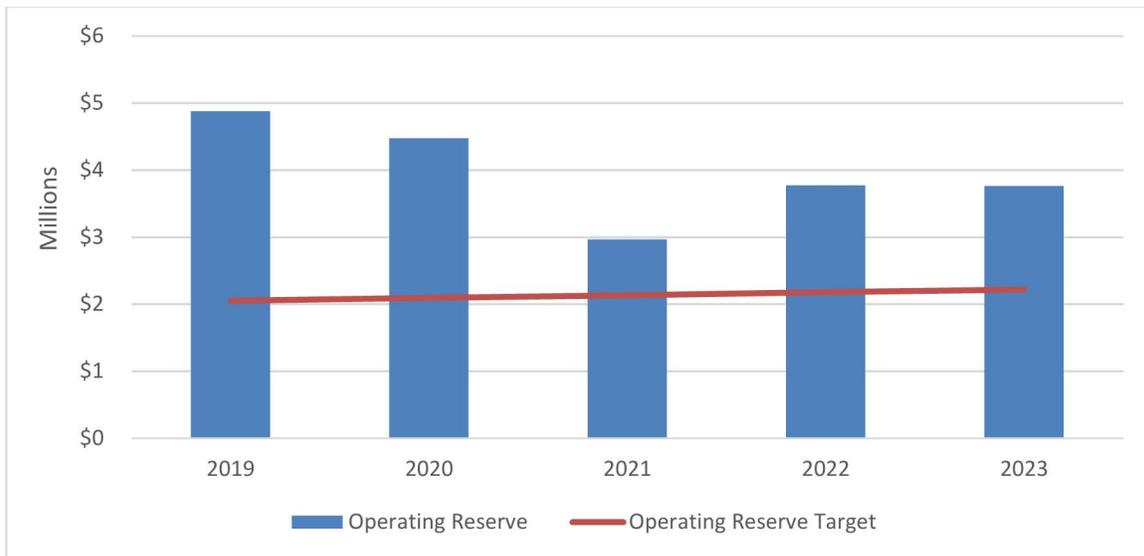


Figure 4-2 shows the effect on the operating reserves for the five-year period. As shown, the minimum reserve target is maintained over the next five years. It should be noted that the financial model prepared for this study integrated a 10-year horizon to reduce the potential for rate shocks in the out-years. This 10-year view, although not shown here, identifies heightened capital expenditures in years 6 through 8, and consequently the near-term rate recommendation is slightly higher than had the 10-year view not been considered. In the professional opinion of MSW Consultants, the five-year path represents a fiscally responsible, revenue sufficient path that minimizes the potential for a shock in future years and moves towards rate equitability.

4. CONCLUSIONS AND RECOMMENDATIONS

Figure 4-2 Projected Operating Reserves



With the recommended rate path, the projected operating results for the next five years is reflected in detail in Exhibit 2. The associated projected five-year Cash Flow is provided in Exhibit 3.

4.4 OTHER RECOMMENDATIONS

In addition to the recommended rate path presented above, MSW Consultants makes the following supplementary recommendations:

- ◆ CPI increases should be associated with all customer classes and rates. It is recommended that the ordinance be amended so that the CPI increase affects all types of service, since the current ordinance only allows the CPI increase to affect residential rates.
- ◆ The City should test the proposed rates in their billing system prior to implementation to evaluate the projected billings compared to the projected rate revenue presented in this study for reasonableness. The City should also tabulate actual billing determinants for the new services that are scheduled to expand in the coming years, and replace the estimates used in this financial model with actual customer counts.
- ◆ The City should update the revenue sufficiency analysis portion of this study each year to ensure projected revenue is sufficient to fund projected expenses going forward as assumptions made during this analysis may change and have a material impact upon the analysis. As the region has experienced rapid growth, this could impact both expenses and revenue substantially.
- ◆ The City should update the cost of service analysis portion of this study every three to five years, or upon implementation of any major changes to the collection system or facilities owned to ensure costs are recovered consistent with cost of service principles and customer characteristics.

4.5 CONCLUSIONS

MSW Consultants has constructed a detailed financial model to project the performance of the City of Fayetteville's recycling and waste management system through 2023. The operating revenues and operating expenses for the forecast period were developed by, and/or in consultation with, City staff and are based upon reasonable projections. Table 4-10 provides an overview of the recommended rate impact by service sector.

4. CONCLUSIONS AND RECOMMENDATIONS

Table 4-10 Overall Rate Impact by Service Sector

Service	Current Rate Revenue	Recommended Rate Revenue	% Increase
Single Family Residential	\$4,600,834	\$4,832,347	5.0%
Multi-Family Residential	\$1,544,641	\$1,515,913	-1.9%
Commercial Refuse	\$2,842,022	\$3,369,927	18.6%
Commercial Recycling	\$237,876	\$195,452	-17.8%
Drop-box Containers	\$1,267,628	\$1,436,785	13.3%
Scale/Tip Fees	\$906,295	\$1,085,936	19.8%
Total for 2019	\$11,458,196	\$12,498,206	9.1%

MSW Consultants is of the opinion that the financial projections and recommended rates in this section will enable the City to meet its obligations with regard to:

- ◆ Operating expenses;
- ◆ Non-operating expenses;
- ◆ Capital project expenses;
- ◆ Vehicle replacement; and
- ◆ Key financial policies, including:
 - ◆ Maintenance of operating reserve balances to cover at least 60 days; and
 - ◆ Cash funding of all future financial obligations for operation of the system.

The City of Fayetteville should be well positioned both operationally and financially to continue providing critical solid waste services to the community, including the implementation of its Master Plan.

Exhibit 1 Projected Billing Determinants

Service Category	2019	2020	2021	2022	2023
Single Family Residential					
1x/wk Refuse 32 Gallon and Recycling Bins (per Month) - City	6,209	6,333	6,460	6,589	6,721
1x/wk Refuse 64 Gallon and Recycling Bins (per Month) - City	12,978	13,238	13,502	13,772	14,048
1x/wk Refuse 96 Gallon and Recycling Bins (per Month) - City	5,382	5,490	5,599	5,711	5,826
1x/wk Yard Waste (per Month)	0	0	0	0	0
1x/yr Bulk Waste - Curb Pickup or Bring 5 items to Transfer Station	1,438	1,467	1,496	1,526	1,557
Additional Bulky Pickups Curbside (per Occurrence)	48	49	50	51	52
Extra Bag Charge (per Occurrence)	19,540	19,931	20,329	20,736	21,151
Cart Exchange to Larger Size (per Occurrence)	290	296	302	308	314
Extra Recycling Bin (Purchase)	0	0	0	0	0
Newspaper Bag (Purchase)	0	0	0	0	0
Event Boxes (Purchase)	0	0	0	0	0
Freon Appliance (Per Unit)	20	20	21	21	22
1x/wk Refuse 32 Gallon (per Month) - Outer Area	85	87	88	90	92
1x/wk Refuse 64 Gallon (per Month) - Outer Area	176	180	183	187	191
1x/wk Refuse 96 Gallon (per Month) - Outer Area	73	74	76	77	79
Multi-Family Residential					
Refuse Service per Dwelling Unit (per Month)	12,977	13,237	13,501	13,771	14,047
Recycling Battleship Service per Dwelling Unit (per Month)	2,468	2,517	2,568	2,619	2,671
Subscription Curbside Recycling per Dwelling Unit (per Month)	0	312	318	325	331
Growth	13	13	14	14	14
Refuse Service with No Feasible Recycling	6,307	6,433	6,562	6,693	6,827
Refuse Service with Curbside Recycling	3,123	3,185	3,249	3,314	3,380
Refuse Service with Battleship Recycling	3,547	3,618	3,690	3,764	3,839
Commercial Refuse Containers					
95 Gallon Cart 1x/wk (per Month)	714	728	743	758	773
95 Gallon Cart 2x/wk (per Month)	22	22	23	23	24
95 Gallon Cart 3x/wk (per Month)	9	9	9	10	10
95 Gallon Cart 4x/wk (per Month)	5	5	5	5	5
95 Gallon Cart 5x/wk (per Month)	0	0	0	0	0
95 Gallon Cart Extra Collection	0	0	0	0	0
2 CY 1x/wk (per Month)	259	264	269	275	280
2 CY 2x/wk (per Month)	22	22	23	23	24
2 CY 3x/wk (per Month)	8	8	8	8	9
2 CY 4x/wk (per Month)	3	3	3	3	3
2 CY 5x/wk (per Month)	0	0	0	0	0
2 CY 6x/wk (per Month)	0	0	0	0	0
2 CY Extra Collection	164	167	171	174	178
2 CY Container Rental (per Month)	204	208	212	216	221
4 CY 1x/wk (per Month)	224	228	233	238	242
4 CY 2x/wk (per Month)	153	156	159	162	166

Exhibit 1 Projected Billing Determinants

Service Category	2019	2020	2021	2022	2023
4 CY 3x/wk (per Month)	40	41	42	42	43
4 CY 4x/wk (per Month)	4	4	4	4	4
4 CY 5x/wk (per Month)	5	5	5	5	5
4 CY 6x/wk (per Month)	1	1	1	1	1
4 CY Extra Collection	0	0	0	0	0
4 CY Container Rental (per Month)	407	415	423	432	441
6 CY 1x/wk (per Month)	182	186	189	193	197
6 CY 2x/wk (per Month)	190	194	198	202	206
6 CY 3x/wk (per Month)	40	41	42	42	43
6 CY 4x/wk (per Month)	4	4	4	4	4
6 CY 5x/wk (per Month)	5	5	5	5	5
6 CY 6x/wk (per Month)	1	1	1	1	1
6 CY Extra Collection	30	31	31	32	32
6 CY Container Rental (per Month)	340	347	354	361	368
8 CY 1x/wk (per Month)	41	42	43	44	44
8 CY 2x/wk (per Month)	83	85	86	88	90
8 CY 3x/wk (per Month)	28	29	29	30	30
8 CY 4x/wk (per Month)	10	10	10	11	11
8 CY 5x/wk (per Month)	14	14	15	15	15
8 CY 6x/wk (per Month)	15	15	16	16	16
8 CY Extra Collection	15	15	16	16	16
8 CY Container Rental (per Month)	220	224	229	233	238
4 CY 1x/wk Compacted (per Month)	1	1	1	1	1
4 CY 2x/wk Compacted (per Month)	0	0	0	0	0
4 CY 3x/wk Compacted (per Month)	0	0	0	0	0
4 CY 4x/wk Compacted (per Month)	0	0	0	0	0
4 CY 5x/wk Compacted (per Month)	0	0	0	0	0
6 CY 1x/wk Compacted (per Month)	1	1	1	1	1
6 CY 2x/wk Compacted (per Month)	0	0	0	0	0
6 CY 3x/wk Compacted (per Month)	10	10	10	11	11
6 CY 4x/wk Compacted (per Month)	1	1	1	1	1
6 CY 5x/wk Compacted (per Month)	1	1	1	1	1
Commercial Recycling Containers					
Cardboard 4 CY 1x/wk (per Month)	65	66	68	69	70
Cardboard 4 CY 2x/wk (per Month)	10	10	10	11	11
Cardboard 4 CY 3x/wk (per Month)	18	18	19	19	19
Cardboard 4 CY 4x/wk (per Month)	3	3	3	3	3
Cardboard 4 CY 5x/wk (per Month)	2	2	2	2	2
Cardboard 6 CY 1x/wk (per Month)	41	42	43	44	44
Cardboard 6 CY 2x/wk (per Month)	8	8	8	8	9
Cardboard 6 CY 3x/wk (per Month)	9	9	9	10	10
Cardboard 6 CY 4x/wk (per Month)	1	1	1	1	1
Cardboard 6 CY 5x/wk (per Month)	2	2	2	2	2
Cardboard 8 CY 1x/wk (per Month)	5	5	5	5	5

Exhibit 1 Projected Billing Determinants

Service Category	2019	2020	2021	2022	2023
Cardboard 8 CY 2x/wk (per Month)	9	9	9	10	10
Cardboard 8 CY 3x/wk (per Month)	4	4	4	4	4
Cardboard 8 CY 4x/wk (per Month)	2	2	2	2	2
Cardboard 8 CY 5x/wk (per Month)	4	4	4	4	4
Cardboard 4 CY 1x/wk Compacted (per Month)	0	0	0	0	0
Cardboard 4 CY 2x/wk Compacted (per Month)	1	1	1	1	1
Cardboard 4 CY 3x/wk Compacted (per Month)	0	0	0	0	0
Cardboard 6 CY 1x/wk Compacted (per Month)	0	0	0	0	0
Cardboard 6 CY 2x/wk Compacted (per Month)	0	0	0	0	0
Cardboard 6 CY 3x/wk Compacted (per Month)	4	4	4	4	4
Glass 95 Gallon Cart 1x/wk (per Cart, per Month)	83	85	86	88	90
Paper 4 CY 1x/wk (per Month)	30	31	31	32	32
Paper 4 CY Container Rental (per Month)	30	31	31	32	32
Recycling (5) 18 Gallon Bins 1x/wk (per Month)	371	378	386	394	402
Food Waste Pilot 4 CY 3x/wk (per Container per Month)	11	11	11	12	12
Food Waste Pilot 2 CY 3x/wk (per Container per Month)	8	8	8	8	9
Food Waste Pilot Cart 3x/wk (per Container per Month)	151	154	157	160	163
Temporary Containers					
Temporary 6 CY 7 Day Rental Delivery, Pull, and Disposal (per Container)	380	388	395	403	411
Lease Over 10 Days (per Day)	0	0	0	0	0
Monthly Lease (per Month)	0	0	0	0	0
Extra Dump Excluding Disposal (per Dump)	0	0	0	0	0
Drop-box Containers					
20 CY Pull Charge (per Pull)	328	335	341	348	355
30 CY Pull Charge (per Pull)	1,487	1,517	1,547	1,578	1,610
40 CY Pull Charge (per Pull)	1,265	1,290	1,316	1,342	1,369
Contractor Rate Pull Charge (per Pull)	0	0	0	0	0
Delivery Fee (per Occurrence)	424	432	441	450	459
Cardboard Only 20 CY Pull Charge (per Pull)	0	0	0	0	0
Cardboard Only 30 CY Pull Charge (per Pull)	17	17	18	18	18
Cardboard Only 40 CY Pull Charge (per Pull)	0	0	0	0	0
Disposal (per Ton)	13,770	14,045	14,326	14,613	14,905
Daily Rental Over 30 Days (per Day)	0	0	0	0	0
Monthly Rental (per Rental)	0	0	0	0	0
Relocation (per Trip)	0	0	0	0	0
Recycling Roll-off Disposal (per Ton)	237	242	247	252	257

Exhibit 1 Projected Billing Determinants

Service Category	2019	2020	2021	2022	2023
New Rates/Service Costs					
Recycling Drop-off Pull Charge (per Pull)	853	870	887	905	923
Recycling Drop-off Disposal (per Ton)	901	919	937	956	975
Scale/Tip Fees					
Disposal Minimum (per Load)	152	155	158	161	165
Disposal (Resident) (per Ton)	9,433	9,622	9,814	10,010	10,211
Disposal (Out of Town) (per Ton)	9,835	10,032	10,232	10,437	10,646
Compact Pickup Truck (per Load)	0	0	0	0	0
Full Size Pickup Truck (per Load)	0	0	0	0	0
Trailers Up to 14 FT (per Load)	0	0	0	0	0
Trailers Greater Than 14 FT (per Load)	0	0	0	0	0
Composting Facility					
Mulch Sales (Free when excessive supply on hand)	644	657	670	683	697
2 CY Compost Scoop	1,312	1,338	1,365	1,392	1,420
50 LB Compost Bags	302	308	314	320	327

Exhibit 2 - Projected Operating Results

Rate Option

Recommended

Year	2019	2020	2021	2022	2023
Projected Rate Revenue	\$12,498,206	\$12,738,418	\$12,994,386	\$13,257,989	\$13,509,315
Projected Operating Expenses					
Salaries/Wages FT, Regular	\$2,613,200	\$2,665,464	\$2,718,774	\$2,773,149	\$2,828,612
Overtime General	\$58,600	\$59,772	\$60,967	\$62,187	\$63,431
Accruals General	\$0	\$0	\$0	\$0	\$0
Accruals ST/LT	\$0	\$0	\$0	\$0	\$0
Payroll Taxes FICA	\$163,009	\$166,269	\$169,595	\$172,987	\$176,446
Payroll Taxes Medicare	\$38,821	\$39,598	\$40,390	\$41,197	\$42,021
Contingency General	\$1,655	\$1,689	\$1,722	\$1,757	\$1,792
Emp Insurance Health	\$477,010	\$486,550	\$496,281	\$506,207	\$516,331
Emp Insurance LTD	\$4,898	\$4,996	\$5,096	\$5,198	\$5,302
Emp Insurance ADD	\$349	\$356	\$363	\$370	\$378
Emp Insurance Life	\$8,371	\$8,539	\$8,709	\$8,884	\$9,061
Pension Retirement Savings	\$290,227	\$296,031	\$301,952	\$307,991	\$314,151
Workers Compensation Insurance	\$102,898	\$104,956	\$107,055	\$109,196	\$111,380
Personnel Other Contra	\$170,231	\$173,635	\$177,108	\$180,650	\$184,263
Extra Services Personnel	\$25,500	\$26,010	\$26,530	\$27,061	\$27,602
Supplies Office/Printing	\$14,497	\$14,787	\$15,083	\$15,385	\$15,692
Supplies Copies/Lease	\$2,448	\$2,497	\$2,547	\$2,598	\$2,650
Cleaning Supplies :	\$7,963	\$8,122	\$8,285	\$8,451	\$8,620
Chemicals :	\$1,530	\$1,561	\$1,592	\$1,624	\$1,656
Software :	\$663	\$676	\$690	\$704	\$718
Minor Equipment :	\$67,885	\$69,243	\$70,628	\$72,040	\$73,481
Fuel Unleaded/Diesel	\$536,606	\$547,338	\$558,285	\$569,450	\$580,839
Safety Devices :	\$17,534	\$17,884	\$18,242	\$18,607	\$18,979
Public Notification :	\$5,100	\$5,202	\$5,306	\$5,412	\$5,520
Uniforms/Personal Equipment	\$52,328	\$53,375	\$54,442	\$55,531	\$56,642
Publications & Dues :	\$60,776	\$61,991	\$63,231	\$64,496	\$65,786
Travel & Training :	\$30,467	\$31,077	\$31,698	\$32,332	\$32,979
Travel & Training Advances	\$0	\$0	\$0	\$0	\$0
Postage Postage	\$164,111	\$167,393	\$170,741	\$174,156	\$177,639
Business Meals	\$510	\$520	\$531	\$541	\$552
Audit Expense :	\$4,182	\$4,266	\$4,351	\$4,438	\$4,527
Rental Equipment	\$1,836	\$1,873	\$1,910	\$1,948	\$1,987
Lease Software	\$7,548	\$7,699	\$7,853	\$8,010	\$8,170
Utilities Other/Rebates/Legacy	\$0	\$0	\$0	\$0	\$0
Utilities Telephone	\$22,088	\$22,530	\$22,980	\$23,440	\$23,909
Utilities AEP Electric	\$45,390	\$46,298	\$47,224	\$48,168	\$49,132
Utilities Fayetteville Water/Sewer	\$8,466	\$8,635	\$8,808	\$8,984	\$9,164
Utilities Arkansas Western Gas/Source Gas	\$4,896	\$4,994	\$5,094	\$5,196	\$5,300
Utilities Ozarks Electric	\$612	\$624	\$637	\$649	\$662
Insurance Vehicles/Buildings	\$8,497	\$8,667	\$8,840	\$9,017	\$9,197
Insurance Self (City Vehicles)	\$2,346	\$2,393	\$2,441	\$2,490	\$2,539
Insurance Self (Third Party Damage)	\$1	\$1	\$1	\$1	\$1
Insurance Self (Non-Vehicle Damage)	\$2,244	\$2,289	\$2,335	\$2,381	\$2,429
Professional Services :	\$1,836	\$1,873	\$1,910	\$1,948	\$1,987
Contract Services :	\$716,142	\$730,465	\$745,074	\$759,976	\$775,175
Bad Debt Expense	\$35,700	\$36,414	\$37,142	\$37,885	\$38,643
Bank Charges Credit Card	\$61,200	\$62,424	\$63,672	\$64,946	\$66,245
In Lieu Of Taxes Solid Waste	\$333,336	\$340,003	\$346,803	\$353,739	\$360,814
Recognition Employee	\$1,224	\$1,248	\$1,273	\$1,299	\$1,325
Motorpool Charges Maintenance	\$615,242	\$627,546	\$640,097	\$652,899	\$665,957
Motorpool Charges Shop Overhead	\$200,600	\$204,612	\$208,705	\$212,879	\$217,136

Exhibit 2 - Projected Operating Results

Rate Option

Recommended

Year	2019	2020	2021	2022	2023
Motorpool Charges Shop Overhead Insurance	\$31,746	\$32,381	\$33,029	\$33,690	\$34,363
Collection Expense	\$255	\$260	\$265	\$271	\$276
Safety Program Safety Program	\$306	\$312	\$318	\$325	\$331
Sales Tax Inventory Items	\$7,455	\$7,604	\$7,756	\$7,911	\$8,070
Cost Allocation :	\$719,100	\$733,482	\$748,152	\$763,115	\$778,377
Building & Grounds Maintenance	\$51,000	\$52,020	\$53,060	\$54,122	\$55,204
Equipment Maint Office Machine	\$2,040	\$2,081	\$2,122	\$2,165	\$2,208
Radio Maintenance Radio Maintenance	\$7,238	\$7,383	\$7,530	\$7,681	\$7,835
Vehicle & Machine Maintenance	\$15,613	\$15,925	\$16,244	\$16,569	\$16,900
Bank Service Charge Bank Service Charge	\$204	\$208	\$212	\$216	\$221
Salaries/Wages Bank Payout	\$0	\$0	\$0	\$0	\$0
Signs Signs	\$5,304	\$5,410	\$5,518	\$5,629	\$5,741
Container Maint Supplies :	\$4,386	\$4,474	\$4,563	\$4,654	\$4,748
Containers Containers	\$240,211	\$245,015	\$249,916	\$254,914	\$260,012
Solid Waste Disposal Solid Waste Disposal	\$2,255,363	\$2,300,470	\$2,346,479	\$2,393,409	\$2,441,277
Solid Waste Collection Supplies	\$19,125	\$19,508	\$19,898	\$20,296	\$20,702
Software Maintenance	\$2,040	\$2,081	\$2,122	\$2,165	\$2,208
Promotionals Activities	\$136,476	\$139,206	\$141,990	\$144,829	\$147,726
Small Equipment Maint Small Equipment Maint	\$6,120	\$6,242	\$6,367	\$6,495	\$6,624
CIP	\$444,100	\$625,000	\$84,000	\$420,000	\$0
Equipment Replacement	\$1,976,667	\$1,922,997	\$3,604,656	\$1,008,894	\$2,128,144
Organics Collection Driver	\$48,235	\$49,200	\$50,184	\$51,187	\$52,211
Apartment Recycling Driver	\$48,235	\$49,200	\$50,184	\$51,187	\$52,211
Apartment Recycling Driver	\$48,235	\$49,200	\$50,184	\$51,187	\$52,211
Curb Recycling Driver	\$48,235	\$49,200	\$50,184	\$51,187	\$52,211
Curb Recycling Driver	\$48,235	\$49,200	\$50,184	\$51,187	\$52,211
Financial Coordinator (Personnel Other Contra)	\$71,453	\$72,882	\$74,340	\$75,826	\$77,343
HR Recruiter (Personnel Other Contra)	\$30,000	\$30,600	\$31,212	\$31,836	\$32,473
Educator	\$48,235	\$49,200	\$50,184	\$51,187	\$52,211
Microcomputers/Printer Replacements	\$1,000	\$8,000	\$8,000	\$8,000	\$0
Organic Carts (10,112)	\$6,800	\$0	\$7,000	\$7,000	\$0
Curb Recycling Bins	\$7,000	\$0	\$0	\$0	\$0
Additional Motorpool Charges	\$186,000	\$186,000	\$186,000	\$186,000	\$186,000
Residential Refuse Driver 2023	\$0	\$0	\$0	\$0	\$54,289
Commercial Refuse Driver 2023	\$0	\$0	\$0	\$0	\$54,289
Additional Motorpool Charges 2023	\$0	\$0	\$0	\$0	\$55,204
Residential Recycling Driver 2024	\$0	\$0	\$0	\$0	\$0
Additional Motorpool Charges 2024	\$0	\$0	\$0	\$0	\$0
Roll-off Driver 2025	\$0	\$0	\$0	\$0	\$0
Additional Motorpool Charges 2025	\$0	\$0	\$0	\$0	\$0
Residential Refuse Driver 2028	\$0	\$0	\$0	\$0	\$0
Commercial Refuse Driver 2028	\$0	\$0	\$0	\$0	\$0
Residential Recycling Driver 2028	\$0	\$0	\$0	\$0	\$0
Additional Motorpool Charges 2028	\$0	\$0	\$0	\$0	\$0
Surplus (Deficit)	(\$1,008,779.83)	(\$1,106,705.97)	(\$2,220,459.24)	\$76,401.78	(\$751,338.31)

Exhibit 3 Projected Cash Flow

Rate Option

Recommended

Operating Reserve Target Based on Days (%)

16.4%

Year	2019	2020	2021	2022	2023
Projected Rate Revenue	\$12,498,206	\$12,738,418	\$12,994,386	\$13,257,989	\$13,509,315
Projected Operating Expenses	\$12,820,485	\$13,144,893	\$14,500,610	\$12,453,067	\$13,517,563
Surplus (Deficit)	(\$322,279)	(\$406,475)	(\$1,506,224)	\$804,922	(\$8,248)
Operating Reserves	2019	2020	2021	2022	2023
Beginning of Year	\$5,200,000	\$4,877,721	\$4,471,246	\$2,965,022	\$3,769,944
Expenditures	(\$12,820,485)	(\$13,144,893)	(\$14,500,610)	(\$12,453,067)	(\$13,517,563)
Revenues	\$12,498,206	\$12,738,418	\$12,994,386	\$13,257,989	\$13,509,315
End of Year	\$4,877,721	\$4,471,246	\$2,965,022	\$3,769,944	\$3,761,696
Target End of Year	\$2,054,500	\$2,093,986	\$2,136,063	\$2,179,395	\$2,220,709
Operating Reserve Level	39.0%	35.1%	22.8%	28.4%	27.8%
Achieves Operating Reserve Target	TRUE	TRUE	TRUE	TRUE	TRUE
Excess Operating Reserve	\$2,823,221	\$2,377,259	\$828,959	\$1,590,548	\$1,540,987