

# Solid Waste Cost of Service and Rate Design Study



**City of Tempe, Arizona**

**EXECUTIVE SUMMARY**

**October 1, 2015**

# Executive Summary

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The City of Tempe, Arizona (City) retained Burns & McDonnell Engineering, Inc. (BMcD), under subcontract to Louis Berger (formerly Leidos), to conduct a cost of service and rate design study (Study) for their Solid Waste Department (Department). The purpose of this Study was to determine the total cost of providing solid waste services, equitably distribute the cost to customers, and design rates to safeguard the financial integrity of the operation.

This report provides a discussion of the methodology utilized to conduct the analysis, the cost of providing services as determined by the analysis, and proposed rates.

## Report Organization

This report is organized into three sections, plus an Executive Summary and Appendices. Section 1 provides an introduction and Section 2 focuses on the cost of service analysis and includes an overview of the methodology utilized to determine the cost of service for the City's solid waste services as well as the cost of service based rates. Section 3 provides the projected financial impact of the current rates, discusses key findings from the Study, and presents the recommended rates for services.

## Revenue from Current Rate Structure

The cost of service study focuses on revenue from the rates charged to customers. Revenue from the sale of recyclables, interest revenue, and extra cart fees offset the expenses incurred and therefore lower the revenue requirement. The current rates charged to residential and commercial customers have been in place since November 1, 2009. Table ES-1 summarizes the projected revenue for FY 2016 based on the current rates.

Table ES-1  
Projected FY 2016 Revenue from Rates

Customer	FY 2016 Revenue
Residential	\$8,062,170
Commercial <sup>1</sup>	\$4,279,621
Roll-off <sup>2</sup>	\$1,304,863
Total Revenue from Rates	\$13,646,655

1. Includes front-load and cart customers for both refuse and recycling.
2. Includes disposal.

## Revenue Requirement Forecast

Using the methodology described in Section 2.1, BMcD forecasted the revenue requirement for the five year forecast, beginning in FY 2016. The detailed revenue requirement was then allocated to the appropriate customer type. Table ES-2 summarizes the revenue requirement for the five-year period. Using the current rates and the projected customer counts, BMcD also forecasted the revenue for rates for the five-year period. As shown in Table ES-2, the revenue collected from rates is not sufficient to recover the full revenue requirement based on the current rate structure.

**Table ES-2**  
**Revenue Requirement Forecast**

Customer	Year 1 FY 2016	Year 2 FY 2017	Year 3 FY 2018	Year 4 FY 2019	Year 5 FY 2020
Residential	\$10,193,021	9,133,053	9,324,736	9,490,895	9,670,098
Commercial	\$4,462,579	\$5,211,939	\$5,329,599	\$5,425,334	\$5,531,536
Roll-off	\$1,556,637	\$1,596,632	\$1,637,613	\$1,672,474	\$1,709,071
Total Revenue Requirement	\$16,212,237	\$15,941,624	\$16,291,948	\$16,588,703	\$16,910,705
Revenue from Current Rates	\$13,646,655	\$13,663,655	\$13,680,649	\$13,697,707	\$13,714,834
Over (Under) Recovery	(\$2,565,583)	(\$2,277,968)	(\$2,611,299)	(\$2,890,996)	(\$3,195,871)

The City of Tempe has been able to rely on its reserve balance for the last several years to delay rate increases for its residential and commercial customers. However, if the rates remain constant over the next several years, the reserve balance will drop below the minimum target of 15 percent of the Department's annual expenses. For the current Fiscal Year (FY) 2015, the Department is expected to reduce its reserve by approximately \$2.4 million, leaving a reserve balance of \$3.1 million. With no other changes to the operations, the annual operating deficit is projected to reach \$3.2 million by FY 2020 and cumulative deficit of \$13.5 million over the five year forecast.

Figure ES-1 shows the unrestricted net assets, which closely follows the reserve balance, from FY 2009 to FY 2015. The City has been able to rely on this balance to delay rate increases, but starting in FY 2014, the balance, which has historically increased year over year, has started to decline and that trend is expected to continue with the current rate structure.

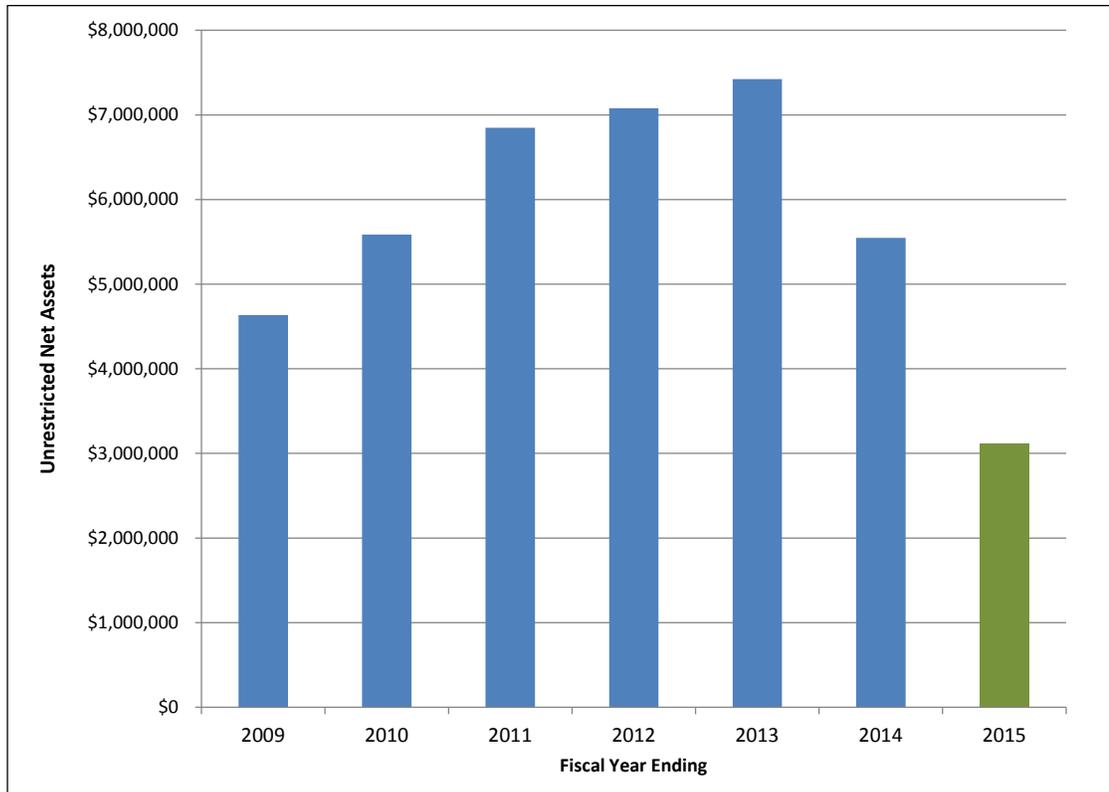


Figure ES-1: Unrestricted Net Assets Balance

## Proposed Rates

BMcD recommends a series of rate increases to minimize the annual deficit in the short term and begin to generate an annual surplus within a few years. Table ES-3 shows the proposed rates for residential and commercial front-load refuse customers (the two largest customer types), as well as the total revenue, total cost of service and reserve fund balances.

**Table ES-3  
Proposed Rates**

	Current	Year 1 FY 2016	Year 2 FY 2017	Year 3 FY 2018	Year 4 FY 2019	Year 5 FY 2020
Residential		15%	2.5%	1.8%	1.8%	1.8%
Residential Rate	\$19.98	\$23.00	\$23.60	\$24.00	\$24.40	\$24.80
Commercial Front-Load		10%	6%	6%	3%	3%
Monthly Rate <sup>1</sup>	\$135.48	\$150.00	\$159.00	\$168.60	\$173.60	\$178.80
Total Rate Revenue		\$14,639,826	\$15,921,825	\$16,479,706	\$16,939,618	\$17,304,885
Total Revenue Requirement <sup>2</sup>		\$16,212,237	\$15,941,624	\$16,291,948	\$16,588,703	\$16,910,705
Annual Surplus (Deficit) <sup>3</sup>		(\$1,540,062)	\$1,840	\$216,222	\$383,270	\$433,434
Year End Reserve Balance	\$3,119,519	\$1,579,457	\$1,581,297	\$1,797,518	\$2,180,788	\$2,614,223
Year-End Reserve Balance (%)	20.1%	9.7%	9.9%	11.0%	13.1%	15.5%

1. Based on one 6 cubic yard container collected once per week.
2. Revenue requirement equals total expenses minus revenue offsets (revenue sources other than rates such recycling commodity revenue).
3. Includes interest income from reserve fund balance.

For commercial front-load customers, the City has historically offered discounts to customers that have more than one container. BMcD's proposed rates include a standardization of these multi-container discounts. Customers with two containers receive a 15 percent discount, those with three containers receive a 17.5 percent discount, those with four containers receive a 20 percent discount, and those with five or more containers receive a 22.5 percent discount. All discounts are relative to the single-container rate. Schedule 4 in Appendix A provides a detailed rate matrix for commercial customers. Figure ES-2 shows a summary reserve balance projections based on the current rates and proposed rates.

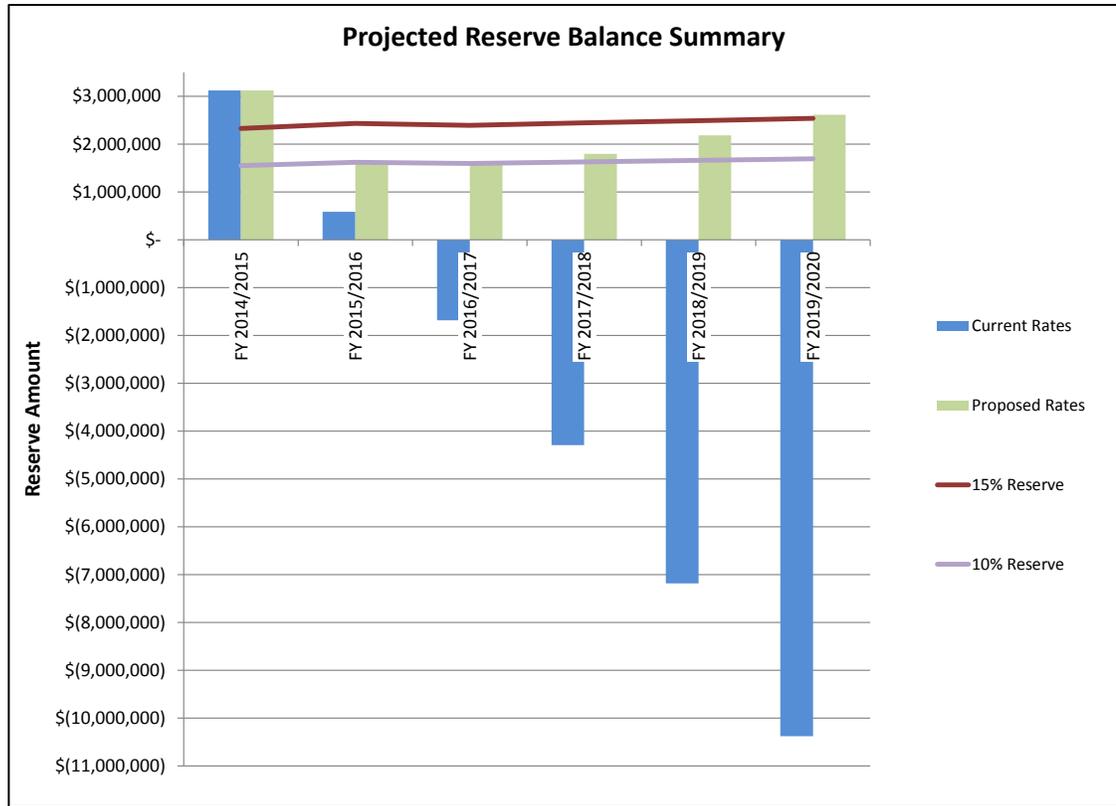


Figure ES-2: Summary of Reserve Balances

Other Customers

*Roll-off*

Currently, the City includes a limited amount of disposal with each roll-off collection. For a 40 cubic yard container with up to six tons of disposal, the rate is \$292.10. BMcD recommends the City have a cost per pull and then a per-ton charge for disposal. This provides an equitable cost structure for customers with varying load sizes. Table ES-4 shows the proposed rates for roll-off customers. Customers with lighter loads will see a rate decrease and customers with heavier loads will see a rate increase.

**Table ES-4  
Proposed Rates for Roll-off Customers**

	Current	Year 1 FY 2016	Year 2 FY 2017	Year 3 FY 2018	Year 4 FY 2019	Year 5 FY 2020
Cost of Service	----	\$230.17 + Disposal	\$238.49 + Disposal	\$246.89 + Disposal	\$255.87 + Disposal	\$264.16 + Disposal
Rate (per month) <sup>1</sup>	\$292.10	\$225.00 + Disposal	\$230.00 + Disposal	\$240.00 + Disposal	\$245.00 + Disposal	\$250.00 + Disposal
% Increase over Previous Year		Varies depending on tons collected and disposed.				

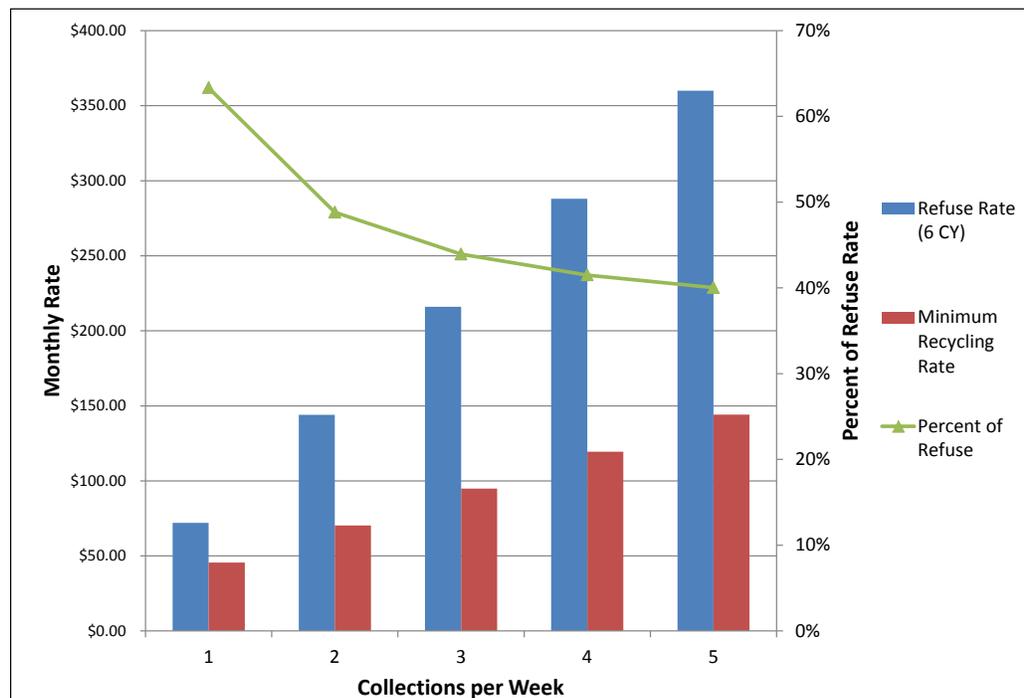
1. The current rate is for a 40CY roll-off container and includes up to 6 tons of disposal. The proposed rates shown exclude disposal. Customers would be charge \$28 per ton for each ton disposed.

**Commercial Cart**

The rate for small commercial customers that receive cart service is currently sufficient to recover the cost of service over the five-year forecast period. Therefore BMcD recommends to keep these rates constant over the forecast period.

**Commercial Front-Load Recycling**

The City currently offer recycling via front-load containers for no charge. BMcD recommends implementing a rate that recovers the cost for providing that service while still providing an incentive for commercial customers to recycle. Figure ES-3 summarizes the proposed implementation of commercial recycling rates for front-load customers based on the number of collections per week. The savings relative to the refuse container increases as the frequency of collection increases.



**Figure ES-3: Commercial Front-Load Recycling Rate**

## Future Evaluation of Rates

BMcD recommends the City implement the proposed rate increases to be effective no later than January 1, 2016. In addition, the City should closely monitor customer counts and expenses related to the commercial front-load customers. If the number of customers and expenses are maintained, the proposed rates should be sufficient to recover the costs of the operation within two to three years. However, if the City loses a significant number of commercial front-load customers or experiences a significant increase in costs, the City may need evaluate the need for further rate adjustments or changes to the commercial collection operation.



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