CITY OF COOLIDGE, AZ

SOLID WASTE STUDY

FINAL REPORT | FEBRUARY 2013

SAIC®

Final Report

Solid Waste Study

City of Coolidge, AZ

March 2013

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Introduction

In August of 2012, the City of Coolidge (City) retained the services of SAIC Energy, Environment & Infrastructure, LLC (SAIC) to complete a cost of service and rate design study and an operational review of the City's residential refuse collection operations (Study). Solid waste operations for the City are located in the Solid Waste Division (SWD) of the Public Works Department. SWD provides all solid waste services, including refuse and brush and bulky collection, for residential customers.

This Executive Summary provides a brief overview of each section in this Study and lists the key findings and recommendations for each section. The report is organized as follows:

- Executive Summary
- Section 1 – Introduction
- Section 2 – Cost of Service
- Section 3 – Residential Refuse Collection
- Section 4 – Bulk Trash Collection
- Section 5 – Recycling Feasibility
- Section 6 – Vehicle Maintenance Division
- Section 7 – Transfer Station Feasibility and Disposal Options Review
- Section 8 – Commercial Contract Evaluation
- Section 9 – Illegal Dumping
- Section 10 – Landfill Closure and Post-Closure Cost Estimates
- Section 11 – Ordinance Review
- Section 12 – Policy Issues
- Section 13 – Implementation

Project Purpose

The purpose of the cost of service portion 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 utility. The total cost of providing services includes costs associated with operations and maintenance (O&M) and cash capital outlays. This report provides a discussion of the methodology utilized to conduct the analysis, the cost of providing services as determined by the

analysis, and recommended rates to be adopted for solid waste services. SAIC also identified and discussed various policy issues.

The purpose of the operations review portion of this Study was to evaluate the solid waste services provided by the SWD and ensure they are operating in the most cost effective and efficient manner possible. SAIC specifically evaluated opportunities for the City to reduce its costs of providing residential solid waste services.

Outsourcing Solid Waste Collection

Throughout the solid waste industry, cities are currently experiencing high levels of competitive pressure to perform as efficiently and cost effectively as possible. A key part of this study was to perform an assessment of the SWD's operational efficiency and performance. During the course of the review, SAIC identified multiple opportunities for improvement, which, if implemented, could increase the operation's efficiency and significantly decrease the operation's cost of service.

While SAIC recognizes that the SWD provides a very high level of service compared to many other municipally-provided solid waste operations, the SWD's current cost of service is relatively high in SAIC's experience. As such, the City should consider making the changes recommended in this report to be a critical step to achieving financial sustainability at an affordable cost to residents. SAIC anticipates these changes could require one to two years to implement.

SAIC understands that neighboring communities are currently considering privatization of their solid waste utilities. If the private contractors under consideration in these communities could provide similar pricing to the City for solid waste services, it is possible that this would represent an initial cost savings to the City. However, SAIC would caution that the City should keep in mind the following regarding privatization:

- The prices quoted will likely be for a different level of service than is currently provided by the City (e.g., providing less frequent bulk trash collection, etc.)
- When a private contractor takes over, they may offer low prices initially; however, when the City has exited its solid waste operations, the prices will likely increase over time (especially for an area like Coolidge which may not attract a large pool of potential competitors)
- Once the City privatizes, re-instituting a solid waste operation will be extremely difficult

SAIC therefore recommends the City use the next two years to attempt making the operational changes highlighted in this report prior to considering privatization. During this time, the City should actively monitor the pricing, level of service, and satisfaction of the outsourced solid waste operations in nearby communities. If, after two years, significant increases in operational efficiency and decreases in cost have not materialized, the City may then want to consider privatizing its solid waste operation.

Key Findings & Recommendations

The key findings and recommendations from Sections 1 – 13 are presented below. SAIC would emphasize that the operational recommendations of this report will take some time to implement. Therefore, SAIC would suggest the City evaluate SWD's progress in two years.

Introduction

Section 1 provides a detailed introduction to the Study.

Cost of Service

Section 2 provides an overview of the cost of service and rate design analysis SAIC completed for the City.

- **Increase residential rates:** The City's current residential solid waste fee structure is projected to result in an annual under-recovery each year of the five-year forecast. The size of the annual under-recovery with current rates ranges from approximately $330,000 to $550,000. By increasing residential rates, the City could reduce the size of this annual under-recovery by approximately $1,300,000 over the five-year forecast.
- **Pursue operational efficiencies:** As a part of this study, SAIC identified numerous opportunities for the City to increase the efficiency of its solid waste operation. SAIC's recommendations can be found in Sections 3 through 12 of this report. Section 13 provides a synopsis of these changes, an implementation strategy, and the impacts each change would have on the City's current cost of service.
- **Monitor the impact operational changes have on the City's cost of service:** SAIC recommends the City attempt to make the suggested changes outlined in this report prior to considering privatization of the residential solid waste operation. SAIC suggests the City spend approximately two years implementing these changes and monitoring the cost of service impacts of the proposed operational changes.

Residential Refuse Collection

Section 3 outlines the residential refuse collection operation's existing conditions. The review placed a focus on how various aspects of these operational areas could be modified in order to improve the efficiency and management of the residential refuse collection operation.

- **Redraw and rebalance the City's residential refuse routes:** As a part of this study, SAIC aided the City with modifying the City's residential collection routes in order to improve operational efficiencies, reducing the number of weekly routes from 13 to eight.

- **Consider implementing curbside recycling collection:** As discussed in Section 5 of this report, the City could add a curbside recycling program at minimal cost to customers. Additionally, the City could potentially utilize excess capacity in the proposed recycling program to provide service to commercial recycling customers on a limited basis.
- **Move to a 4/40 collection schedule:** SAIC's analysis indicates the City could reduce its number of daily routes from three to two by moving to a 4/40 collection schedule. This would allow the City to reduce the number of routes required to operate its residential solid waste operation.[1] Reducing the number of routes could be accomplished under the City's current twice per week refuse operation or a 1+1 refuse and recycling program.
- **Utilize existing staff as backup support:** If the City moves to a 4/40 schedule, it could reduce the number of daily residential refuse routes required from three to two. Although the City has limited economies of scale with regard to the total number of routes required, if the SWD adopts a rotoboom truck and decreases the frequency of bulk trash collection (as discussed in Section 4 of this report), it could use an existing driver as a backup for both the residential and bulk trash collection operations. Additionally, as the City makes the changes recommended in this report, the City could supplement its backup crew by utilizing the Waste Operations Superintendent in a part-time backup role. In SAIC's experience, this arrangement is fairly typical in smaller communities.
- **Develop a comprehensive vehicle maintenance schedule:** While the City has done a good job of controlling its vehicle O&M costs, it should ensure that all necessary maintenance activities are occurring on-time and as needed. The City can expect that its average O&M costs will increase with the adoption of newer vehicles.
- **Increase collection vehicle size:** The City utilizes trucks with 22 CY of capacity. Cities similar to Coolidge typically use vehicles with capacity of 25 CY to 30 CY. The City could increase its overall collection capacity by adopting a larger truck size during the course of its normal vehicle replacement schedule. This would allow the City to minimize the number of trips to the landfill and/or MRF required each day, which in turn would allow the City's drivers to spend more time on route.
- **Reduce the number of 300-gallon containers used for residential collection:** The City services a number of 300-gallon containers, primarily for alleyway collection. Per City staff, the City would like to minimize the number of 300-gallon containers it uses for residential collection. SAIC recommends the City 1) develop a five-year plan to minimize the use of these containers and 2) discontinue or minimize alleyway collection.

[1] SAIC would emphasize that reducing the number of routes the City runs would not result in layoffs due to the natural attrition the City has experienced during October – November 2012.

Bulk Trash Collection

Section 4 outlines the bulk trash collection operation's existing conditions. The review placed a focus on how various aspects of these operational areas could be modified in order to improve the efficiency and management of the bulk trash collection operation.

- **Decrease the frequency of bulk trash collection:** SAIC recommends the City decrease the frequency of bulk trash collection to better align the City with other communities throughout the nation. Additionally, the City will be able to offer City-wide bulk service with one collection route if the City decreases the bulk trash collection frequency. SAIC recognizes that decreasing the collection frequency is ultimately a policy decision.
- **Implement setout limits:** The City generates 0.75 tons of bulk material per household receiving bulk trash collection annually. The City's current bulk volume is two and half times greater than that of Glendale, AZ and seven and a half times greater than Tucson, AZ's annual volume per household. To decrease the City's volume of bulk trash material, SAIC recommends the City impose a setout limit for bulk trash.
- **Change work schedule to a 4/40 schedule:** The bulk trash operation can collect more setouts per day on a four days per week, ten hours per day schedule. A four day work week would also allow the VMD to service bulk trash equipment on non-collection days.
- **Change crew configuration:** SAIC recommends the City transition to a rotoboom equipment configuration. Under a rotoboom configuration, the City would operate slightly less efficiently on a per hour basis but would achieve significant annual savings in equipment and personnel costs. As part of transitioning to a rotoboom crew configuration, the City would need to exit alleyway collection.
- **Replace dump trucks:** The City's dump trucks are both past their projected useful lives and should be replaced with newer equipment as they begin to experience mechanical problems.

Recycling Feasibility

Section 5 addresses potential recycling options for both residential and commercial customers. For the purposes of this Study, SAIC evaluated the impact of implementing a single-stream curbside recycling program.

- **Consider transitioning to a 1+1 refuse and recycling program:** Based on SAIC's analysis, the City could transition to a 1+1 refuse and recycling program from its current twice-weekly refuse collection program through the use of its existing staff and equipment. SAIC estimates that the City could add weekly curbside recycling collection to its services for between $0.67 and $0.99 per month. However, if the City were able to either 1) decrease the hauling increased costs associated with transporting recyclables to a Phoenix-area MRF or 2) increase its recycling participation rate beyond SAIC's projections, it could reduce the monthly

cost per household. Additionally, many cities have experienced long-term financial benefits from transitioning to similar programs. These financial benefits are largely due to 1) the rising costs of disposal and 2) the cities' commitment to creating strong recycling programs with participation rates above those projected in this report.

- **Utilize excess capacity to provide limited commercial recycling collection:** If the City implements a curbside recycling program, the City could potentially generate additional revenue by utilizing excess capacity in the residential curbside collection program to provide limited commercial recycling collection to local businesses. If the City pursues a commercial recycling program in addition to the proposed curbside residential recycling collection program, the City should seek to proactively secure as many commercial accounts as possible until the route reaches capacity. Doing so would provide better route densities and therefore more efficient recycling collection.

Vehicle Maintenance Division

Section 6 addresses issues related to the Vehicle Maintenance Division (VMD) and discusses potential ways to minimize maintenance costs and vehicle downtime.

- **Make pre- and post-trip inspections a point of emphasis:** SWD should continue carrying out maintenance-related responsibilities and emphasizing their importance to the overall operation of SWD.
- **Set aside lighter and/or non-collection days for SWD vehicle maintenance:** Whenever possible, VMD should continue to perform maintenance work for SWD vehicles on lighter and/or non-collection days (currently Wednesdays). This will potentially help reduce downtime for SWD vehicles and improve communications between VMD and SWD regarding when maintenance will be performed.
- **Have an independent mechanic evaluate the SWD collection fleet:** SWD should invest in having an independent mechanic evaluate each of its vehicles to determine their long-term viability for front line service over the next three to four years.
- **Increase training for VMD mechanics:** It is SAIC's understanding that the VMD's mechanics may lack familiarity with certain changes in maintenance requirements for new vehicles. The City should therefore seek to increase the knowledge and skills of its mechanics through the provision of additional training. As turnover occurs within VMD, the City should be sure to hire mechanics with the latest certifications necessary to providing high quality service to City vehicles.
- **Smooth vehicle replacement schedule:** SWD should continue to prioritize smoothing its vehicle replacement schedule as much as possible. On a seven year replacement schedule, the optimal number of residential collection vehicles will be approximately one vehicle every three to four years. Smoothing the replacement schedule will help to keep the department's vehicle capital costs relatively stable from year to year.

- **Monitor O&M costs:** O&M costs for SWD vehicles and equipment are on the lower end of the industry range. SWD should monitor these costs as it invests in an independent mechanic's services and increased training for the City's mechanics.
- **Explore alternatives to purchasing a new collection vehicle:** The City's frontline collection vehicles are currently in the middle of their scheduled service lives. However, the vehicles have recently experienced several mechanical failures. Prior to purchasing a new vehicle, the City should identify other possible solutions including retrofitting its newest rear-load collection vehicle with a semi-automated tipper and hiring an independent mechanic to perform a comprehensive review of the vehicles.

Short-Term Vehicle Plan

The City is currently considering purchasing a new fully automated side-load collection vehicle due to the increases in vehicle maintenance costs and downtime mentioned in Section 6.2. Due to the importance of this issue to the City, SAIC has created a short-term plan for the City to consider.

SAIC does not recommend the City purchase a new vehicle at this time, except as a last resort. SAIC's initial recommendation is based on the following:

- The City's frontline collection vehicles are relatively newer (model years 2008 and 2009)
- The City could potentially consolidate its routes, thereby reducing the number of vehicles required for the residential collection operation[2]

SAIC instead recommends the City follow the following priority list of alternatives for the City to consider:

- **Add a semi-automated tipper to the City's newest rear-load vehicle:** This vehicle could then provide temporary backup support to the residential collection program as necessary. Because operating the tipper is a relatively straightforward job, SAIC anticipates the City could potentially utilize trustees from the Arizona Department of Corrections as laborers on a semi-automated crew.
- **Obtain an independent opinion:** Have an independent mechanic provide a comprehensive review of the City's fully automated side-load collection vehicles in order to assess the projected short- and long-term reliability of the vehicles as discussed in Section 6.2.3.

Transfer Station Feasibility and Disposal Options Review

Section 7 evaluates the economic feasibility of a City-owned and –operated transfer station, as well as the City's options for the disposal of solid waste generated in the City.

- **Continue direct hauling:** Based on the amount of refuse tonnage generated in the City, a city-owned transfer station is most likely not a cost competitive option

[2] As discussed in Section 3 of this report.

given that several disposal options exist within close proximity to the City of Coolidge. Additionally, although a transfer station would increase the capacity of the City's residential refuse and/or recycling routes, the increased capacity would not be sufficient to reduce the number of routes required to serve the City and would likely not result in sufficient cost savings to validate the operational and financial investments.

- **Begin a formal procurement process as soon as possible**: In SAIC's opinion, the City should not renew its disposal contract with Johnson Utilities given the contract's relatively high disposal costs and automatic escalation clause. SAIC instead recommends the City begin a procurement process for a long-term (e.g., five to 10 years) disposal contract immediately. Based on informal price quotes obtained by SAIC, several landfills in the area appear to offer more cost effective and/or convenient disposal terms than the City's current contract provides.

Commercial Contract Evaluation

Section 8 provides an evaluation of the City's Commercial Collection Agreement with Right Away Disposal (RAD).

- **Review current commercial contract with City Attorney to ensure compliance with HB 2604**: In SAIC's experience, the City's Agreement with RAD is fairly consistent with other commercial refuse collection agreements in place throughout the industry. However, because House Bill 2604 may have rendered parts of the existing Agreement unenforceable, the City should review the current contract with its City Attorney to ensure compliance with the bill. Additionally, because the City's current agreement is not scheduled to expire until December of 2015, the City may need to develop a new contract, which allows for competition for commercial solid waste collection services.[3]
- **Secure the most competitive commercial rates possible for City-owned facilities[4]:** RAD's commercial collection rates appear to be fairly competitive within the Phoenix and Tucson metropolitan areas. However, given the possibility of new commercial collection providers in the City, SAIC suggests the City utilize this opportunity to secure the most competitive rates possible for its own long term commercial solid waste collection needs.
- **Develop a standard franchise fee or commercial permit fee agreement for use with commercial solid waste services providers:** SAIC recommends the City develop a standard commercial franchise fee or commercial permit fee agreement, which can be utilized for all haulers interested in providing commercial solid waste services within the City. SAIC would emphasize the importance of including stipulations regarding minimum service levels and a franchise fee or permit fee to operate within the City. SAIC does not recommend municipalization at this time. However, the City could potentially utilize any excess capacity generated as a result of the operational changes suggested in this

[3] The City may also need to conduct a further review of its City Ordinance.
[4] This primarily pertains for the Public Works Department's yard drop off site.

report to offer limited commercial collection services to local businesses using carts. This would be particularly appropriate if the City implements a residential curbside recycling program.

Illegal Dumping

Section 9 provides a discussion on the City's illegal dumping issues, as well as an outline of illegal dumping abatement strategies and tools the City could use in its efforts.

Landfill Closure and Post-Closure Cost Estimates

Section 10 provides an update to the City's existing Closure and Post-Closure cost estimates.

- **Update Landfill closure cost estimate:** SAIC utilized the design outlined in the 1998 Landfill Closure Plan to generate a Landfill closure cost estimate. SAIC incorporated updated cost estimates for materials and included grading of Intermediate Cover, Engineering Certification, quality assurance/quality control (QA/QC), and contingency costs to the cost estimate. The updated estimated closure cost for the City's Landfill is $1,050,258.
- **Budget for Landfill final closure costs:** SAIC recommends the City begin budgeting for final closure costs of the Landfill. SAIC has added $50,000 per year to the City's revenue requirement for the next five years in order to create a fund for the down payment on final closure costs.

Ordinance Review

SAIC evaluated the City's ordinance to determine its effectiveness in addressing key issues currently facing the City. Section 11 provides a review of the City's current solid waste codes and ordinances.

- **Increase enforcement activities for non-payment:** The City should make an effort to repossess customers' refuse carts immediately upon non-payment of the solid waste utility bill. SAIC would emphasize that this could most easily be accomplished with 96-gallon containers. Additionally, the City should increase the penalty for late payments from $1.00 per month to between $5.00 and $10.00 per month. SAIC would note that if a customer has their cart repossessed three times, this would be grounds for the loss of the customer's deposit and would require an additional deposit be paid to reclaim the cart, pursuant to the City's existing ordinance.
- **Adopt a monthly billing system:** In SAIC's opinion, the City may be able to decrease its bad debt expense by moving to a monthly billing system. Although bills are sent quarterly and payments are assessed monthly, the smaller dollar amounts associated with monthly bills may be more manageable and recognizable for some residents and may therefore result in fewer delinquent payments.

Alternatively, the City could provide a financial incentive for paying monthly, as opposed to paying at longer intervals.

- **Make collection attempts on a monthly basis:** While the language regarding collection attempts is unclear and should be clarified, it is SAIC's understanding that the City makes regular collection attempts on accounts delinquent more than 90 days. SAIC recommends the City begin to make collection attempts after an account has been delinquent 30 days and then continue to make collection attempts on, at minimum, a monthly basis. In SAIC's opinion, addressing non-payments as soon as possible could help to decrease the City's bad debt expense.
- **Specify setout limits for bulk trash collection:** The City's ordinance does not currently specify a setout limit for brush trash collection. SAIC recommends the City define clear setout limits in order to improve efficiency in the bulk trash collection operation, as well as to decrease the potential for injury to the City's personnel and/or equipment.
- **Institute a minimum bill for City-provided cleanup services:** The City currently assesses a five percent inspection charge for City-provided cleanup services when a resident is not in compliance with City ordinance. If the total bill is relatively modest, however, the City may not fully recoup its inspection costs. SAIC therefore recommends the City institute a minimum bill for these services (e.g., $200).
- **Review ordinance language related to assessing liens:** The City should review the ordinance's existing language and clarify that liens may only be assessed for code enforcement issues.

Policy Issues

Section 12 discusses policy issues the City will have to consider as it pursues the findings and recommendations outlined throughout this Study.

- **Establish a progressive rate structure:** Currently, all residential customers are charged $20 per month for residential services, regardless of their container size. SAIC would recommend charging a premium for the additional disposal capacity afforded those customers with an unshared 300-gallon container (especially any customers who receive twice weekly service).
- **Monitor the need for future rate increases:** SAIC has recommended a variety of operational changes in this report designed to increase the efficiency of the City's solid waste operation. As SWD makes progress with the proposed operational changes, the City may be able to decrease the need for future solid waste services rate increases. The City should therefore monitor its need for rate increases on an annual basis.
- **Institute a new account set up fee:** Many cities charge a new account setup fee to defray the costs of initiating service for a customer. For example, the City of Sherman, TX assesses a $50 new account fee and Peoria, AZ charges a $28 new account fee. SAIC recommends the City assess a new account setup fee of $25.

- **Institute a new deposit fee:** Many cities charge a deposit fee to offset unpaid fees for service. SAIC recommends the City assess a deposit fee of approximately $113, which is equal to three months service and the cost of the cart, for new customer accounts and existing customer accounts after three collection activities following a non-payment.
- **Extend bulk trash collection to all residents:** The City currently provides bulk trash collection to approximately 75 percent of its residents. However, the City charges all customers the same monthly rate, regardless of whether they receive bulk trash collection. SAIC recommends the City extend service to all customers in order to minimize the potential for perceived inequality in the City's rates.
- **Discontinue alleyway collection:** The City currently faces significant problems with illegal dumping. In SAIC's experience, discontinuing alleyway collection and limiting access to the alleyways are effective deterrents to illegal dumping. SAIC has determined that the City could provide efficient refuse and bulk trash collection without the use of alleyway collection and therefore recommends the City consider exiting the alleys.
- **Develop illegal dumping abatement strategy:** Reducing and/or eliminating illegal dumping within a community requires a comprehensive approach and City-wide involvement. SAIC recommends the City develop a coordinated illegal dumping abatement strategy. Initial steps could include drafting necessary changes to City ordinance, appropriating the necessary funding, and increasing enforcement activities.
- **Consider developing a regional landfill with surrounding communities:** It is SAIC's understanding that neighboring communities may have an interest in developing a regional landfill or transfer station when their landfills have reached capacity. SAIC recommends the City procure a five to 10-year disposal contract at this time, but advises the City to begin exploring the possibility of a regional landfill or transfer station, as this could become a cost-effective disposal option in the future.
- **Develop reserve funds:** SWD does not currently have any reserve funds and must therefore request additional funds from the General Fund when it is unable to meet its revenue requirements. As the SWD is able, it should begin developing Operating, Capital, and Landfill reserve funds.

Section 13 – Implementation

Section 13 provides SAIC's suggested priority matrix for the changes recommended in this report, along with the cost of service impacts associated with certain recommendations. Table ES-1 provides a summary of the changes recommended in this report, along with a suggested priority and timeline for approaching these changes.

Table ES-1
Implementation Priority Matrix

Recommendation	Priority	Timeline
Cost of Service		
Increase Residential Rates	High	Immediately
Pursue Operational Efficiencies	High	Immediately
Monitor the Impacts of Operational Changes	High	Ongoing Basis
Residential Refuse Collection		
Redraw and Rebalance Routes	High	Immediately
Utilize a Shared Supervisor as Backup Driver	High	Immediately
Move to 4/40 Collection Schedule	High	3 – 6 months
Develop Comprehensive Vehicle Maintenance Schedule	High	6 months
Decrease Use of 300-Gallon Containers and/or Discontinue Alleyway Collection	Medium	12 – 48 months
Increase Collection Vehicle Size	Medium	12 – 60 months
Bulk Trash Collection		
Implement Bulk Trash Setout Limits	High	3 – 6 months
Move to 4/40 Collection Schedule	High	3 – 6 months
Decrease Bulk Trash Collection Frequency	High	6 – 12 months
Change Crew and Equipment Configuration	Medium	12 – 48 months
Replace Dump Trucks	Low	12 – 24 months
Recycling Feasibility		
Consider Implementing 1+1 Refuse and Recycling Collection Program	Low	12 – 60 months
Utilize Excess Recycling Capacity to Provide Commercial Services	Low	Contingent on Implementation of Recycling Program
Vehicle Maintenance Division		
Make Pre- and Post-Trip Inspections a Point of Emphasis	High	Immediately
Explore Alternatives to Purchasing a New Automated Side Load Collection Vehicle	High	Immediately
Obtain Independent Review of SWD Fleet	High	3 months
Increase Training for VMD Mechanics	High	12 – 24 months
Maintain a High Level of Fleet Standardization	High	Ongoing Basis
Set Aside Non-Collection Days for Vehicle Maintenance	Medium	3 – 6 months
Smooth Vehicle Replacement Schedule	Medium	Ongoing Basis
Monitor O&M costs	Medium	Ongoing Basis

Transfer Station Feasibility and Disposal Options Review		
Begin Disposal Procurement Process	High	Immediately
Continue Direct Hauling	Medium	Ongoing Basis
Commercial Contract Evaluation		
Develop Standard Franchise Fee or Commercial Permit Fee Agreement	Medium	3 – 6 months
Secure Competitive Commercial Rates	Medium	3 – 6 months
Review Commercial Contract for HB 2604 Compliance	Low	12 – 24 months
Illegal Dumping		
Develop a Comprehensive Illegal Abatement Strategy	Medium	12 months
Landfill Closure and Post-Closure		
Update Landfill Closure Cost Estimate	High	Immediately
Budget for Landfill Final Closure Costs	Medium	Ongoing Basis
Ordinance Review		
Make Collection Attempts Monthly	High	Immediately
Collect Deposits Consistently	Medium	Immediately
Increase Enforcement Activities for Non-Payment	High	6 months
Encourage Monthly Billing	Medium	6 – 12 months
Pre-Bill Customers for Service	Medium	6 – 12 months
Institute Minimum Bill for City-Provided Cleanup Services	Medium	6 – 12 months
Policy Issues		
Extend Bulk Trash Collection to All Residents	Medium	12 – 24 months
Develop Reserve Funds	Medium	12 – 60 months
Establish a Progressive Rate Structure	Low	12 – 24 months

Section 1
INTRODUCTION

1.1 Project Overview

In August of 2012, the City of Coolidge (City) retained the services of SAIC Energy, Environment & Infrastructure, LLC (SAIC) to complete a cost of service and rate design study and an operational review of the City's residential refuse collection operations (Study). Solid waste operations for the City are located in the Solid Waste Division (SWD) of the Public Works Department. SWD provides all solid waste services, including refuse and brush and bulky collection, for residential customers.

This section of the report provides a description and purpose for this study. This section also outlines the project approach employed by SAIC to complete the analysis and concludes with a description of the report's organization.

1.2 Project Purpose

The purpose of the cost of service portion 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 utility. The total cost of providing services includes costs associated with operations and maintenance (O&M) and cash capital outlays. This report provides a discussion of the methodology utilized to conduct the analysis, the cost of providing services as determined by the analysis, and recommended rates to be adopted for solid waste services. SAIC also identified and discussed various policy issues.

The purpose of the operations review portion of this Study was to evaluate the solid waste services provided by the SWD and ensure they are operating in the most cost effective and efficient manner possible. SAIC specifically evaluated opportunities for the City to reduce its costs of providing residential solid waste services.

1.3 Project Approach

The SAIC team developed a series of several key tasks that provided the foundation for the conduct of this Study. The following tasks were utilized to collect information about the City's current system and alternatives.

1.3.1 Project Initiation

Request for Information

SAIC submitted a detailed data request to the City to collect historical and background information on operations and practices. The information requested included the following:

- Detailed financial reports and budgets
- Solid waste policies and ordinances
- Organizational charts and personnel rosters
- Solid waste quantity reports
- Fleet operational policies, inventory and costs
- Operational and productivity data for the landfill, residential collections, and special collections
- Public education and outreach materials

Kick-off Meeting

The SAIC team met with SWD staff to initiate the study on August 23, 2012. The meeting served as a forum to confirm the scope and schedule, discuss data collection, and identify initial areas of focus within SWD.

1.3.2 Conduct Field Observations

SAIC conducted extensive on-site observations of key operating practices to obtain a thorough understanding of the City's solid waste operations. Field observations allowed SAIC to obtain an understanding of the operational challenges, productivity levels, successes, and areas in need of improvement. As part of this task, SAIC observed the solid waste operation.

1.3.3 Analysis

Based on SAIC's field observations and data provided by SWD staff, SAIC conducted analysis on various aspects of the solid waste operation. These analyses included:

- Collection efficiency
- Routing
- Staffing
- Equipment
- Potential operational changes

1.3.4 Initial Findings

Once the field observations and analyses were complete, SAIC met with SWD staff on August 24, 2012 to review the initial findings. SAIC was able to review each of the initial findings and/or recommendations and get feedback from SWD staff. SWD staff was also given the opportunity to voice any additional concerns that may not have been addressed during the meeting.

1.3.5 Draft Report

Using feedback from SWD staff on the initial finding and recommendations, SAIC continued to refine the analyses and develop the draft report of the Study. SAIC issued the draft report for SWD staff to review on December 11, 2012.

1.3.6 Citizens' Meeting

SAIC and City staff held a Citizens' Meeting on December 18, 2012 to discuss certain key findings from SAIC's analysis. The following six questions were discussed as a part of the meeting:

- Would you support a shift to less frequent bulk trash collection if it minimized the need for rate increases?
- Would you support implementing setout limits on bulk trash if it minimized the need for rate increases?
- Would you be in favor of the City discontinuing alleyway collection if it helped to increase collection efficiency and decrease illegal dumping?
- Would you support the City in implementing an illegal dumping abatement program?
- Do you support the City taking more active measures to address residential non-payment for solid waste services?
- Do you have an interest in a curbside recycling program?

The residents in attendance were generally supportive of the City making the operational changes necessary to providing efficient and cost-effective solid waste services.

1.3.7 Final Draft Report and Presentation

Once SWD staff reviewed the draft report and provided SAIC with comments, SAIC made revisions to the draft report and issued the final report of the Study to the City of Coolidge on February 18, 2013.

1.4 Report Organization

This report is organized into thirteen sections, plus an Executive Summary. Section 2 focuses on the cost of service and rate design component of this Study. Sections 3 through 11 focus on different aspects of the solid waste operation. Section 12 presents a list of policy issues for the City's consideration. Section 13 provides an implementation overview and priority matrix.

In each of these sections, SAIC provides a detailed evaluation of the specific issue faced. Based on this operational analysis, SAIC's key findings and recommendations are provided at the conclusion of the respective sections, as appropriate. The sections of this report are listed below.

- Executive Summary
- Section 1 – Introduction
- Section 2 – Cost of Service and Rate Design
- Section 3 – Residential Refuse Collection
- Section 4 – Brush and Bulky Collection
- Section 5 – Recycling Feasibility
- Section 6 – Vehicle Maintenance Division
- Section 7 – Transfer Station Feasibility and Disposal Options
- Section 8 – Commercial Contract Evaluation
- Section 9 – Illegal Dumping
- Section 10 – Landfill Closure and Post-Closure
- Section 11 – Solid Waste Ordinance Review
- Section 12 – Policy Issues
- Section 13 – Implementation Steps and Priority Recommendations

Section 2
COST OF SERVICE AND RATE DESIGN

2.1 Introduction

This section discusses the cost of service and rate design analysis SAIC completed for the City. The goal of a cost of service and rate design study is to determine solid waste fees that adequately recover the costs of providing services. The methodology for conducting a cost of service and rate design study requires a systematic progression of steps. The primary purpose of this section of the report is to describe the analysis conducted to complete each of these steps for the rate analysis of the City's solid waste system.

The following describes the organizational structure of this section:

- Current Solid Waste Services Fees
- Cost of Service Analysis
  - Methodology Overview
  - Development of Revenue Requirement for Test Year
  - Development of Revenue Requirement for FY 2013 - FY 2017
  - Allocation of Costs to Service Categories
  - Allocation to Customer Classes
  - Determination of Billing Units
  - Calculation of Cost of Service
- Revenue Projections from Current Rates
- Key Findings
- Rate Recommendations

2.2 Current Solid Waste Services and Fees

Solid waste services provided by the SWD include the following:

- **Residential refuse services** provided by the SWD include twice weekly residential refuse collection services via fully-automated collection vehicles with a combination of 96-gallon and 300-gallon carts. The current rate for residential collection service for City residents is $20.00 per month. Residents may request additional containers for $20.00 per month. Residents may also drop off refuse at the City drop-off center, located in the Public Works yard.
- **Brush and bulky services** provided by SWD include twice per month collection. Brush and bulky service is included in the base rate of $20.00 per month. SWD

currently provides brush and service to approximately 75 percent of the City's households, as discussed in Section 4 of this report. Residents may also rent a City-owned dump truck to dispose of brush and bulky materials free of charge.

2.3 Methodology Overview

This overview provides the background necessary to understand how data compiled in each task provides the information required to determine the cost of service and fees that will adequately recover the cost of service.

- **Development of the "Test Year"** – The first task in conducting the cost of service analysis is the development of an annual revenue requirement for a "Test Year." The revenue requirement represents the total revenue that the solid waste operation will need to recover during a year in order to fund all expenses of providing solid waste services. SAIC worked with City staff to identify costs that represent the cost of operating the SWD in a "typical" year.
- **Development of the Revenue Requirement Forecast** – After developing the revenue requirement for the Test Year, SAIC worked with City staff to project changes in costs due to inflation, salary increases, new equipment, new customers, etc. This resulted in the five-year revenue requirement forecast.
- **Allocation of Costs to Service Categories** – SAIC worked with staff to assign and allocate costs to various service categories. The service categories represent the primary solid waste services provided by the City, and are listed in Section 2.5.
- **Allocation to Customer Classes** – SAIC grouped the service categories based on the customer classes that will recover each category's costs. In the City's case, the primary customer class is residential.
- **Determination of Billing Units** – SAIC identified the appropriate billing units for each customer class. For example, the residential rate is charged per household, so the number of residential households was utilized as the billing unit for this customer class.
- **Calculation of the Cost of Service** – SAIC distributed the costs for each customer class across the appropriate billing units to determine the cost of service for each customer class.

SAIC would mention that the tables presented in this report are based on a series of detailed spreadsheets that involve numerous formulas. In some cases, this may result in numbers that do not total to the exact dollar amount (e.g., there is a difference of $1 or $2 if added manually). The reason for this difference is solely due to rounding, as most numbers presented in the report do not include any decimal places.

2.4 Development of Revenue Requirement

2.4.1 Selection of the Test Year

In developing the Test Year revenue requirement for the SWD, SAIC used the fiscal year (FY) 2013 projected budget as the basis for the "Test Year." SAIC compared the FY 2013 budget to actual expenses from FY 2012. Through this comparison, and with input from City staff, SAIC made adjustments to ensure that the Test Year would reflect expenses that occur on a regular basis. All adjustments to the FY 2013 budget necessary to develop the Test Year are detailed in Appendix A, Schedule 1.

2.4.2 Relationship Between the Operating Budget and the Revenue Requirement

SAIC would like to emphasize that there is a fundamental difference between an operating budget and a revenue requirement. The operating budget represents the costs for operations that directly support solid waste programs. The operating budget represents the authorized costs that the department may incur during the course of the year. In contrast, the revenue requirement represents the funding amount that needs to be recovered through rates/fees, net of any additional revenues and expenses that are not included in the SWD operating budget, but are a part of the solid waste programs.

2.4.3 Development of the Revenue Requirement Forecast

In addition to developing the "Test Year" revenue requirement, SAIC forecasted the annual revenue requirement for FY 2013 through FY 2017. In order to develop this forecast, SAIC projected how costs would change over the years due to factors such as inflation. The assumptions used to develop the forecast include the annual increases shown in Table 2-1.

Table 2-1
Inflation Factors

Inflation Factor	Year 1 FY 2013	Year 2 FY 2014	Year 3 FY 2015	Year 4 FY 2016	Year 5 FY 2017
Salary	0.00%	2.50%	2.50%	2.50%	2.50%
Benefits	0.00%	2.50%	2.50%	2.50%	2.50%
Overtime	0.00%	2.50%	2.50%	2.50%	2.50%
Vehicle Maintenance	0.00%	2.50%	2.50%	2.50%	2.50%
Fuel	0.00%	6.00%	6.00%	6.00%	6.00%
Maintenance	0.00%	2.50%	2.50%	2.50%	2.50%
Supplies	0.00%	2.50%	2.50%	2.50%	2.50%
Capital Equipment	0.00%	3.50%	3.50%	3.50%	3.50%
Professional Services	0.00%	2.50%	2.50%	2.50%	2.50%
General	0.00%	2.50%	2.50%	2.50%	2.50%
Disposal	0.00%	3.00%	3.00%	3.00%	3.00%
Health Benefits	0.00%	8.00%	8.00%	8.00%	8.00%

As shown in Table 2-1, no inflation factors were applied for FY 2013, as the "Test Year" revenue requirement was based on the SWD FY 2013 budget. In addition to forecasting cost increases due to inflation, SAIC accounted for the following planned costs over the five year forecast:

- Replacement of containers
- Replacement of vehicles and equipment
- Personnel changes
- Interdepartmental transfers

Table 2-2 shows the revenue requirement for the five-year forecast. The detailed composition of the forecast is provided in the Appendix A, Schedule 2.

Table 2-2
Solid Waste Revenue Requirement

	Year 1 FY 2013	Year 2 FY 2014	Year 3 FY 2015	Year 4 FY 2016	Year 5 FY 2017
Solid Waste Revenue Requirement	$ 1,201,812	$ 1,224,438	$ 1,256,423	$ 1,338,496	$ 1,417,994

2.5 Allocation of Costs to Service Categories

The City provides various services to customers. To determine the costs for each service, there is a need to allocate costs to service categories that represent the primary solid waste services provided. These categories were determined through a series of discussions with City staff and are shown below:

- General
  - Administration
  - Landfill Closure
  - Illegal Dumping
  - Code Enforcement
  - Dump Truck Rental
- Residential
  - Refuse Collection
  - Recycling
  - Brush and Bulky Collection
- Commercial
- Disposal
  - Disposal
  - Brush Chipping
  - Burn Pile
  - Resident Drop-off

Identification of the total costs for each service category was a critical step in determining adequate rates that reflect the cost of providing service. These costs were isolated by service category in order to fully recover the total revenue requirement by matching those customers that utilize the service with the actual costs for that service. Table 2-3 identifies the cost of providing each service for FY 2013 through FY 2017.

Administration Cost Breakdown

For FY 2013, SAIC anticipates the SWD's Administration costs will total $268,700 and include the following:

Expenses

- Salaries and Benefits: $81,300
- Operating Expenses: $99,350
  - Bad Debt Expense: $78,954
  - Liability and Fire Insurance: $9,348
  - Miscellaneous Operating Expenses: $11,048
- General Fund Transfer: $82,500

Revenue Offsets following:

- Right Away Disposal Administrative Fee: $9,000
- RPA Interest: $450

Table 2-3
Revenue Requirement by Service Category [1]

Service Category	Year 1 FY 2013	Year 2 FY 2014	Year 3 FY 2015	Year 4 FY 2016	Year 5 FY 2017
General					
Administration	$ 268,700	$ 274,092	$ 279,652	$ 285,386	$ 291,302
Landfill Closure	59,202	59,432	59,668	59,910	60,157
Illegal Dumping	2,037	2,098	2,162	2,228	2,296
Code Enforcement	-	-	-	-	-
Rental of Dump Truck	13,436	13,365	13,697	16,364	18,863
Residential					
Refuse Collection	$ 345,820	$ 349,298	$ 359,059	$ 402,768	$ 444,295
Recycling	(550)	(550)	(550)	(550)	(550)
Brush & Bulky Collection	231,233	236,431	243,713	263,483	282,620
Commercial	-	-	-	-	-
Disposal					
Disposal	$ 240,643	$ 247,862	$ 255,298	$ 262,957	$ 270,845
Brush Chipping	14,169	14,475	14,945	16,293	17,596
Burn Pile	16,471	16,965	17,478	18,011	18,565
Resident Drop-off	10,651	10,970	11,302	11,646	12,005
Total Revenue Requirement	$ 1,201,812	$ 1,224,438	$ 1,256,423	$ 1,338,496	$ 1,417,994

[1] Any minor arithmetic deviation is due to rounding

2.6 Allocation to Customer Classes

After calculating the costs for each service category over the five-year forecast period, SAIC allocated the costs for service categories to each customer class. This assists in identifying the appropriate customers to be charged for each service provided. Table 2-4 identifies how the service categories were grouped and the recovery basis for each service category.

Table 2-4
Recovery Basis for Service Categories

Service Category	Recovery Basis
General	
Administration	Distributed to all customer classes based on proportion of overall revenue requirement and recovered through residential rates.
Landfill Closure	
Illegal Dumping	
Code Enforcement	
Rental of Dump Truck	
Residential	
Refuse Collection	Recovered through residential rates.
Recycling	
Brush & Bulky Collection	
Commercial	Distributed to all customer classes as a revenue offset based on proportion of overall revenue requirement.
Disposal	
Disposal	Distributed to all customer classes based on proportion of overall tons generated and recovered through residential rates.
Brush Chipping	
Burn Pile	
Resident Drop-off	

2.7 Determination of Billing Units

In order to calculate the appropriate rates, SAIC determined the number of annual billing units for various customer classes. SAIC received billing data for each customer class from City staff and determined the cost of service by dividing the revenue requirement by the appropriate billing units.

2.7.1 Residential

The residential rate is a flat monthly fee. Correspondingly, the appropriate billing unit for this customer class is the number of households served by the City. Table 2-5 provides the billing unit forecast for the residential customer class.

Table 2-5
Residential Billing Unit Forecast

Customers	Year 1 FY 2013	Year 2 FY 2014	Year 3 FY 2015	Year 4 FY 2016	Year 5 FY 2017
Residential Households	3,597	3,597	3,597	3,597	3,597

The customer growth projections shown in Table 2-5 assume zero customer growth. These growth projections were developed by SAIC and City staff in order to keep the rate analysis conservative.

2.7.2 Commercial Disposal Offset

The City does not currently provide commercial refuse or recycling collection services. However, per the City's existing agreement with Right Away Disposal (RAD), RAD pays the City an administrative fee to provide commercial services within the City. For the purposes of this analysis, SAIC treated this reimbursement as a revenue offset to the City's administrative costs.

2.7.3 Disposal

The cost of disposal is distributed to the various customer classes based on projected disposal tonnage. Table 2-6 lists the estimated tonnage forecast for each customer class.

Table 2-6
Disposal Tonnage Forecast

Customer Class	Year 1 FY 2013	Year 2 FY 2014	Year 3 FY 2015	Year 4 FY 2016	Year 5 FY 2017
Residential	4,285	4,285	4,285	4,285	4,285
Brush & Bulky	2,009	2,009	2,009	2,009	2,009
Commercial Dumpster [(1)]	1,156	1,156	1,156	1,156	1,156
Yard Drop Off	193	193	193	193	193
Total	7,643	7,643	7,643	7,643	7,643

1 While the City does not provide commercial collection services, RAD may dispose of waste at Johnson Utilities Transfer Station under the City's account and then submit reimbursement to the City.

2.8 Calculation of the Cost of Service

SAIC determined the cost of service for the various solid waste services provided by the City. It is important to note that the cost of service rates are not the rates SAIC recommends be adopted by the City. The proposed rates are provided in Section 2.10.

2.8.1 Residential

Table 2-7 shows the projected cost of service for residential customers on an annual basis. Table 2-8 shows the projected cost of service for residential customers on a monthly basis. The cost of service includes the revenue requirement for curbside collection and disposal, additional residential services, and the distributed share of solid waste indirect costs (e.g. administrative cost, illegal dumping, etc.). A detailed examination of the residential cost of service in each year of the forecast is provided in the Appendix A, Schedule 3.

Table 2-7
Annual Residential Cost of Service

Cost Centers	Year 1 FY 2013	Year 2 FY 2014	Year 3 FY 2015	Year 4 FY 2016	Year 5 FY 2017
Annual Cost of Service					
Direct Allocation					
Refuse Collection	$ 345,820	$ 349,298	$ 359,059	$ 402,768	$ 444,295
Recycling Collection	(550)	(550)	(550)	(550)	(550)
Brush and Bulky	231,233	236,431	243,713	263,483	282,620
Yard Drop Off	10,651	10,970	11,302	11,646	12,005
Commercial Dumpster	-	-	-	-	-
Disposal: Refuse	240,643	247,862	255,298	262,957	270,845
Disposal: Brush Chipping	14,169	14,475	14,945	16,293	17,596
Disposal: Burn Pile	16,471	16,965	17,478	18,011	18,565
Subtotal	$ 858,436	$ 875,451	$ 901,245	$ 974,609	$ 1,045,375
Indirect Allocation (1)					
Admin	$ 268,700	$ 274,092	$ 279,652	$ 285,386	$ 291,302
Landfill Closure	59,202	59,432	59,668	59,910	60,157
Illegal Dumping	2,037	2,098	2,162	2,228	2,296
Code Enforcement	-	-	-	-	-
Rental of Dump Truck	13,436	13,365	13,697	16,364	18,863
Subtotal	$ 343,375	$ 348,987	$ 355,178	$ 363,887	$ 372,619
Total Cost of Service	$ 1,201,812	$ 1,224,438	$ 1,256,423	$ 1,338,496	$ 1,417,994

1 Allocated to residential customers based on respective portion of the revenue requirement.

Table 2-8
Monthly Residential Cost of Service

Cost Centers	Year 1 FY 2013	Year 2 FY 2014	Year 3 FY 2015	Year 4 FY 2016	Year 5 FY 2017
Billing Units	3,597	3,597	3,597	3,597	3,597
Monthly Cost of Service					
Direct Allocation					
Refuse Collection	$ 8.01	$ 8.09	$8.32	$ 9.33	$ 10.29
Recycling Collection	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Brush and Bulky	5.36	5.48	5.65	6.10	6.55
Yard Drop Off	0.25	0.25	0.26	0.27	0.28
Commercial Dumpster	-	-	-	-	-
Disposal: Refuse	5.58	5.75	5.92	6.10	6.28
Disposal: Brush Chipping	0.33	0.34	0.35	0.38	0.41
Disposal: Burn Pile	0.38	0.39	0.40	0.42	0.43
Subtotal	$19.90	$ 20.29	$ 20.89	$ 22.59	$ 24.23
Indirect Allocation [1]					
Admin	$ 6.23	$ 6.35	$ 6.48	$ 6.61	$ 6.75
Landfill Closure	1.37	1.38	1.38	1.39	1.39
Illegal Dumping	0.05	0.05	0.05	0.05	0.05
Code Enforcement	-	-	-	-	-
Rental of Dump Truck	0.31	0.31	0.32	0.38	0.44
Subtotal	$ 7.96	$ 8.09	$ 8.23	$ 8.43	$ 8.63
Total Cost of Service	$ 27.85	$ 28.37	$ 29.12	$ 31.02	$ 32.86

[1] Allocated to residential customers based on respective portion of the revenue requirement.

2.9 Revenue Projections from Current Rates

SAIC developed projections concerning the annual amount of revenue that the City would generate from current rates. These projections are based on billing data provided by City staff. Table 2-9 projects the total annual revenue the City could expect to generate from current rates from the forecasted customer count shown in Table 2-5.

Table 2-9
Revenue Projections Based on Current Rates

	Year 1 FY 2013	Year 2 FY 2014	Year 3 FY 2015	Year 4 FY 2016	Year 5 FY 2017
Monthly Rate per Customer	$ 20.00	$ 20.00	$ 20.00	$ 20.00	$ 20.00
Revenue	$ 863,280	$ 863,280	$ 863,280	$ 863,280	$ 863,280
Revenue Requirement	(1,201,812)	(1,224,438)	(1,256,423)	(1,338,496)	(1,417,994)
Over /(Under) Recovery	($ 338,532)	($ 361,158)	($ 393,143)	($ 475,216)	($ 554,714)
Cumulative Over / (Under) Recovery	($ 338,532)	($ 699,690)	($ 1,092,832)	($ 1,568,048)	($2,122,762)

2.10 Proposed Solid Waste Rates

The proposed rates provided in this section of the report are based on the cost of service analysis described in Section 2.8 and do not reflect any financial savings that could be achieved by operational changes identified in Sections 3 through 12. SAIC summarizes proposed operational savings in Section 13.

2.10.1 Residential

Table 2-10 show the proposed rates SAIC developed for the City's residential customers.

Table 2-10
Proposed Residential Monthly Rates

	Current Rate	Year 1 FY 2013	Year 2 FY 2014	Year 3 FY 2015	Year 4 FY 2016	Year 5 FY 2017
Residential Rates	$ 20.00	$ 22.00	$ 24.00	$ 26.00	$ 28.00	$ 30.00
Cost of Service		(27.85)	(28.37)	(29.12)	(31.02)	(32.86)
Over/(Under Recovery)		($ 5.85)	($ 4.37)	($ 3.12)	($ 3.02)	($ 2.86)

As shown in Table 2-10, the current residential rate is not sufficient to recover the cost of service. SAIC would therefore recommend increasing the residential rate from $20.00 to $30.00 based on the current projected cost of service. The recommended rate increase results in a yearly average increase of 8.5 percent over five years. However, there may be an opportunity to decrease the size of SAIC's suggested yearly rate increases for FY 2013 – FY 2017 with operational changes. These changes are detailed in Sections 3 through 12 of this report. Section 13 provides a cost of service savings breakdown for each change outlined in this report, as well as an implementation plan and suggested priority matrix.

2.11 Projected Revenue Recovery

The rates proposed in this section of the report are projected to generate the revenue listed in Table 2-11 over the five-year forecast.

Table 2-11
Revenue Projections Based on Proposed Rates

	Year 1 FY 2013	Year 2 FY 2014	Year 3 FY 2015	Year 4 FY 2016	Year 5 FY 2017
Monthly Rate per Customer	$ 22.00	$ 24.00	$ 26.00	$ 28.00	$ 30.00
Revenue	$ 949,608	$ 1,035,936	$ 1,122,264	$ 1,208,592	$ 1,294,920
Revenue Requirement	(1,201,812)	(1,224,438)	(1,256,423)	(1,338,496)	(1,417,994)
Over /(Under) Recovery	($ 252,204)	($ 188,502)	($ 134,159)	($ 129,904)	($ 123,074)
Cumulative Over / (Under) Recovery	($ 252,204)	($ 440,706)	($ 574,864)	($ 704,768)	($ 827,842)

2.12 Key Findings and Recommendations

- **Increase residential rates:** The City's current residential solid waste fee structure is projected to result in an annual under-recovery each year of the five year forecast. The size of the annual under-recovery with current rates ranges from approximately $330,000 to $550,000. By increasing residential rates, the City could reduce the size of this annual under-recovery by approximately $1,300,000 over the five year forecast.
- **Pursue operational efficiencies:** As a part of this study, SAIC identified numerous opportunities for the City to increase the efficiency of its solid waste operation. SAIC's recommendations can be found in Sections 3 through 12 of this report. Section 13 provides a synopsis of these changes, an implementation strategy, and the impacts each change would have on the City's current cost of service.
- **Monitor the impact operational changes have on the City's cost of service:** SAIC recommends the City attempt to make the suggested changes outlined in this report prior to considering privatization of the residential solid waste operation. SAIC suggests the City spend approximately two years implementing these changes and monitoring the cost of service impacts of the proposed operational changes.

Section 3
RESIDENTAL REFUSE COLLECTION

3.1 Introduction

This section addresses the City's existing residential refuse collection operation and potential operational changes the City could make to improve the overall efficiency of the operation.

The City of Coolidge SWD provides residential refuse collection to approximately 3,597 residential accounts[1]. Most customers receive twice per week collection, using 96-gallon and 300-gallon containers provided by the City on a Monday/Thursday or Tuesday/Friday schedule, while the remaining customers receive once per week service on Wednesday. The City provides residential collection using fully-automated side-load collection vehicles and is currently divided into 13 weekly routes.

3.2 Analysis of Key Operational Areas

SAIC identified the following operational areas of the residential refuse collection operation as key components for review and analysis:

- Collection efficiency
- Routing
- Staffing
- Equipment
- Potential operational changes

This section will focus on how various aspects of these operational areas could be modified in order to improve the efficiency of the residential refuse collection operation. In particular, SAIC focused on determining the appropriate staffing and vehicle configurations for the City's needs. SAIC's key findings and recommendations concerning the City's operations are provided at the conclusion of this section.

3.3 Collection Efficiency

As a part of SAIC's analysis to determine the appropriate number of residential refuse collection routes, SAIC evaluated the average size for the City's fully-automated routes. To complete this analysis, SAIC used data received from the City for each of the daily residential refuse collection routes. A summary of this analysis follows in Table 3-1.

[1] For the purposes of this report, residential accounts also include a limited number of small businesses and organizations such as churches, etc. which utilize City-provided carts.

Table 3-1
Collection Efficiency of Current Routes

Metric	3 Fully-Automated Routes [1]		
	Customers	Extra Carts	Total
Count			
96 Gallon	2,093	20	2,113
300 Gallon	508	0	508
Average Per Route			
96 Gallon	349	3	352
300 Gallon	85	0	85
Average Per Hour [2]			
96 Gallon	76	1	77
300 Gallon	18	0	18

1 Based on historical data, the City is currently running two daily routes due to staff attrition and equipment failure.

2 Customers ÷ 3 Routes ÷ 2 Days per Week (Monday/Thursday and Tuesday/Friday) ÷ 4.58 Collection Hours per Day = Customers per Hour. SAIC estimated the average collection hours per day per route by subtracting time spent on non-collection activities (e.g., vehicle inspections, breaks, and landfill trips) from the total time available in an eight hour workday. SAIC would note that the limited number of collections performed on Wednesdays is included within this count.

Solid waste collection efficiency is primarily driven by three factors:

- Cart setout rate
- Distance from route to disposal site
- Number of cart collections per hour

During field observations, SAIC determined the City's setout rate to be in line with the industry average for twice per week collection. The City could potentially increase collection efficiency by transporting materials to a closer disposal site (discussed in Section 7.3). As seen in Table 3-1, the average route size for fully-automated collection is 352 96-gallon containers and 85 300-gallon containers, for a total of 437 containers. The typical range for a fully-automated residential collection system that operates on an eight hour collection day is 700 – 900 containers. The average collection efficiency for the City's fully-automated collection routes is currently below the industry range.

In order to improve the City's cart collection efficiency, SAIC analyzed the following factors, which are potentially affecting the City's collection efficiency:

- Collection hours per day
- Routing (Section 3.4)

3.3.1 Collection Hours per Day

Current Operating Schedule

Currently, the City operates on a five days per week, eight hours per day schedule. Per conversations with City staff, residential refuse drivers are able to complete their routes early on most days. While the City has done a good job of finding additional productive activities for drivers to work on for the remainder of the day, it is inherently less efficient to run specialized equipment less than a full workweek.

Proposed Operating Schedule

SAIC recommends the City's residential collection operation be run on a "4/40" schedule, under which routes are run four days per week for ten hours per day. In the City's case, time spent traveling to and from disposal and processing sites would be roughly equivalent under either scenario, while the weekly amount of time spent on non-collection activities such as breaks, lunch, pre- and post-trip inspections, etc. would be minimized under the 4/40 schedule. This would result in more total hours spent "on route" collecting materials and a higher number of carts collected per day, which in turn would allow the City to decrease the total number of routes required (as detailed in Section 3.4). Given these considerations, a 4/40 schedule would result in a more efficient operation than the City's current operating schedule.

An added benefit of a 4/40 schedule is that the City's mechanics could potentially dedicate each week's non-collection day to performing maintenance on collection vehicles, thereby minimizing vehicle downtime on collection days. SAIC would emphasize that drivers should still be required to conduct pre- and post-trip inspection activities.

3.4 Routing

The City relies on a manual, time-intensive process to develop and modify its 13 residential refuse routes. These routes are currently in need of a comprehensive rebalancing. As a part of this study, SAIC worked with the City to develop new refuse routes. These routes are presented as a part of a separate report.

3.4.1 Routing Analysis

SAIC conducted a macro-level routing analysis to estimate the number of routes required to serve the City under twice per week refuse collection and once per week refuse and recycling ("1+1") collection.[2] For the purposes of this analysis, SAIC assumed all customers would be served utilizing 96-gallon containers. Although SAIC recognizes the City may continue to use 300-gallon containers on a limited basis, SAIC modeled the City's routing needs using 96-gallon containers in order to be

[2] Section 5 discusses the feasibility of implementing a curbside recycling program.

as conservative as possible with respect to the time required to provide daily collection services.[3]

Per SAIC's analysis, a 4/40 schedule would provide the City with the capacity to consolidate its routes from 13 weekly refuse routes to eight weekly refuse routes under the City's current twice per week refuse program. Alternatively, the City could potentially reduce its weekly refuse routes to four if it adopted a 1+1 refuse and recycling collection program (as discussed in Section 5 of this report). The result of this consolidation is that the City would need two daily collection routes, rather than the three it currently operates. This would provide additional time for activities such as cart repair, cart delivery, and cart collection for non-paying customers (as discussed in Section 11 of this report).

Table 3-2 uses a time-based analysis to show the number of routes required by the City under the City's current five day schedule. Table 3-3 provides a similar analysis to show the number of routes required using a four day schedule. Table 3-4 shows the estimated number of trips to the landfill and/or MRF based on the routing configurations displayed in Table 3-3.

Table 3-2
Time-Based Route Analysis: Current Operating Schedule (1)

Routes	Daily Time Allocation (minutes)				Routing		
	Non-Collection Time (2)	Trip Time (3)	Collection Time	Total Time	Homes per Hour	Max Homes Collected per Day	Daily Routes (4)
Refuse Only	100	95	315	510	140	735	2.20
Refuse & Recycling (1+1)							
Refuse	100	155	255	510	140	595	1.51
Recycling	100	155	255	510	140	595	0.60 – 0.91
Total 1+1							2.11 – 2.42

1 Assumes a five day operating schedule with 90 percent set out rate for twice per week refuse routes and a 100 percent set out rate for the pilot 1+1 refuse routes.
2 Time spent on activities such as lunch, breaks, and pre- and post-trip inspections.
3 Time spent going from the yard to the route in the morning, as well as trips to and from the landfill.
4 Potential discrepancies in sum are due to rounding.

[3] Transitioning from 300-gallon to 96-gallon containers is ultimately a policy decision and is discussed in Section 12.

Table 3-3
Time-Based Route Analysis: 4/40 Schedule (1)

Routes	Daily Time Allocation (minutes)				Routing		
	Non-Collection Time (2)	Trip Time (3)	Collection Time	Total Time	Homes per Hour	Max Homes Collected per Day	Daily Routes (4)
Refuse Only	100	95	435	630	140	1,015	1.59
Refuse & Recycling (1+1)							
Refuse	100	155	375	630	140	875	1.03
Recycling	100	155	375	630	140	875	0.41 – 0.62
Total 1+1							1.44 – 1.65

1 Assumes a 4/40 operating schedule with 90 percent set out rate for twice per week refuse routes and a 100 percent set out rate for the pilot 1+1 refuse routes.
2 Time spent on activities such as lunch, breaks, and pre- and post-trip inspections.
3 Time spent going from the yard to the route in the morning, as well as trips to and from the landfill.
4 Potential discrepancies in sum are due to rounding.

Table 3-4
Average Trips to the Landfill and
Estimated Number of Routes on a 4/40 Schedule (1)

Services Provided	Daily Routes (2)	Avg. Trips to Landfill (3)	Avg. Trips to MRF (3)
Refuse Only	1.59	0.99	N/A
Refuse & Recycling (1+1)			
Refuse	1.03	2.03	N/A
Recycling	0.41 – 0.62	N/A	0.07 – 0.20
Total 1+1	1.44 – 1.65	2.03	0.07 – 0.20

1 SAIC assumed a 90 percent set out rate for twice per week refuse routes and a 100 percent set out rate for the pilot 1+1 refuse routes.
2 Determined by calculating the number of households that must be served per day and the average maximum number of homes, which may be collected per route.
3 Represents an averaged based on calculating the average tonnage and CY of refuse collected per route per day and the capacity of the City's vehicles.

3.5 Staffing Levels

SAIC evaluated whether the City has the appropriate staffing levels to efficiently operate its residential refuse collection system. SAIC would emphasize that this analysis focused on the number of operational staff and does not include an analysis of administrative or other support staff. SAIC's evaluation is based on the amount of time that drivers spend on residential refuse collection activities (see Appendix B).

Historically, the City has maintained a minimal backup ratio in its residential refuse operation. However, SWD has been able to minimize service interruptions by consolidating its three daily routes into two when necessary. In the future, SAIC recommends the City plan for a 20 percent backup ratio for sanitation workers across

all operations to account for sick time, holidays, and training.[4] Table 3-5 compares the City's current staffing level to SAIC's recommended level.

Table 3-5
Actual Versus Recommended Staffing Levels

Position	Staffing Levels	
	Actual	Recommended
Residential Collection Drivers	3.0	2.0
Backup Drivers (1)	0.0	1.0
Total	3.0	3.0

1 Backup drivers should be shared between the refuse and bulk collection operations.

3.5.1 Refuse Collection Drivers

The City's budgeted refuse collection driver staffing is currently overstaffed relative to SAIC's recommendation. However, due to the retirement of one of the City's drivers, the actual operation is currently staffed appropriately.

Based on SAIC's routing analysis (Section 3.4) and staffing analysis, the City may be able to increase its efficiency by decreasing the number of refuse routes from three to two. This could be accomplished by not re-hiring for the third driver position.

3.5.2 Backup Drivers

Although the City's refuse and bulk trash collection operations have historically been overstaffed, SAIC recognizes a need to maintain an appropriate backup ratio. In SAIC's experience, a ratio of 20 percent is typically appropriate, though this ratio may be higher for Coolidge due to the relatively small nature of the City's operation. Based on SAIC's suggested staffing of two FTEs for residential refuse collection and approximately 1.5 FTEs for bulk trash collection and miscellaneous duties such as burn pile and brush chipping (see Section 4.7.4), the City will need approximately 0.7 FTEs to serve as backups. This is equivalent to 4.2 total FTEs. If the City were able to reduce the amount of time required by miscellaneous duties such as burn pile and brush chipping, it could potentially decrease the total required staffing, including backup, to four FTEs (two for residential refuse collection, one for bulk trash, and one backup).

Initially, SAIC would suggest designating one of the City's three existing bulk collection drivers as a backup driver for both operations. As the City implements the changes outlined in this report, SAIC expects SWD could transition one of the existing bulk collection drivers to another position within the City. At such, time SAIC would

[4] As seen in Appendix B, SAIC calculated the spare employee percentage based on the maximum potential time for vacation leave, sick time, holidays, and training. This amount totals approximately 17.6 percent. Percentages for workers' compensation and light duty were not available. SAIC factored one week per year per FTE for workers' compensation and light duty, which is equivalent to approximately 2.3 percent. The total back-up ratio used is 20.0 percent.

recommend utilizing the SWD Superintendent as a part-time backup driver in order to provide additional coverage capacity for those times when a single backup driver may be insufficient to meet the City's daily collection needs (e.g., when two drivers are out sick, etc.). SAIC would expect the frequency of such instances to be fairly limited.

3.5.3 Route Supervision

SWD Superintendent

The SWD Superintendent is responsible for managing five daily collection routes (three daily residential refuse routes[5] and two daily brush and bulky routes). As indicated in this report, the City could potentially consolidate the refuse collection operation to two daily routes and the bulk trash operation to one daily route, for a total of three daily routes.

In other cities, route supervisors are typically responsible for managing eight to 10 routes. While the Superintendent also holds significant responsibilities within the Liquid Waste Division (which is not typically the case for route supervisors), it is SAIC's understanding that the Superintendent typically has the time and availability to provide day-to-day supervision of the Solid Waste Division's routes. SAIC therefore recommends the City continue to utilize the Superintendent in a daily supervisory capacity for both operations.

Lead Drivers[6]

SAIC evaluated the need for lead drivers in the residential refuse and bulk trash collection operations. Previously, the City used lead drivers to provide day-to-day direction to other drivers during periods when the Solid Waste Superintendent and Public Works Director were unavailable. Due to retirements and changes in staffing, the City is currently without a lead driver in either operation. Although the Superintendent is often available to supervise the solid waste operation, SAIC recommends the City consider designating one lead driver over both residential refuse and bulk trash collection in order to provide the necessary direction during times when the Superintendent is unavailable.

3.6 Equipment

The City uses three fully-automated frontline collection vehicles to provide residential refuse collection service in the City. The City maintains one fully-automated collection vehicle as a backup.

[5] As mentioned previously, the City is currently running two daily residential routes due to staff retirements and equipment failure.

[6] SAIC would emphasize that the designation of lead drivers does not constitute a need for additional staff. Rather, lead drivers should be designated from among the existing driver pool.

3.6.1 Replacement Schedule

The City currently utilizes a seven to eight year vehicle replacement schedule for its residential refuse collection vehicles, after which the vehicles are moved to backup duty. This is consistent with the industry standard lifecycle for fully automated side-load collection trucks of approximately seven to eight years.

3.6.2 Maintenance Costs

The City provided SAIC with operations and maintenance (O&M) costs for all SWD equipment. Table 3-6 lists the average O&M costs for the vehicles SWD uses to provide solid waste collection and disposal service in the City.

Table 3-6
Average SWD and Maintenance Costs

Vehicle Type	Number of Vehicles (1)	Average FY 2013 O&M Cost (2)	Industry Standard
Residential Side-Load	3	$10,500	$25,000 - $35,000

1 Frontline vehicles only.
2 The average O&M cost listed is the combined average of "Vehicle Maintenance" and "Body Maintenance" proposed FY 2013 costs provided by Fleet.

SAIC compared the City's O&M costs to the industry standard and found that SWD's O&M costs for its residential frontline automated side-load vehicles appear to be significantly below average. The City currently spends an average of $10,500 per year in maintenance costs on each of its frontline vehicles. By way of comparison, SAIC typically sees average yearly maintenance costs in the $25,000 - $35,000 range for fully-automated vehicles.

Although controlling O&M costs is critical to an efficient solid waste operation, SAIC would expect the City's O&M costs to be higher. SWD should identify and perform all necessary maintenance activities as they arise in order to minimize more costly repairs that could arise as a result of not performing maintenance in a timely fashion. SAIC would emphasize that moving to a 4/40 schedule would provide additional time for City mechanics to perform comprehensive maintenance activities for SWD vehicles.

3.6.3 Backup Ratio

The City's residential refuse collection fleet is made up of three frontload collection vehicles and one back up vehicle. Typically, cities maintain a 20 – 25 percent backup ratio. Under the City's current operation, the City's backup ratio is approximately 33 percent. However, should the City reduce its daily residential routes from three to two, the City's necessary backup ratio would increase to 50 percent.[7] SAIC would emphasize a higher than average backup ratio is to be expected in the City's case, given the small number of daily routes. Furthermore, maintaining at least one backup vehicle is necessary to an efficient operation.

[7] Assuming the City sold its current backup vehicle and moved one frontline vehicle to backup duty.

Although City staff have reported several non-routine mechanical problems with the residential collection trucks recently, a single backup vehicle should be appropriate to the City's needs based on both the current and suggested routing and equipment configurations. Staying as current as possible with the vehicle replacement schedule, as well as scheduled preventive maintenance, should also help the City to operate with this ratio without any major service interruptions. Section 6 outlines SAIC's recommendations for reducing vehicle downtime.

3.6.4 Vehicle Body Size

The City currently utilizes 22 cubic yard (CY) vehicles for residential collection. Cities similar to Coolidge typically use trucks with capacities ranging from 25 to 30 CY. Having a smaller truck capacity results in more frequent trips to the landfill, which decreases the time spent on route collecting refuse and thereby the number of households a route is able to serve each day. By utilizing vehicles with 28 CY of capacity, the City could reduce the total number of daily trips to the landfill and increase the total capacity of each route.

If the City reduces the number of routes it runs and/or implements a curbside recycling program, SAIC would recommend the City phase in a larger truck size (e.g. 28 to 30 CY) through the course of its normal vehicle replacement schedule. This would provide the City additional collection capacity at minimal additional cost.

If the City continues providing alleyway collection (see Section 3.7.1), it should verify that the vehicle size it selects has adequate maneuverability in the City's alleys.

3.7 Containers

The City currently provides residential service using two container types: 96-gallon and 300-gallon containers. The City services approximately 2,113 96-gallon carts and 508 300-gallon containers. Typically, 300-gallon containers are shared by three to four residents for alleyway collection, though approximately 7.9 percent (40 carts) are used by only one customer.

Per City staff, the City would like to phase out as many 300-gallon carts as possible over the next several years as the carts are substantially more expensive than 96-gallon carts.[8] There are several advantages and challenges potentially associated with each type of container. Table 3-7 summarizes the pros and cons of each container type.

[8] A 300-gallon cart costs approximately $300 whereas a 96-gallon cart costs approximately $53.

Table 3-7
Container Advantages and Challenges

Container Type	Advantages	Challenges
96-Gallon	• Carts have a lower cost per household • City can discontinue service to non-paying customers • Allows City to discontinue alley collection • Elderly and disabled can be provided smaller containers (e.g. 64-gallon), if necessary, and/or be provided carry out service	• Collection efficiency is not as high as shared containers
300-Gallon	• Collection efficiency is higher than individual containers	• Carts have a higher cost per household • City cannot effectively discontinue service to non-paying customers with shared containers • City must continue alley collection • Elderly and disabled may have a harder time carrying filled garbage bags to the alley

SAIC recommends the City develop a plan to phase the 300-gallon carts out over the next five years. In the interim, SAIC would also recommend that SWD consider charging a premium to any customers receiving unshared service via 300-gallon containers on a twice weekly basis for the additional disposal capacity provided, as well as the higher cart costs associated with the larger size containers.

3.7.1 Alleyway Collection

The City uses 300-gallon containers primarily for alleyway collection. While SAIC recognizes there are certain efficiencies gained by collecting shared containers via alley collection, multiple problems may also exist. Issues that may negatively impact alleyway collection efficiency include:

- Older alleyways are often narrow and may contain overgrown trees and brush, making navigation and collection difficult
- Low hanging power lines in alleys may be a common occurrence, posing a safety issue
- Alleyway collection may increase the total number of passes required for collection in a particular area
- Illegal dumping activities often occur more frequently in alleyways than in other areas

Given the City is currently experiencing a fairly high level of illegal dumping activity,[9] SAIC suggests discontinuing alley collection as this could reduce illegal dumping in the alleys. However, the City can reserve the right to resume alleyway

[9] Discussed in Section 9 of this report.

collection at a later date when and if the benefits and efficiencies of alley collection outweigh the challenges (e.g., increased inefficiencies, illegal dumping, etc.) outweigh any efficiencies gained.

SAIC would also note that discontinuing alleyway collection is more equitable to residents as it provides a consistent level of service to all customers (e.g., those who don't have alley access).

3.8 Key Findings and Recommendations

- **Redraw and rebalance the City's residential refuse routes:** As a part of this study, SAIC aided the City with modifying the City's residential collection routes in order to improve operational efficiencies, reducing the number of weekly routes from 13 to eight.
- **Consider implementing curbside recycling collection:** As discussed in Section 5 of this report, the City could add a curbside recycling program at minimal cost to customers. Additionally, the City could potentially utilize excess capacity in the proposed recycling program to provide service to commercial recycling customers on a limited basis.
- **Move to a 4/40 collection schedule:** SAIC's analysis indicates the City could reduce its number of daily routes from three to two by moving to a 4/40 collection schedule. This would allow the City to reduce the number of routes required to operate its residential solid waste operation.[10] Reducing the number of routes could be accomplished under the City's current twice per week refuse operation or a 1+1 refuse and recycling program.
- **Utilize existing staff as backup support:** If the City moves to a 4/40 schedule, it could reduce the number of daily residential refuse routes required from three to two. Although the City has limited economies of scale with regard to the total number of routes required, if the SWD adopts a rotoboom truck and decreases the frequency of bulk trash collection (as discussed in Section 4 of this report), it could use an existing driver as a backup for both the residential and bulk trash collection operations. Additionally, as the City makes the changes recommended in this report, the City could supplement its backup crew by utilizing the SWD Superintendent in a part-time backup role. In SAIC's experience, this arrangement is fairly typical in smaller communities.
- **Develop a comprehensive vehicle maintenance schedule:** While the City has done a good job of controlling its vehicle O&M costs, it should ensure that all necessary maintenance activities are occurring on-time and as needed. The City can expect that its average O&M costs will increase with the adoption of newer vehicles.
- **Increase collection vehicle size:** The City utilizes trucks with 22 CY of capacity. Cities similar to Coolidge typically use vehicles with capacity of 25 CY to 30 CY.

[10] SAIC would emphasize that reducing the number of routes the City runs would not result in layoffs due to the natural attrition the City has experienced during October – November 2012.

The City could increase its overall collection capacity by adopting a larger truck size during the course of its normal vehicle replacement schedule. This would allow the City to minimize the number of trips to the landfill and/or MRF required each day, which in turn would allow the City's drivers to spend more time on route.

- **Reduce the number of 300-gallon containers used for residential collection:** The City services a number of 300-gallon containers, primarily for alleyway collection. Per City staff, the City would like to minimize the number of 300-gallon containers it uses for residential collection. SAIC recommends the City 1) develop a five year plan to minimize the use of these containers and 2) discontinue or minimize alleyway collection.

Section 4
BULK TRASH COLLECTION

4.1 Program Overview

The City of Coolidge currently provides bulk trash collection service to its residential customers as a part of its base residential refuse fee. This section provides an overview of bulk trash service, as well as an evaluation of the efficiency of its service as currently provided by the City.

Bulk trash collection includes the collection of appliances, lawn trimmings, leaves, tree limbs, and other uncontained items. In this section, SAIC uses the term "bulk" to refer to large items such as appliances, furniture, etc. that will be landfilled.

4.2 Analysis of Key Operational Issues

SAIC observed bulk trash collection and analyzed the operation in terms of:

- Level of Service
- Collection Efficiency
- Staffing
- Equipment

This section will focus on reviewing the current operation and evaluating how the operation areas listed above could be modified to improve the efficiency of the bulk trash collection operation.

4.3 Level of Service

The City collects an unlimited amount of bulk material from residents every-other-week. The current collection operation provides service to approximately 2,700 households located within the six square mile center of the City. In SAIC's experience, this is a very high level of service for customers receiving bulk trash service. Table 4-1 benchmarks the City's current level of service to other communities.

Table 4-1
Benchmarking Level of Service

	Coolidge, AZ	Chandler, AZ	Glendale, AZ	Tucson, AZ
Population	11,825	230,000	250,000	520,000
Households Served	2,692	62,000	52,500	138,353
Collection Frequency	2 x month	1 x every 6 weeks	1 x month	Semiannually
Collection Limits	Unlimited	Unlimited	Unlimited	10 Cubic Yards

As shown in Table 4-1, the collection frequency and collection limit varies by community. It is important to note that Coolidge's current collection frequency is very high in comparison to the benchmark communities. Over the past several years, SAIC has seen a trend of communities in the southwestern United States transitioning to between four and six annual bulk material collections with specified setout limits.

The types of materials collected by the City are generally consistent with the types of materials collected by other cities. Similar to other cities, Coolidge does not collect commercial and demolition (C&D) material or household hazardous waste (HHW). SAIC did observe that some bulk setouts included rubbish and small unbundled items that are more appropriate for refuse collection. Figure 4-1 provides an example of setouts containing refuse and unbundled small items.

Figure 4-1. Inappropriate Bulk Setout

The bulk trash crews are required to collect non-compliant setouts and material from illegal dump sites. The City utilizes additional bulk crew capacity to complete these collections. Inappropriate setouts, such as that displayed in Figure 4-1, are time consuming to collect and can be a health and safety risk to employees when they hand load material. SAIC recommends the City cease collection of unbundled material and make a proactive effort to educate residents on what materials are appropriate for bulk collection.

The City collects approximately 0.75 tons of bulk material per household receiving bulk trash collection annually. Compared to other cities in Arizona, this tonnage volume is very high on a per capita basis. Per City staff, much of this material is brush. To decrease the volume of bulk material collected, SAIC recommends the City decrease its bulk trash collection frequency and consider instituting a setout limit on

the volume of material allowed per setout. Figure 4-2 provides a comparison of the City's bulk tonnage on a per household basis to other Arizona cities.

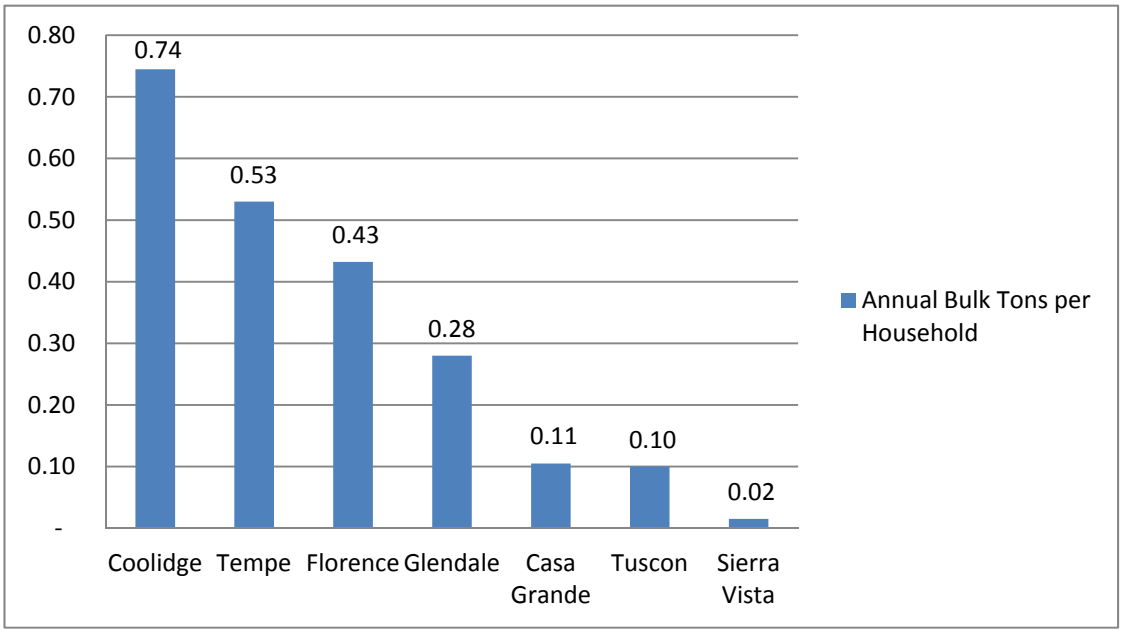

Figure 4-2. Annual Tons Collected per Household

4.4 Collection Efficiency

Each bulk collection crew consist of one to two front-end loaders and one to two dump trucks. The front-end loaders load material into the dump trucks and the material is then taken to the Johnson Utilities Transfer Station (Johnson Utilities) located in San Tan Valley, Arizona. When one dump truck is completely filled, the crews begin loading material into the second dump truck. The City provides bulk collection in City streets or alleys, depending on each street's design.

The bulk trash crews collect between two and three loads of material per day. It takes dump trucks approximately one hour to haul material to the transfer station, tip, and return to the route. During times when a dump truck is transporting material to the transfer station in one of the two dump trucks, bulk trash crews will begin loading material into the second dump truck.

Figure 4-3. Crew Configuration

The City's bulk trash operation has a 25 percent set out rate. Based on SAIC's time and motion observations the City collects approximately 17 setouts per hour. This is not an unusual amount considering the current condition of some setouts and the lack of setout size restrictions. Table 4-2 shows the City's bulk route needs based on the current operation.

Table 4-2
Current Route Needs

Metric	Unit
Setout Rate	25%
Setouts Collected/ Hr	17
Setouts Collected/ Route/ Day	105
Percent of City Served	75%
Households Collected/ Week	332
Days Worked/ Week	5
Weekly Routes Needed	0.9
Weekly Routes Rounded	1.0

The current bulk collection operation runs two routes at the beginning of the day, which combine to one route as the dump trucks begin to make trips to the transfer station. Based on SAIC's analysis, the City needs one route to collect the current number of bulk customers at the current service level.

Currently operators work eight hours per day, five days per week. Many solid waste collection operations throughout the United States have transitioned to a schedule of four 10 hour days (4/40 schedules), as discussed in Section 3 of this report. A schedule of four 10 hour days would increase the amount of time spent on collection activities each day.

Table 4-3 shows that the City can achieve a much greater collection efficiency by transitioning to a ten hour day, four days per week. This operational change is a relatively minor operational adjustment that can achieve significant operational efficiencies. Maintaining a four day a week schedule will allow for bulk trash equipment to be serviced by the Vehicle Maintenance Department (VMD) during the

fifth day of the week, as the VMD works five days per week. As part of the four day per week schedule, the City would need to have one sanitation worker on-call for collecting illegal dumping areas on the days the bulk trash routes are not running.

SAIC recognizes that a 4/40 schedule may not be feasible for parts of the summer, given the City's location. The City could therefore consider using a standard five day schedule in the summer, as necessary.

Table 4-3
Analysis of Work Schedule

Work Week	8 hour/ 5 day	10 hour/ 4 day
Daily Collection Time	4.08	5.58
Bulk Collections/ Hr	17	17
Bulk Collections/ Day	71	96
Number of Weekly Routes Needed	0.87	0.80

SAIC also evaluated the City's bulk collection routing needs for if the City were to expand bulk collection service to all City customers. Table 4-4 illustrates the routing needs for the City-wide bulk trash operation, assuming the City ran a 4/40 operating schedule.

Table 4-4
City-wide Bulk Trash Collection Routing

Metrics	Alternative Bulk Collection Options			
Percent of City Served	100%	100%	100%	100%
Collection Frequency	2 x month	12 x year	6 x year	4 x year
Households Served/ Wk	1,660	830	415	277
Households Served/ Day	286	286	286	286
Weekly Routes Needed	1.1	0.5	0.3	0.1
Weekly Routes Rounded	2.0	1.0	1.0	1.0

As shown in Table 4-4, if the City would provide the every-other-week collection to the whole City, the bulk trash collection would need to run two routes. However, if the City begins to provide City-wide bulk trash collection while decreasing its collection frequency, the City would be able to provide bulk trash collection with one route. If the City chooses to transition the bulk collection to monthly, bi-monthly (every other month) or quarterly collection (four collections per year) the bulk trash operation would then have sufficient additional capacity to perform other City duties such as illegal dumping clean-up, brush chipping, and burn pile management.

It is common for cities to outline a time period where residents can set out material to be collected. The City currently instructs residents to set out bulk items no earlier than the Sunday prior to their collection week. However, based on SAIC's conversations with City staff, it is common for residents to set out material before the specified setout time. As a result, bulk trash crews will often begin collecting setouts scheduled for the following week. While SAIC appreciates that the bulk crews are working

proactively to keep City streets clean, collecting these materials early results in the crews running their bulk routes twice. SAIC recommends the City only collect material from City zones during their scheduled collection time. Further, SAIC recommends the City enforce the setout timeframe to improve the aesthetics of City streets and increase residents' compliance with the bulk program guidelines. This operational change would be a joint effort between the bulk trash collection crews and code enforcement. It is important that the collection crews only collect material in the scheduled collection zone and that code enforcement identifies out of schedule material and takes action to educate residents and mitigate these setouts.

4.5 Staffing

The City currently operates with approximately three and a half full time employees (FTE). The City also utilizes trustees from the county jail to hand load material on the bulk trash routes. City employees perform multiple duties, including operating the front-end loaders, driving the dump trucks, and hand loading materials. The Operation Superintendent also spends approximately 25 percent of his time managing the bulk trash collection operation. Table 4-5 provides a summary of the bulk trash staff.

Table 4-5
Current Bulk Trash Staffing Level

Position	Staffing Level
Operation Superintendent	0.25
Sanitation Worker (1)	3.32
Trustee	2.0
Total Bulk Trash Personnel	5.47
Additional Activities (1)	0.78

1 Bulk Trash Sanitation Workers are also utilized for other solid waste duties such as brush chipping, dump truck rental, burn pile, resident drop-off and refuse collection.

The City utilizes a total of 5.47 employees to operate the bulk collection operation. Of these employees, two FTEs spend their time exclusively on bulk trash collection. Additionally, three sanitation workers spend a portion of their time on bulk collection and spend their remaining time on other solid waste activities including brush chipping and managing the burn pile.

To account for sick time and leave time, SAIC recommends the City plan for a 15 to 20 percent backup ratio for sanitation workers. Currently, the City maintains a 17 percent backup ratio, excluding the trustees from the backup ratio calculation. The operation effectively manages the City's small economies of scale by cross utilizing workers as bulk trash operators and in other solid waste departments such as brush chipping and managing the burn pile.

During field observations, SAIC noted the bulk trash operators exhibited a range in skill level, though all operators appeared to be sufficiently skilled in performing their assigned duties. SAIC recommends the City develop productivity standards (e.g. tons

collected/day or setouts collected/day) that operators are required to meet. SAIC would emphasize that these performance standards should not compromise the crew's commitment to operate in a safe manner. Developing standards would allow the City to measure the skill levels of its employees and recognize those who demonstrate outstanding performance.

4.6 Equipment

The bulk trash operation's equipment configuration is designed for the use of one front-end loader and at least one dump truck. However, for optimal performance, the crews should use two dump trucks, as this allows the front-end loaders to be fully utilized. Given the City's equipment configuration, crews can start the collection day as two separate crews but must consolidate to one crew after the first dump truck reaches capacity.

The City recently purchased a rear-loader vehicle to serve those bulk trash customers who are not located within the six square mile center of the City. This vehicle has not yet been introduced on a regular route due to mechanical problems but can collect bulk material from residents on an "as needed" basis.

A list of the City's bulk trash equipment is provided in Table 4-6.

Table 4-6
Bulk Trash Collection Equipment

	Number of Equipment	Number of Front-Line	Backup Percentage
Loading Equipment			
Front-end Loader	2	1	
Total Loaders	2	1	100%
Collection Equipment			
Dump Truck (1)	2	2	
Rear-loader	1	-	
Total Vehicles to Transport Material	3	2	50%

1 One of the Bulk Trash dump trucks is shared with the street department.

Based on SAIC's experience, a 20 to 25 percent backup ratio for bulk collection equipment is standard in the solid waste industry. Maintaining this backup ratio facilitates periods of equipment downtime and maintenance. Given the size of City's current operation, it is difficult to maintain a 20 to 25 percent backup ratio, as it is not possible to retain a portion of a truck. The City does have backup ratios higher than typical; however, SAIC recommends that the City retain at least one backup vehicle for each piece of equipment needed to operate routes.

4.6.1 Bulk Trash Collection Fleet Age

As equipment ages, vehicle maintenance costs typically increase. Typically, a solid waste operation will move vehicles from front-line to backup duty after six to ten years, depending on the type of equipment. Table 4-7 reviews the average age of the City's bulk trash fleet.

Table 4-7
Equipment Age

	Average Equipment Age (years)	Front-line Useful Life (years)
Front-end Loader	1	6-8
Dump Truck	25	8-10
Rear-loader	12	7-9

As shown in Table 4-7, the City's front-end loaders and rear-loader equipment are in new condition and should be used as front-line equipment. The City's dump trucks are both well past their useful life, however, and may need to be replaced with newer equipment when the City begins to experience mechanical problems on a consistent basis.

4.7 Operational Efficiency

SAIC has provided several options for improving operational efficiency within the current bulk trash collection operation. Proposed changes include:

- Change in collection frequency
- Implement setout limits
- Change in equipment configuration
- Increase enforcement

4.7.1 Collection Frequency

The City is currently providing residents with a high level of service, by collecting current bulk trash residents setouts every-other-week. However, only 75 percent of City residents currently receive this service. As shown in Table 4-4, if the City decreases its collection frequency, it could serve all City customers with one route. Decreasing the collection frequency is ultimately a policy decision. However, SAIC would note the City cannot maintain the current level of collection frequency for all City residents without adding a second collection route.

4.7.2 Setout Limits

Although the majority of the benchmark cities provided in Table 4-1 do not have setout limits, bulk setout limits are a growing trend in the United States. As shown in Figure 4-1, the City has bulk material generation of 0.75 tons per household receiving

bulk collection annually. The City's current bulk volume is two and half times greater than that of Glendale, AZ and seven and a half times greater than Tucson, AZ's annual volume per household. To decrease Coolidge's volume of material, SAIC recommends the City impose a setout limit for bulk setouts. Additionally, the City could implement a fee system for setouts exceeding the setout limit.

4.7.3 Change Work Schedule

Table 4-3 shows how transitioning from an eight hours per day, five days per week to a 4/40 work schedule can improve operational efficiency. A four day work week schedule would also allow bulk trash equipment to be serviced by the VMD on the non-collection days. Due to the high temperatures experienced in the area during summer months, the City may consider running a modified schedule during the summer; however, it is important to note that other cities in Arizona do operate a 4/40 schedule in summer months. SAIC therefore recommends the City transition the bulk trash operation to a 4/40 schedule.

4.7.4 Crew Configuration

The current crew configuration requires one front-end loader and two dump trucks to efficiently collect material throughout the day. This is a common configuration for the Arizona region of the Southwest; however, due to Coolidge's size, SAIC recommends the City transition to a rotoboom equipment configuration. A rotoboom vehicle includes a crane for collecting bulk trash material and a truck body, similar to a dump truck. Figure 4-4 provides an example of a rotoboom vehicle.

Figure 4-4. Rotoboom Vehicle

Table 4-8 provides a summary of the operational changes required to transition to a rotoboom collection configuration.

Table 4-8
Crew Operational Requirements

Metric	Status Quo (1)	Alternative Scenarios			
Collection location	Alley's and Streets	Streets	Streets	Streets	Streets
Equipment per route	1 Front-End Loader 2 Dump Trucks	1 Rotoboom	1 Rotoboom	1 Rotoboom	1 Rotoboom
Personnel per route	2 Sanitation Workers	1 Sanitation Worker	1 Sanitation Worker	1 Sanitation Worker	1 Sanitation Worker
Collection Frequency	24 x year	24 x year	12 x year	6 x year	4 x year
Routes Needed	1.06	1.48	0.74	0.37	0.25
Routes (rounded)	1.0	2.0	1.0	1.0	1.0
Number of Personnel Needed					
Front-line drivers	3.18	1.48	0.74	0.37	0.25
Backup drivers	0.64	0.30	0.15	0.07	0.05
Total Bulk Trash FTE Needed (2)	3.82	1.78	0.89	0.44	0.30
Additional Activities	0.78	0.78	0.78	0.78	0.78
Total FTE Needed	4.60	2.56	1.67	1.22	1.08
Equipment (rounded)					
Front-end loader	2.0	-	-	-	-
Dump truck	3.0	-	-	-	-
Rotoboom	-	2.0	1.0	1.0	1.0

1 The Status Quo scenario assumes the current bulk trash configuration under a ten hour day, serving 100% of the residential customers. SAIC assumed the additional 0.06 of a bulk trash route needed would be provided by staggering staff time or through overtime cost. The additional personnel needs for 0.06 of a route are included in the calculations shown in Table 4-9.

2 Analysis assumes the City can utilize excess FTE in other departments.

As indicated in Table 4-8, the proposed crew configurations with a rotoboom would require the City to discontinue alleyway collection. Although alleyway collection can potentially provide a convenient and discreet way to collect bulk trash material, the City is currently experiencing a high level of illegal dumping in the alleys and a general lack of setout conformity. Exiting the alleys could minimize these issues, as discussed in Section 9 of this report.

Table 4-9 provides a summary of the average annual cost savings that could be achieved by transitioning to a rotoboom configuration with a lower collection frequency. It is important to note that the personnel cost reflected in Table 4-9 represent the bulk trash FTE required to operate bulk trash collection and assume the 0.78 FTE needed for additional solid waste activities, such as the burn pile and illegal dumping collection, will be accounted for separately in their respective cost centers.

Table 4-9
Alternative Crew Configuration Annual Cost

	Status Quo[1]	Alternative Scenarios			
Collection Frequency	24 x year	24 x year	12 x year	6 x year	4 x year
Number of Routes	2	2	1	1	1
Operation Cost					
Equipment Cost					
Equipment Capital	$43,596	$33,750	$16,875	$16,875	$16,875
Maintenance	65,000	40,000	20,000	20,000	20,000
Fuel	26,853	26,853	13,427	6,713	4,476
Equipment Subtotal	$135,450	$100,603	$50,302	$43,588	$41,351
Personnel Cost [2]	$187,254	$87,215	$43,607	$21,804	$14,536
Total Annual Operation Cost	**$322,704**	**$187,818**	**$93,909**	**$65,392**	**$55,886**

1 The Status Quo scenario reflects the City's current bulk trash crew configuration under a ten hour work day, serving 100% of the residential customers with bulk trash.

2 The personnel cost line reflects partial salaries for the portion of FTEs' time used to complete routes. SAIC assumed the personnel's time not spent on bulk trash collection would be used for other City activities. This practice is consistent with how the bulk trash crew personnel are currently utilized.

As shown in Table 4-9, the City has the potential to achieve substantial savings by transitioning to a rotoboom system. Although the collection efficiency of the operation could decrease slightly with the use of a rotoboom, the savings achieved by decreasing the equipment and personnel necessary to the operation would decrease the operation's annual costs. SAIC would also emphasize that the savings shown in Table 4-9 represent the total **potential** savings of transitioning to a rotoboom system over the long-term. In the short-term, SAIC recognizes that it may not be feasible to immediately make the necessary equipment purchases and staff transfers and that the savings may therefore be lower until the system is fully implemented.

SAIC recommends the City replace a dump truck with rotobooms when it is financially feasible for the City to do so. The City can maintain a front-end loader and the rear-loader vehicle as backup equipment for when the rotoboom is down for maintenance and repairs.

4.7.5 Code Enforcement

Code enforcement is a critical aspect to any solid waste collection operation. The City must ensure its bulk trash guidelines are followed to ensure collection crews can operate their routes in an efficient manner. SAIC recommends the City set additional guidelines regarding setout timelines, as well as restrictions on the types of material that can be set out for bulk trash collection. Citizens who do not comply with the setout restrictions would be required to pay a fee for the collection of the non-compliant or oversize setouts. Instituting these fees will require a modification to the City code, but would ultimately generate additional revenue and improve the consistency of bulk trash setouts.

4.7.6 Key Findings and Recommendations

- **Decrease the frequency of bulk trash collection:** SAIC recommends the City decrease the frequency of bulk trash collection to better align the City with other communities throughout the nation. Additionally, the City will be able to offer City-wide bulk service with one collection route if the City decreases the bulk trash collection frequency. SAIC recognizes that decreasing the collection frequency is ultimately a policy decision.
- **Implement setout limits:** The City generates 0.75 tons of bulk material per household receiving bulk trash collection annually. The City's current bulk volume is two and half times greater than that of Glendale, AZ and seven and a half times greater than Tucson, AZ's annual volume per household. To decrease the City's volume of bulk trash material, SAIC recommends the City impose a setout limit for bulk trash.
- **Change work schedule to a 4/40 schedule:** The bulk trash operation can collect more setouts per day on a four days per week, ten hours per day schedule. A four day work week would also allow the VMD to service bulk trash equipment on non-collection days.
- **Change crew configuration:** SAIC recommends the City transition to a rotoboom equipment configuration. Under a rotoboom configuration, the City would operate slightly less efficiently on a per hour basis but would achieve significant annual savings in equipment and personnel costs. As part of transitioning to a rotoboom crew configuration, the City would need to exit alleyway collection.
- **Replace dump trucks:** The City's dump trucks are both past their projected useful lives and should be replaced with newer equipment as they begin to experience mechanical problems.

5.1 Introduction

This section addresses potential recycling options for both residential and commercial customers. For the purposes of this report, SAIC evaluated the impact of implementing a single-stream curbside recycling program.

5.2 Proposed Residential Recycling Program Overview

The City of Coolidge is currently evaluating the feasibility of providing single-stream curbside recyclables collection for approximately 3,597 homes throughout the city via a single recycling route. In SAIC's experience, many cities similar to Coolidge have experienced multiple benefits from implementing "1+1" refuse and recycling programs. Key benefits include:

- Increased collection efficiency
- Increased diversion rate
- Decreased disposal costs
- Potential revenue stream from the sale of recyclables

5.2.1 Materials Recovery

As the City considers implementing a recycling program, it should be sure to put a good contract in place with a nearby materials recovery facility (MRF) and develop additional public education materials and an outreach strategy to proactively educate its residents well ahead of any City-wide roll out.

All recyclable materials collected from the curbside program would be sold by the MRF that the City contracts to process material. Materials accepted in this curbside collection program could include the following items:

- Aluminum cans
- Steel/tin cans
- Aerosol cans (not containing CFCs)
- Glass bottles and jars
- Plastic containers
- Cardboard/paperboard
- Mixed Paper

5.2.2 Operational Impacts

The proposed recycling route would replace one of the existing residential refuse routes. Residents would receive a second City-provided 96-gallon cart for recyclables collection. As discussed in Section 3.5.1 of this report, SAIC recommends the City adopt a 4/40 collection schedule, as this would maximize collection efficiency and allow the City to reduce its total number of routes from three to two. Because the recycling route would take the place of one of the remaining refuse routes, SAIC determined there would be minimal financial impacts other than the following:

- Cart capital costs
- Disposal savings
- Incremental hauling costs

5.2.3 Program Assumptions

This section details the assumptions SAIC made regarding the proposed curbside recycling program.

Quantity of Recyclables

The quantity of materials collected at the curb will depend on numerous factors, including the type of program in place, pricing structure for services, general attitude toward recycling, public education and other factors. While SAIC believes that an established and well-run single-stream recycling program should ultimately be able to reach 500 or more pounds per household per year[1], achieving this rate of recycling typically takes several years and a committed effort on the part of the City. Therefore, SAIC developed two scenarios based on these approximate numbers:

- **Scenario 1:** A 7.5 percent diversion rate, with 179 pounds per household per year (321 tons per year total) and a 40 percent set-out rate
- **Scenario 2:** A 15 percent diversion rate, with 357 pounds per household per year (643 tons per year total) and 60 percent set-out rate

These quantities assume that every household automatically receives a cart and the cost for service is included in the base rate, but participation would be voluntary.

Collection

SAIC has worked with a number of cities throughout Arizona and the United States to determine the feasibility of curbside single-stream recycling collection. Per Arizona state law, residents must be provided residential refuse collection service twice per week, although recycling collection services may be substituted for one of the refuse collections, provided the City obtains a variance waiver from Pinal County. In this

[1] The amount of recyclables collected is provided in terms of pounds of recyclable material collected per household per year. This is calculated by dividing the total pounds of recyclables collected per year by the total number of households. Therefore, it is an average number that takes into account differing levels of residential participation.

analysis, SAIC assumed that recycling collection would be provided once per week using 96-gallon carts.

Processing

Recyclables processing would be performed by a MRF in the Phoenix area. The City could direct haul its recyclables using its recycling collection vehicle as the recycling routes would have enough time to accommodate the extended hauling times (see Tables 3-2 and 3-3 in Section 3).

Administration and Oversight

SAIC included no additional personnel costs related to oversight and administration of the recycling program. Instead, SAIC assumed existing personnel would allocate their time to collecting recyclables rather than refuse.

Capital Financing

SAIC assumed the capital expenditures for additional carts would be financed with debt at an interest rate of five percent over a period of 10 years. However, the City may choose to finance all or part of the costs with existing funds and therefore choose not to issue debt.

Shared Resources with Automated Refuse Collection

If the City implemented a curbside recycling program using the same style of carts as the refuse operation, the City could utilize its existing fleet to collect the recycling carts and the drivers would already be trained in the operation of those vehicles.

5.3 Collection

This section provides an overview of the resources required for curbside collection of single-stream recyclables. The primary collection costs associated with implementing a weekly recycling program would be the incremental costs associated with purchasing additional containers for the program.

5.3.1 Carts

Every household serviced will require a recycling cart similar to the City's 96-gallon refuse carts. These carts are typically a different color to differentiate the two. While most households will only need one cart, SAIC assumed a limited number (five percent) would request a second recycling cart. Table 5-1 shows the number of carts and costs to purchase the carts.

Table 5-1
Number and Cost of Recycling Carts

Description	Both Scenarios
Number of households	3,597
Percent of households with additional cart	5%
Total number of recycling carts	3,777
Cart cost (including assembly & delivery)	$ 53
Total cart cost	$ 200,173
Annualized cart cost (1)	$ 25,923

1 Assumes 10 year useful life at 5.00% interest.

5.3.2 Routes

As mentioned in Section 5.2.1, SAIC assumed that residents would receive recycling collection service every week. Table 5-2 shows the number of routes needed each day to provide the curbside collection service.

Table 5-2
Number of Routes per Day

Description	Scenario 1	Scenario 2
Average households (HH) collected per hour on route	108	124
Time on route per day (hours) (1)	6.25	6.25
Max HH collected per day	875	875
Total potential HH per week	3,597	3,597
Total potential HH per day (1)	899	899
Cart set-out rate	40%	60%
Projected HH per day	360	540
Recycling collection routes needed per day	0.41	0.62
Rounded	1.00	1.00

1 Based on 10 hour work days under a 4/40 work schedule. Includes only time spent on route, collecting carts, and therefore excludes time spent for pre- and post-inspection, breaks, trips to the MRF, etc.

Scenarios 1 and 2 reflect the impacts of differing diversion and set-out rates on collection efficiency. In increasing the diversion rate from 7.5 percent to 15 percent, SAIC assumed that more people, on average, would set out their cart on their collection day. Only one route would be needed in either scenario.

5.3.3 Vehicles

The recycling collection route would require one collection vehicle. Therefore, the City would require a vehicle configuration of two daily collection vehicles (the other being for the refuse collection route). SAIC assumed a back-up vehicle would be shared between the operations.

5.3.4 Personnel

The City would require one recycling route driver. SAIC assumed a back-up driver would be shared between the refuse and recycling operations.

5.4 Revenue from Recyclables

To estimate the revenues the City could expect from the sale of its recyclables, SAIC contacted a MRF in the Phoenix-Metropolitan area. The MRF indicated an interest in working with the City and a willingness to participate in a revenue sharing agreement. While recyclables are a commodity and thus can experience potentially significant price fluctuations, the MRF contacted indicated the City could expect to net approximately $10 - $50 per ton of recyclables, with an expected average of $20 per ton depending on several materials-related factors. These factors include:

- Quality of the materials
- The presence of glass in the materials
- Delivering baled vs. loose materials[2]

For the purposes of this analysis, SAIC assumed that the City would receive $20 per ton from the sale of recyclables. However, Table 5-3 contains a sensitivity analysis based on various per ton net revenue prices. As one would expect, the more revenue the City can generate from the sale of recyclables, the less the recycling program will cost each residential household.

Table 5-3
Sensitivity Analysis Based on Commodity Prices

Net Revenue per Ton	Annual Revenue Scenario 1	Annual Revenue Scenario 2
$0	$ -	$ -
$10	3,214	6,428
$20	6,428	12,856
$30	9,642	19,284
$40	12,856	25,712
$50	16,070	32,141
$60	19,284	38,569

5.5 Disposal Cost Avoidance

In addition to generating revenue from the sale of recyclables, the City would also avoid the disposal costs for those tons. Table 5-4 shows the annual disposal costs the City could avoid by implementing a recycling program.

[2] SAIC assumed the City would deliver loose recyclables.

Table 5-4
Annual Disposal Cost Avoidance

Description	Scenario 1	Scenario 2
Disposal cost per ton	$ 35.29	$ 35.29
Annual cost avoidance	$ 11,342	$ 22,685

5.6 Incremental Fuel Costs

The City currently drives approximately 24 miles roundtrip to the Johnson Utilities Transfer Station to dispose of its refuse. If the City elected to use a Phoenix-area MRF, the roundtrip distance would increase to approximately 100 miles. Table 5-5 shows the incremental fuel costs for the increased travel distance.

Table 5-5
Incremental Fuel Costs

Input	Refuse Only (1)	1+1	Difference
Disposal Trips Per Day	1	1	
Miles Per Trip	24	100	
Miles Per Gallon	3	3	
Price per Gallon	$ 3.50	$ 3.50	
Annual Trips (2)	250	250	
Annual Cost	$ 7,000	$ 29,167	$ 22,167

1 For one refuse collection route only.
2 Based on 52 weeks of service with five service days per week and 10 holidays.

SAIC would note that the City could potentially reduce the increased fuel costs of a recycling program by only running the recycling route two to three days per week, or by only hauling recyclables to the MRF every two to three days. However, in order to keep the analysis conservative, SAIC assumed that the recycling vehicle would make a trip to the MRF each day.

5.7 Public Education and Enforcement

Two of the most important factors to ensuring the success of a recycling program are 1) a city's public education program and 2) a city's ability to monitor the waste stream and ensure residents are properly using the service. When used together, these factors will help minimize contamination and increase the amount of material recycled.

SAIC prepared a public education and enforcement budget based on a suggested amount per household per year. Scenario 2 has a higher budgeted amount based on the assumption that increased public education and enforcement will be required to increase the diversion rate from 7.5 percent to 15 percent. Table 5-6 compares the estimated budget for each scenario.

Table 5-6
Annual Public Education and Enforcement Budget

Description	Scenario 1	Scenario 2
Annual budget per household	$3.50	$4.50
Total annual budget for public education and enforcement	$ 12,590	$ 16,187

5.8 Incremental Cost for Recycling Program

Table 5-7 summarizes the incremental capital and operating costs discussed throughout Section 5 of this report.

Table 5-7
Incremental Costs of Curbside Recycling Program

	Scenario 1	Scenario 2
Collection (1)	$ 25,923	$ 25,923
Processing Revenue	(6,428)	(12,856)
Hauling (Fuel)	22,167	22,167
Public Education & Enforcement	12,590	16,187
Incremental Expenses	$ 54,252	$ 51,421
Disposal Cost Avoidance (2)	(11,342)	($ 22,685)
Net Expense	$ 42,910	$ 28,736
Cost per HH per Month	$ 0.99	$ 0.67

1 Incremental collection costs represent the annualized capital costs of purchasing additional containers for the recycling program.

2 Estimated based on removing 321 - 643 tons from the City's waste stream at $35.29/ton.

The incremental monthly cost per household to add recycling collection is estimated to be $0.67 to $0.99, based on the assumptions discussed in this analysis. This amount would be in addition to the cost currently incurred by the City to provide refuse and brush and bulk collection. SAIC would note that if the City could reduce the increased hauling costs associated with a recycling program, the per household cost would also decrease.

5.9 Commercial Recycling

If the City implements a residential recycling program, it could have excess capacity in its residential recycling route. This excess capacity could potentially range from 0.38 to 0.59 routes (or approximately 360 to 540 stops per day). If the City offered commercial recycling services to local businesses in 96- or 300-gallon carts, it could

potentially increase the collection efficiency of the recycling route and generate additional revenues.[3]

5.9.1 Increased Collection Efficiency

Two important measures of collection efficiency are the number of collection stops per day and route density. This section addresses how the addition of a commercial recycling program could improve these measures of efficiency for the proposed residential recycling collection program.

Stops per Day

SAIC anticipates the residential recycling route would collect between 359 to 539 stops per day. Table 5-8 presents a summary of recycling customer stops by day and containers serviced by day.

Table 5-8
Cardboard Containers and Stops by Day

	Scenario 1	Scenario 2
Number of Customers	360	540
Routes Used	0.44	0.66
Total Capacity (Customers)	899	899
Excess Capacity (Customers)	539	359

Based on SAIC's industry knowledge, the efficiency standard for an automated side load recycling route is between 900 to 1,200 stops per day, based on a 10 hour day. Therefore, the City would likely have sufficient excess capacity to accommodate the addition of a commercial recycling collection operation into the proposed residential recycling operation.

Increased Route Density

Based on SAIC's analysis, the number of recycling stops per day would likely be significantly less than the capacity of an automated side load route. This would therefore likely result in the need to spend large amounts of time driving between stops, which ultimately reduces collection efficiency by reducing the amount of productive time spent on route. By adding commercial recycling customers located along or near existing collection routes, the City could improve route density and decrease the incremental time required to collect recyclables from these customers.

[3] Prior to committing the excess capacity in the residential recycling route to a commercial recycling program, however, SAIC would suggest the City first determine whether the residential refuse collection route can be finished consistently during normal operating hours. If the refuse route proves to be too large for a single truck, the excess capacity could instead be used to support the refuse route.

5.9.2 Increased Fee Revenue

SAIC anticipates the City would have capacity for an additional 360 to 560 stops per day in the proposed residential recycling route. In addition to improving collection and efficiency, adding commercial recycling customers to the City's proposed recycling route would generate increased revenue from service fees at a minimal cost to the City.

Table 5-9 provides a sensitivity analysis of incremental revenues based on adding commercial customers. SAIC would emphasize these revenues are based on the assumed monthly fee only. The City could also expect revenues from the sale of whatever recyclables it collected.

Table 5-9
Sensitivity Analysis Based on Commodity Prices [1]

Number of Customers	Assumed Monthly Fee	Annual Revenue
0	$ 12	$ -
10	12	1,440
20	12	2,880
30	12	4,320
40	12	5,760
50	12	7,200
60	12	8,640

1 These figures do not include revenue from the sale of recyclables.

Securing Commercial Recycling Customers

The following represents specific tactics that the City can implement to secure commercial recycling customers:

- Assign one City staff person the responsibility to increase the number of commercial recycling customers. This responsibility should be included as an important part of the employee's job description.
- Recognize that all collection staff can help increase the number of commercial recycling customers. Relevant information collected on route should be provided to the staff person responsible for increasing the number of cardboard recycling customers.
- Staff should encourage commercial customers to participate in the recycling program by demonstrating opportunities for businesses to reduce their costs. Staff should help businesses evaluate their options by conducting informal waste audits. In cases where a business is able to reduce its solid waste collection costs, City staff should develop written information to publicize this.
- The following represents additional steps that staff can take to increase the number of commercial recycling customers:

- Contact customers that may have significant quantities of cardboard in their waste stream, such as small retailers and other small businesses that receive services from the City's residential refuse operation.
- Send letters and promotional brochures to encourage participation.
- Telephone and meet with people who are directly responsible for managing their company's waste stream.
- Conduct presentations to business and civic leaders.

5.10 Key Findings and Recommendations

- **Consider transitioning to a 1+1 refuse and recycling program:** Based on SAIC's analysis, the City could transition to a 1+1 refuse and recycling program from its current twice-weekly refuse collection program through the use of its existing staff and equipment. SAIC estimates that the City could add weekly recycling services for between $0.67 and $0.99 per month. However, if the City were able to either 1) decrease the hauling increased costs associated with transporting recyclables to a Phoenix-area MRF or 2) increase its recycling participation rate beyond SAIC's projections, it could reduce the monthly cost per household. Additionally, many cities have experienced long-term financial benefits from transitioning to similar programs. These financial benefits are largely due to 1) the rising costs of disposal and 2) the cities' commitment to creating strong recycling programs with participation rates above those projected in this report.
- **Utilize excess capacity to provide limited commercial recycling collection:** If the City implements a curbside recycling program, the City could potentially generate additional revenue by utilizing excess capacity in the residential curbside collection program to provide limited commercial recycling collection to local businesses. If the City pursues a commercial recycling program in addition to the proposed curbside residential recycling collection program, the City should seek to proactively secure as many commercial accounts as possible until the route reaches capacity. Doing so would provide better route densities and therefore more efficient recycling collection.

6.1 Introduction

The City's Vehicle Maintenance Division (VMD) completes most of the maintenance and repair work for SWD, including the residential refuse collection operation. This section discusses potential ways to minimize maintenance costs and vehicle downtime.

6.2 Vehicle Downtime Reductions

SAIC understands that SWD began purchasing new, rather than used, collection vehicles for the first time in 2008. As the City has adopted more modern collection vehicles, its average O&M costs and the skills and tools required to perform maintenance on the City's equipment have increased. This is consistent with what SAIC would expect in this type of transition.

Per City staff, SWD collection vehicles are currently requiring higher than usual maintenance costs and will likely exceed the City's O&M cost projections for this year (as seen in Table 3-6). It is SAIC's understanding that SWD is also looking for ways to decrease the amount of time its vehicles spend at VMD.

While maintenance costs and vehicle downtime are inevitable parts of solid waste operations, SWD can take steps to minimize these costs. Such steps could include:

- Emphasize the importance of pre- and post-trip inspections to drivers
- Perform manufacturer-recommended scheduled maintenance
- Have an independent mechanic provide occasional inspection of collection vehicles
- Increase training for VMD mechanics

6.2.1 Pre- and Post-Trip Inspection

Although drivers do not have the same expertise as equipment mechanics, performing routine preventive maintenance checks on collection trucks during pre- and post-trip inspections will enable the drivers to identify common problems and report them as necessary. This should help reduce O&M costs and equipment downtime due to failures in the field.

6.2.2 Scheduled Maintenance

While VMD currently generates maintenance reports and notifies SWD when scheduled maintenance is due for collection vehicles, it is SAIC's understanding that a lack of familiarity with changing maintenance requirements may have caused certain routine maintenance activities to go unperformed over the last several years.

SAIC recommends SWD adhere as closely as possible to the manufacturer-suggested maintenance intervals in order to minimize any problems, which could arise by delaying them. However, per discussions with City staff, it is SAIC's understanding that there may be situations in which VMD mechanics are unable to perform necessary maintenance. While the City will ultimately want to provide the appropriate training to minimize the frequency with which these situations occur, in the interim, the City may need to utilize an independent mechanic to perform certain maintenance activities.

On a day-to-day operational level, SAIC recommends that, whenever possible, the VMD continue to set aside lighter collection days[1] to perform maintenance services on SWD collection vehicles. By performing maintenance activities on these vehicles on lighter days, VMD can help reduce the downtime of these vehicles on collection days.

6.2.3 Independent Inspection of Collection Vehicles

Per City staff, the City's residential collection vehicles have been experiencing more problems than typical, some which have been fairly severe. Although the City has been able to maintain its vehicles at an annual cost well below the industry average, it is possible that certain key maintenance activities have not been performed and this is contributing to the vehicles' historic low maintenance costs and also their current problems.

In order to determine the severity of these vehicles' issues and their future viability for frontline duty over the next three to four years, SAIC recommends the City hire an independent mechanic to conduct evaluations of each vehicle. This will provide the City with an independent determination of whether the equipment is maintained to a standard that is likely to exceed or fall short of the projected replacement schedule. Should the mechanic determine the vehicles require replacement ahead of the projected schedule, the City may need to consider purchasing used vehicles as a stopgap measure until the necessary training can be provided to VMD mechanics.

6.2.4 Increase Training at VMD

Given the mechanics' aforementioned unfamiliarity with changing equipment maintenance requirements, SAIC suggests the City provide additional training to VMD mechanics. In particular, SAIC recommends the City invest in 1) heavy equipment maintenance training for all of its mechanics and 2) up-to-date diagnostic software containing the latest maintenance protocols for the City's equipment.

As turnover in VMD occurs, SAIC would also suggest that the City make an effort to hire mechanics with the latest certifications necessary to providing a high level of service to City vehicles.

[1] If the City were to adopt a 4/40 schedule (as discussed in Section 3 of this report), SAIC would recommend setting aside non-collection days for the performance of maintenance activities.

6.3 Fleet Replacement

Maintaining an accurate fleet replacement schedule is a critical component of SWD's budgeting process. The fleet replacement schedule allows SWD to plan for the future by taking into consideration mandatory capital financing requirements. Fleet replacement schedules are generally forecasted for a set period of time, such as five to 10 years.

Ideally, SWD will want to minimize the number of vehicles that will be replaced in any given year or consecutive years. This smoothes capital spending and minimizes the amount of time vehicles are kept as backup relative to purchasing vehicles simultaneously. Therefore, SWD should continue to work toward replacing these vehicles on a staggered basis rather than replacing them all in the same year.

6.4 Key Findings and Recommendations

- **Make pre- and post-trip inspections a point of emphasis:** SWD should continue carrying out maintenance-related responsibilities and emphasizing their importance to the overall operation of SWD.
- **Set aside lighter and/or non-collection days for SWD vehicle maintenance:** Whenever possible, VMD should continue to perform maintenance work for SWD vehicles on lighter and/or non-collection days (currently Wednesdays). This will potentially help reduce downtime for SWD vehicles and improve communications between VMD and SWD regarding when maintenance will be performed.
- **Have an independent mechanic evaluate the SWD collection fleet:** SWD should invest in having an independent mechanic evaluate each of its vehicles to determine their long-term viability for front line service over the next three to four years.
- **Increase training for VMD mechanics:** It is SAIC's understanding that the VMD's mechanics may lack familiarity with certain changes in maintenance requirements for new vehicles. The City should therefore seek to increase the knowledge and skills of its mechanics through the provision of additional training. As turnover occurs within VMD, the City should be sure to hire mechanics with the latest certifications necessary to providing high quality service to City vehicles.
- **Smooth vehicle replacement schedule:** SWD should continue to prioritize smoothing its vehicle replacement schedule as much as possible. On a seven year replacement schedule, the optimal number of residential collection vehicles will be approximately one vehicle every three to four years. Smoothing the replacement schedule will help to keep the department's vehicle capital costs relatively stable from year to year.
- **Monitor O&M costs:** O&M costs for SWD vehicles and equipment are on the lower end of the industry range. SWD should monitor these costs as it invests in an independent mechanic's services and increased training for the City's mechanics.

- **Explore alternatives to purchasing a new collection vehicle:** The City's frontline collection vehicles are currently in the middle of their scheduled service lives. However, the vehicles have recently experienced several mechanical failures. Prior to purchasing a new vehicle, the City should identify other possible solutions including retrofitting its newest rear-load collection vehicle with a semi-automated tipper and hiring an independent mechanic to perform a comprehensive review of the vehicles.

6.4.1 Short-Term Vehicle Plan

The City is currently considering purchasing a new fully automated side-load collection vehicle due to the increases in vehicle maintenance costs and downtime mentioned in Section 6.2. Due to the importance of this issue to the City, we have created a short-term plan for the City to consider.

SAIC does not recommend the City purchase a new vehicle at this time, except as a last resort. SAIC's initial recommendation is based on the following:

- The City's frontline collection vehicles are relatively newer (model years 2008 and 2009)
- The City could potentially consolidate its routes, thereby reducing the number of vehicles required for the residential collection operation[2]

SAIC instead recommends the City follow the following priority list of alternatives for the City to consider:

- **Add a semi-automated tipper to the City's newest rear-load vehicle:** This vehicle could then provide temporary backup support to the residential collection program as necessary. Because operating the tipper is a relatively straightforward job, SAIC anticipates the City could potentially utilize trustees from the Arizona Department of Corrections as laborers on a semi-automated crew.
- **Obtain an independent opinion:** Have an independent mechanic provide a comprehensive review of the City's fully automated side-load collection vehicles in order to assess the projected short- and long-term reliability of the vehicles as discussed in Section 6.2.3.

[2] As discussed in Section 3 of this report.

Section 7
TRANSFER STATION FEASIBILITY AND DISPOSAL OPTIONS REVIEW

7.1 Introduction

The purpose of this section is to provide the City an indication of whether a transfer station could be economically feasible, as well as an evaluation of the City's options for the disposal of solid waste generated in the City. This section includes a range of planning-level capital costs and O&M costs for a municipally-owned and operated solid waste transfer station, as well as the disposal options the City has for its refuse.

7.2 Transfer Station Feasibility Analysis

Currently, the City collects and hauls solid waste generated in the City using its fleet of automated side-loaders. The City's current disposal contract with the Johnson Utilities Company Transfer Station (Johnson Utilities)[1] is set to expire in April of 2013. The transfer station is approximately 12 miles from the City.

To provide insight as to whether a City-owned transfer station is economically feasible for the City, SAIC developed a planning-level cost range for a City-owned and operated transfer station. This range accounts for variations in capital, operational, and hauling costs.

The four high level components of the transfer station cost range are:

- Capital costs
- Operating & maintenance (O&M) costs
- Hauling costs
- Disposal costs

7.2.1 Transfer Station Costs

Capital Costs

The cost to build a transfer station depends on several factors, including the characteristics of the facility to be constructed, the amount of daily waste to be disposed, the number of operating days per week, the site's equipment and personnel configurations, and other factors.

Table 7-1 provides a range for the annual capital costs to develop a transfer station in the City. This range encompasses multiple facility types and equipment and personnel

[1] The Johnson Utilities Transfer Station is also referred to as the Central Arizona Transfer Station.

configurations for an operation of the City's size (approximately 6,487 tons of refuse per year).

Table 7-1
Transfer Station Capital Costs

Description	Low Cost	High Cost
Total Capital Costs	$ 400,000	$ 1,000,000
Annual Capital Costs (1)	$ 26,021	$ 65,051

1 Assumes a 5.0 percent cost of capital and a 30 year amortization period.

O&M Costs

The cost to operate and maintain a transfer station is primarily driven by factors such as staffing, site and equipment maintenance, fuel, and utilities. The costs represented by these factors will depend upon the size of the site, volume of materials processed, operating hours, etc.

Table 7-2 provides an estimated range for the proposed transfer station's annual O&M costs.

Table 7-2
Transfer Station Annual O&M Costs

Component	Low Cost	High Cost
O&M Costs	$ 50,000	$ 150,000

Hauling Costs

Hauling costs include those costs incurred to haul the waste from the transfer station to the landfill and back. The hauling costs depend on several factors, including:

- Distance from the landfill
- Road and traffic conditions
- Time spent unloading the load at the landfill
- Number of trucks and trailers needed
- Fuel costs

In SAIC's experience, hauling costs are often expressed in terms of cost per ton per mile ("per ton/mile cost"). Per ton/mile costs typically range from $0.15 to $0.25 per mile for a relatively low volume operation. Table 7-3 summarizes the inputs SAIC utilized for estimating the City's hauling costs. Table 7-4 provides an estimated cost range for the proposed transfer station's annual hauling costs.

Table 7-3
Hauling Cost Inputs

Input	Low Units	High Units
Total Tons	6,487	6,487
Maximum Tons per Trip	20	18
Annual Trips (1)	325	361
Miles Per Trip (2)	60	100
Total Miles	19,500	36,100
Cost per Ton/Mile	$ 0.15	$ 0.25

1 Total Tons divided by Maximum Tons per Trip.

2 SAIC notes that the City would be unlikely to haul materials from a City-owned transfer station to a private transfer station. Therefore, SAIC assumed the City's minimum haul distance would be approximately 60 miles to the Cactus Waste Landfill while the maximum distance would be approximately 100 miles to a Phoenix-area landfill.

Table 7-4
Transfer Station Annual O&M Costs

Component	Low Cost	High Cost
Hauling Costs	$ 58,384	$ 162,178

Disposal/Tip Fee Costs

As discussed in Section 7.3, the City's current disposal contract with Johnson Utilities will expire in April of 2013. SAIC obtained disposal quotes from several area landfills and transfer stations, which indicate the City's projected disposal costs and/or tip fees would range from $22.00 to $40.00 per ton, if the City procured a new long-term disposal contract.[2] Table 7-5 shows the City's annual disposal/tip fee costs.

Table 7-5
Annual Disposal/Tip Fee Costs

Component	Low Cost	High Cost
Disposal	$ 142,716	$ 259,484

Summary of Transfer Station Costs

Table 7-6 provides an annual cost summary range for a transfer station. Table 7-7 provides the cost summary range on a per ton basis. If the City elected to develop a transfer station, the City could expect the transfer station's total costs would fall somewhere within these ranges. **As shown in the analysis, developing a City-owned transfer station would result in an additional $7.43 – $ 62.86 in incremental per ton disposal costs, relative to the City's current tip fee costs at Johnson Utilities.** These incremental costs are prior to accounting for the savings generated by a transfer station.

[2] The City's current tip fee is $35.29.

Table 7-6
Total Annual Transfer Station Costs

Description	Low Cost	High Cost
Capital Costs	$ 26,021	$ 65,051
O&M Costs	50,000	150,000
Hauling Costs	58,384	162,178
Disposal Costs	142,716	259,484
Total	$ 277,121	$ 636,713

Table 7-7
Total per Ton Transfer Station Costs

Description	Low Cost	High Cost
Capital Costs	$ 4.01	$10.03
O&M Costs	7.71	23.12
Hauling Costs	9.00	25.00
Disposal Costs	22.00	40.00
Cost per Ton	$ 42.72	$ 98.15

7.2.2 Transfer Station Savings

SAIC also analyzed the potential savings that would be generated through the use of a city-owned transfer station. In SAIC's experience, the largest cost savings from the development of a transfer station are most often generated when a city is able to reduce the number of routes it operates. SAIC analyzed the impact a transfer station would have on the daily number of residential routes required under a refuse operation. Table 7-8 shows the impact on the number of routes required.

Table 7-8
Daily Residential Routes Required With and Without a Transfer Station (1)

Collection Scenario	Without TS	With TS	Difference
Status Quo (Refuse Only)	1.59	1.43	0.16

1 Assumes a 4/40 collection schedule.

While a transfer station would decrease the number of collection routes required by 0.16 routes, the City would still ultimately require two daily routes. The City would therefore only generate in savings from a reduction in fuel costs. Table 7-9 shows the fuel savings that could result from developing a transfer station. Table 7-10 shows the impact these savings would have on the per ton transfer station costs calculated in Table 7-7. As shown, even with the savings generated by a City-owned transfer station, the per ton costs of disposal would likely be higher than if the City hauled the material directly to the disposal site using its collection vehicles.

Table 7-9
Fuel Cost Savings

Input	Units
Current Fuel Costs	$ 44,880
Reduction in Routes [1]	10 %
Fuel Savings	$ 4,488

[1] A reduction of 0.16 routes divided by the 1.59 routes currently required = 10 percent.

Table 7-10
Transfer Station Savings Impact on Total Costs per Ton

Description	Low Cost	High Cost
Cost Savings per Ton	$ 0.69	$ 0.69
Transfer Station Costs per Ton	$ 42.72	$ 98.15
Cost per Ton	$ 42.03	$ 97.46

7.3 Disposal Options

The City is also currently evaluating whether it should renew its current contract with Johnson Utilities. Per the terms of the City's existing contract, the tipping fee is automatically escalated at three percent per year. In SAIC's experience, price escalation is more commonly pegged to changes in the Consumer Price Index (CPI). This provides price protection to the City in years when changes to the CPI are minimal (e.g., during a recession).

During the course of this study, SAIC obtained informal price quotes from multiple area landfills and transfer stations that are willing to accept waste from the City. SAIC has aggregated these quotes into the cost range presented in Table 7-11 to safeguard the privacy of the landfills. SAIC would also note that the range is intended as an estimate only and that the City would need to conduct a formal procurement in order to determine the final pricing.

Table 7-11
Area Landfills and Disposal Fees

Landfill	Operator	Round Trip Distance (mi)	Low Disposal Cost per Ton	High Disposal Cost per Ton
Ironwood LF	WM	16	$ 22.00	$ 40.00
Johnson Utilities TS (Central Arizona) (1)	Allied	24		
Cactus Waste LF	Allied	60		
Right Away Disposal TS	RAD	72		

1 The City's current tip fee is $35.29.

7.3.1 Vendor Considerations

SAIC would emphasize that the City will need to weigh multiple considerations when selecting a disposal vendor. While the per ton disposal cost should be a primary consideration, the City will also want to consider the disposal site's proximity to the City, as this will have an impact on hauling costs, and could have further operational impacts on the City's collection operations.

Additionally, the City will want to negotiate for 1) separate pricing tiers for municipal solid waste (MSW) and construction and demolition (C&D) materials and 2) allowing the City's residents to dispose of materials directly at the landfill as a part of their monthly bill.

SAIC recommends the City provide a sample contract of its choosing to the vendor, in order to secure the most competitive pricing possible and avoid extraneous fees.

7.4 Key Findings and Recommendations

SAIC developed the following recommendations based on the analysis conducted for this section of the report:

- **Continue direct hauling:** Based on the amount of refuse tonnage generated in the City, a city-owned transfer station is most likely not a cost competitive option given that several disposal options exist within close proximity to the City of Coolidge. Additionally, although a transfer station would increase the capacity of the City's residential refuse and/or recycling routes, the increased capacity would not be sufficient to reduce the number of routes required to serve the City and would likely not result in sufficient cost savings to validate the operational and financial investments.
- **Begin a formal procurement process as soon as possible**: In SAIC's opinion, the City should not renew its disposal contract with Johnson Utilities given the contract's relatively high disposal costs and automatic escalation clause. SAIC instead recommends the City begin a procurement process for a long-term (e.g., five to 10 years) disposal contract immediately. Based on informal price quotes obtained by SAIC, several landfills in the area appear to offer more cost effective and/or convenient disposal terms than the City's current contract provides.

Section 8
COMMERCIAL CONTRACT EVALUATION

8.1 Introduction

Right Away Disposal (RAD) is currently providing the City with commercial refuse collection services. The City entered into the current Commercial Collection Agreement (Agreement) with RAD in December of 2008, and the Agreement runs for a term of seven years. This section provides an evaluation that Agreement. For the purposes of this report, SAIC evaluated the financial terms of the Agreement and benchmarked the City's current rates to other cities in Arizona to compare the financial value currently provided to the City.

8.2 Contract Financial Terms Overview

In SAIC's experience, the financial terms of the City's Agreement appear to be fairly standard to the industry. Section 4.3 of the City's Agreement includes provisions for adjusting service charges according to changes in the CPI for the Phoenix-Mesa Metropolitan Area, which is a typical price adjustment measure in the solid waste industry. Section 4.3.2, however, includes a provision for increases in the disposal fees RAD incurs when disposing of the City's waste. When developing a new contract, SAIC would recommend the City negotiate a fixed disposal fee for the term of its contract.

8.2.1 Benchmarks

SAIC has conducted numerous cost of service studies in the state of Arizona and has a high level of familiarity with the costs for commercial collection in the Phoenix and Tucson metropolitan areas. In evaluating the terms of the City's Agreement with RAD, we compared the rates RAD charges the City to the commercial rates charged by other communities in the area. Table 8-1 provides a summary of these benchmarks on a per cubic yard (CY) basis. As shown in the table, the rates charged by RAD are on the low end of rates charged to commercial customers in other communities in Arizona.

Table 8-1
Commercial Collection Benchmarks - FY 2012
Rates for 1x/Week Service (1)

Community	Cost Per CY
Casa Grande	$ 4.81
Peoria	3.34
Tempe	2.54
Tucson	4.81
Coolidge	$ 3.23
Average (Excluding Coolidge)	$ 3.88

1 SAIC would note that some of these rates were proposed as a part of the cost of service studies we performed for the communities listed. While these rates were designed with the cities' projected costs of service in mind, they do not necessarily reflect the actual rates in place within these communities.

8.3 Effects of House Bill 2604

Pursuant to Arizona House Bill 2604, Section 1, Section 49-746, of the Arizona Revised Statutes, the City is no longer able to designate an exclusive commercial solid waste services provider. Section 7.1 of the current Agreement, which provides exclusive commercial collection rights to RAD, may no longer be enforceable and could require an amendment. The City will need to consult with its City Attorney to determine whether the rest of the contract is still valid.

SAIC recommends the City use this opportunity to create a standard commercial agreement for potential commercial refuse collection contractors, including RAD. SAIC would note that the City should be sure to put in place standards regarding the minimum level of service a private solid waste services provider is required to provide. Additionally, the City should collect a commercial franchise fee or commercial permit fee for the right to provide service within the City (similar to the Administrative Fee outlined in Section 4.2 of the City's existing Agreement).

There are several reasons why cities charge commercial franchise fees or commercial permit fees. In SAIC's experience, the most frequent reasons include the following:

- Ensure vehicles operate in compliance with local regulations
- Provide funds to allow city staff to ensure compliance with dumpster enclosure requirements
- Provide city with information to follow up with private haulers in cases where there is a need to ensure that they provide a high level of service to customers located in the city
- Generate revenue to fund efforts to abate illegal dumping
- Generate revenue to offset administrative and inspection costs
- Generate revenue for maintenance to city streets that is needed as a result of commercial vehicles operating in the city

The City could also potentially municipalize commercial refuse and recycling collection. Descriptions of franchise fee and commercial permit fee arrangements and municipalization are discussed below.

8.3.1 Commercial Franchise Fees

A commercial franchise fee arrangement occurs when private companies are given the right to collect solid waste within a specific area over a specific time period. For this right, the company pays a fee to the local government. These fees are typically based on tonnage and/or assessed as a percentage of a private operator's gross revenue generated through providing solid waste services within a city.

A franchise fee can be either exclusive or non-exclusive. In case of an exclusive franchise fee, a city will issue a request for proposals for private operators to submit a bid documenting rates they would charge for providing collection services. A part of the contract that the selected company would sign would include a franchise fee provision. In the case of a non-exclusive franchise fee, a city will allow any private operator that meets the city's rules and regulations to provide collection services. **Given the passage of House Bill 2604, it is SAIC's understanding that the City would need to use a non-exclusive franchise fee arrangement.**

8.3.2 Commercial Permit Fees

A number of solid waste utilities, including several in the Phoenix area, have implemented a commercial permit fee. While the definition of a commercial permit fee can vary between cities, this fee is typically charged to private solid waste haulers operating in the city. The fee is often a combination of 1) an annual application charge and 2) an annual charge for each collection vehicle operating in the city.

8.3.3 Municipalization

Given the relatively limited number of commercial customers in the City, SAIC does not recommend municipalization of commercial collection at this time. However, as discussed in Section 5.9 of this report, if the City implements a weekly residential curbside recycling collection program, the City could potentially utilize excess capacity in the residential refuse and/or recycling routes to provide limited commercial refuse and/or recycling services to local businesses using carts.

8.4 Key Findings and Recommendations

- **Review current commercial contract with City Attorney to ensure compliance with HB 2604**: In SAIC's experience, the City's Agreement with RAD is fairly consistent with other commercial refuse collection agreements in place throughout the industry. However, because House Bill 2604 may have rendered parts of the existing Agreement unenforceable, the City should review the current contract with its City Attorney to ensure compliance with the bill. Additionally, because the City's current agreement is not scheduled to expire until

December of 2015, the City may need to develop a new contract that allows for competition for commercial solid waste collection services.[1]

- **Secure the most competitive commercial rates possible for City-owned facilities[2]:** RAD's commercial collection rates appear to be fairly competitive within the Phoenix and Tucson metropolitan areas. However, given the possibility of new commercial collection providers in the City, SAIC suggests the City utilize this opportunity to secure the most competitive rates possible for its own long-term commercial solid waste collection needs.
- **Develop a standard franchise fee or commercial permit fee agreement for use with commercial solid waste services providers:** SAIC recommends the City develop a standard commercial franchise fee or commercial permit fee agreement that can be utilized for all haulers interested in providing commercial solid waste services within the City. SAIC would emphasize the importance of including stipulations regarding minimum service levels and a franchise fee or permit fee to operate within the City. SAIC does not recommend municipalization at this time. However, the City could potentially utilize any excess capacity generated as a result of the operational changes suggested in this report to offer limited commercial collection services to local businesses using carts. This would be particularly appropriate if the City implements a residential curbside recycling program.

[1] The City may also need to conduct a further review of its City Ordinance.
[2] This primarily pertains for the Public Works Department's yard drop off site.

Section 9
ILLEGAL DUMPING

9.1 Current Level of Illegal Dumping

The City has historically encountered challenges with controlling illegal dumping. Illegal dumping creates environmental and health issues for the City as well as generating operational and disposal costs. Due to the current level of illegal dumping in the City, the solid waste operation is required to devote resources and man hours to collecting material from illegal dump sites on a weekly basis. In this section, SAIC has provided a brief discussion on illegal dumping, outlined the necessary structure to mitigate illegal dumping and outlined strategies the City can implement to decrease illegal dumping.

9.2 Factors Affecting Illegal Dumping

Illegal dumping occurs in communities for different reasons. Key factors that affect the level of illegal dumping in communities across the United States include.

- Cost and convenience of using local disposal facility
- Distance to landfill or drop-off location
- Environmental education
- Lack of enforcement and prosecution
- Unequal access to solid waste collection and disposal services
- Local political will
- Civic pride

Illegal dumping typically occurs in similar locations within a community. Material is typically left in vacant lots, alleys, roadways, ditches and rural areas as these locations are less visible and out of sight of law enforcement. Some of the historically identified reasons that illegal dumping activities take place in communities include:

- Fines and risk of being caught are low
- Not willing to spend time to transport and legally dispose of material
- Lack of public education
- Distance to landfill or drop-off location is too far
- Lack of affordable collection services in unincorporated areas

9.3 Developing an Illegal Dumping Abatement Program

In order for the City to maintain a cleaner and safer community for residents by minimizing illegal dumping, the City must work to develop a structured and effective illegal dumping abatement program. There are five elements associated with developing an effective illegal dumping abatement program:

1. **Management Structure -** Determine the proper management structure.
2. **Education** - Determine the process for educating all parties (citizens, police, prosecutors, judges, etc.)
3. **Convenience and Affordable** – Determine convenient location and cost of providing legal disposal options.
4. **Enforcement and Prosecution** - Determine how to enforce and pursue criminal and/ or civil legal options.
5. **Cleanup -** Determine protocol on how to cleanup illegal dumpsites.
6. **Program Maintenance** - Determine how to best handle on-going program planning and management.

9.3.1 Management Structure

An effective illegal dumping abatement program requires the cooperation and collaboration of multiple people across multiple departments. To successfully address and reduce the occurrence of illegal dumping in the City, it is vital to have the cooperation and support of the City Manager, City Council and City staff.

The illegal dumping abatement program is currently housed under the Code Enforcement Department. An advantage of this structure is the Code Enforcement staff is likely more familiar with environmental law than other City personnel are. However, Code Enforcement staff is unable to make arrests or enforce state criminal statutes. Additionally, the City's Code Enforcement staff is responsible for other City enforcement issues beyond illegal dumping, such as building inspection and animal control. The City Code Enforcement Department coordinates with the City's Solid Waste Division to collect and dispose of material at illegal dump sites.

It is imperative to the success of an enforcement program to have the daily cooperation of the following City departments:

- Code Enforcement Department
- Solid Waste Division
- Police Department
- City Manager and City Council
- District Attorney and City Attorney
- Municipal Courts
- Civil Hearing Officer

SAIC does not perceive a problem with the illegal dumping abatement program being housed in the Code Enforcement Department, but recommends that the roles and responsibilities of all involved departments be clearly defined. Within the involved departments, the following programmatic roles will need to be assigned:

- Administrator
- Enforcement Officers
- Prosecutor
- Judge
- Cleanup Crews

The management structure of an illegal dumping abatement program differs among cities. There is not right or wrong management structure or division or responsibilities in establishing an illegal dumping abatement program. It is important to look to the City's government structure and local factors when determining the appropriate management structure to develop an illegal dumping abatement program.

In the development of an illegal dumping abatement program, the City will need to address the following key policy issues:

- Ability for local government to draft ordinance
- Local government financial commitment to program
- Politics involved in enforcing illegal dumping abatement program

9.3.2 Education

Education is imperative to any successful illegal dumping program. It promotes public awareness about illegal dumping, provides legal options for disposal and encourages public cooperation in preventing illegal dumping. Education needs to begin early in the program implementation and continue throughout the life of the program.

It is SAIC's experience that most successful education and outreach programs are developed around a central slogan and emblem. By creating a single slogan and emblem, the City is able to more effectively generate program recognition. Examples of successful slogans used by other cities include:

- Trash Patrol – Ozark Rivers Solid Waste District, Missouri
- Take a Stand For Your Land – Department of Natural Resources, Iowa
- Get Mad! Report Illegal Dumping – El Paso, TX

In addition to developing a slogan and emblem for the illegal dumping program, the City can develop education materials such as, but not limited to the following.

- Media Campaign
- Press Release
- Voucher
- Flyers
- Bumper Stickers
- Refrigerator Magnates

In addition to considering the method of communication, it is important to keep the target audiences in mind when developing public education. The illegal dumping program campaign will need to educate potential illegal dumpers as well as City staff, elected officials, judges and concerned residents that will aid the program by calling in illegal dumping.

The materials necessary to effectively educate City residents and business can be costly to develop and produce. The City can pursue different strategies to mitigate the cost of an education program such as:

- Collaborate with County and regional entities to develop campaign
- Request assistance from airplane and helicopter pilots to report dumping activity
- Incorporate volunteer groups in clean-up efforts (e.g. "Adopt-A-Road" program)
- Encourage all City employees to report illegal dumping
- Work with local business to leverage their closed circuit surveillance to identify illegal dumpers

SAIC completed a 'Regional Stop Illegal Dumping Cost/Benefit Analysis Study' for North Central Texas Council of Governments that discusses the financial benefit of investing in illegal dumping abatement. A detailed list of education strategies are provided in the Cost/Benefit Analysis Study. SAIC has provided this study's location in Section 9.5.

9.3.3 Enforcement and Prosecution

Effectively enforcing and prosecuting illegal dumpers under state laws and local ordinances in essential in making sure the illegal dumping abatement program is a success. **If the illegal dumping abatement program does not have in place an effective process for enforcing the laws and prosecuting the illegal dumpers, the illegal dumpers will not change their behavior and the community will not see a change in illegal dumping.**

A significant challenge with catching illegal dumpers or linking material to the illegal dumper is capturing video, photographic or eyewitness evidence of the act. This hurdle can be mitigated by providing training and resources to provide an increased opportunity for illegal dumpers to be duly prosecuted. Activities and infrastructure the City can invest in that will increase effectiveness of enforcement and prosecution are shown in the table below.

Table 9-1
Enforcement and Prosecution Tools

Training and Resources	Infrastructure
Training for Law Enforcement and Prosecutors	Develop Illegal Dumper Database
Seminars for Judges	Illegal Dumper Hotline
Provide Expert Witness at Proceedings	Surveillance Cameras
Identify Potential Dumpsites	

Based on the Arizona State Law Title 9-499, the City has the power to prosecute illegal dumpers as a class 1 misdemeanor or a civil violation. An excerpt from Arizona State Law Title 9-499 is provided below for reference:

> "Any person... that places...trash...upon any private or public property not owned or under the control of that person...is guilty of a class 1 misdemeanor or a civil violation and in addition to any fine or penalty which may be imposed"

Although the law clearly states that illegal dumping is illegal and able to be prosecuted, it can be a challenge to prosecute the illegal dumpers. Many times, illegal dumping occurs with no eyewitness to testify. A precedent has been set in other states called 'rebuttable presumption' that allows for evidence gathered from the material to identify and prosecute the illegal dumper. For instance, information identifying a person or address in the illegally dumped material would allow the City to fine or prosecute the person.

9.3.4 Cleanup

To maintain a successful illegal dumping program, the local government must have an effective policy to clean up illegal dumpsites. It is important that the sites are cleaned up in as timely a manner as possible since trash left onsite attracts additional illegal dumping.

There are three widely used cleanup methods used:

- Community Cleanups - City organizes volunteers to cleanup dumpsite.
- Local Government Cleanups - City uses City Solid Waste crews to cleanup dumpsite.
- Cleanups Mandated by Conviction - Requiring people that are caught illegally dumping, in addition to paying a fine, to serve a set number of hours (community service hours) cleaning up illegal dumpsites.

A well accepted theory in the solid waste industry is the 'broken window theory,' which states that run down or abandoned buildings are a magnet for illegal dumpers. The City can work to mitigate illegal dumping areas that are identified as frequent illegal dump sites or potential dump sites with the following education and outreach tools:

- Posting of Signs
- Lighting
- Barriers
- Surveillance Cameras
- Education
- Fine Illegal Dumpers
- Legal Action Against Property Owners

The City currently maintains alleys for refuse and bulk collection throughout the City. Alleys are a common location for illegal dumping, as they are clear from public view. If the City decides to discontinue collection services in the alleys, SAIC recommends the City install bollards to limit the car access to City alleys. Figure 9-1 provides an example of alley bollards from Tolleson, Arizona.

Figure 9-1. Alley Bollards

Bollards are placed at the entrance of alleys to allow walking and biking traffic, but limit vehicle traffic. The bollards are made of PVC material and can be unlocked at the bottom and lowered to allow City vehicles alley access and, if necessary, the street's residents. Because the bollards are made of PVC material, police cars and fire trucks would be able to drive through the bollard barricade in the case of an emergency. By installing bollards in alley entrances and removing alleys as common dump sites, any illegal dumpers are forced to more visible dump sites where they are more likely to be witnessed.

It is important to understand the cost of cleaning up the illegal dumping areas. By quantifying the annual cost of illegal dumping causes for the City through collection, disposal and litigation expenses, the City can foster greater support for capital and education investments to prevent illegal dumping practices in the City.

Current Progress

SAIC recognizes that significant progress is being made by the bulk trash collection crews with regard to maintaining clean alleyways. However, given the City's historical issues with illegal dumping and non-compliant bulk trash setouts, as well as a lack of access to bulk trash collection services in certain areas of town, SAIC would recommend the City make a sustained commitment to providing high quality public education regarding bulk trash collection and illegal dumping. Additionally, instituting a community-based program such as to "Keep Coolidge Beautiful" is an

inexpensive and effective way to increase community engagement and transition some of the responsibility for maintaining the community's appearance back to residents.

9.3.5 Program Maintenance

Illegal dumping is an activity that is only mitigated with proactive actions and maintenance of an organized and stable illegal dumping program. The City can track success and program progress through developing a database and mapping system that tracks illegal dumping in the City. A mapping system will allow the City to understand the geographic locations of illegal dumping, target problem areas and identify dumpsite proximity to health hazards (i.e. water sources and schools). Maintaining a database for illegal dumping is instrumental in tracking the success of the illegal dumping program by identifying the community participation in the program, financial savings from a decrease in dumpsites and level of illegal dumping over time. SAIC recommends tracking the following metrics in an illegal dumping database:

- Number of complaints received regarding illegal dumping
- Number of complaints received regarding littering
- Number or warnings issued
- Number of citations issued
- Number of court cases tired and concluded
- Number of convictions
- Dollar amount of fines collected
- Number of dumpsites cleaned up
- Tons removed through clean up enforcement
- Number of training activities attended and conducted
- Number of community education activities attended and conducted

9.4 Implementation Strategy

In this section SAIC outlines an implementation strategy to successfully implement an illegal dumping abatement program.

9.4.1 Increase Education and Outreach

As discussed in Section 9.3.2, education is a cornerstone of a successful illegal dumping abatement program. SAIC recommends the City invest in developing a campaign to promote and educate residents on:

- How to report illegal dumping
- The environmental dangers and fines associated with illegal dumping

- Legal and local locations to properly dispose of material

Based on SAIC's previous experience with public outreach and education campaigns, it is highly effective to develop a City slogan and image that represents the illegal dumping abatement program and education campaign.

In addition to developing a marketing campaign and education materials, SAIC recommends the City invest community outreach activities such as seminars, community meetings, community cleanups and youth outreach. Making presentations to community groups and schools can be beneficial to communicate the illegal dumping program mission and information. It would additionally be beneficial to develop workshops and seminars for City departments to communicate the City's efforts and the Solid Waste Division's goal of reducing illegal dumping.

The City can consider hiring a marketing firm or create a marketing committee with City staff to develop a campaign and educational material. The education and outreach efforts to mitigate illegal dumping should continue inevitably to minimize illegal dumping activity in the City.

SAIC would emphasize that when combating illegal dumping, a city can frequently expect to see an initial spike in enforcement and compliance costs, followed by a leveling off of these costs.

9.4.2 Enforce and Prosecute Violations

Without a perception of risk or consequences for dumping illegally in the City, it is extremely difficult to deter illegal dumpers. **As discussed in Section 9.3.3, an illegal dumping abatement program will be unsuccessful without effective enforcement and prosecution of illegal dumpers.**

A lack of effective prosecution of illegal dumping violations are typically a result of two factors, a lack of evidence and/or testimony and a lack of familiarity with environmental law by enforcement officers, police, prosecution and judges.

To address the first challenge of enough evidence, the City can begin to educate residents on how to spot and report illegal dumping. The City needs to increase the resident's involvement in reporting and providing testimony to prosecute illegal dumpers. One method for increasing public reporting is to maintain an illegal dumping hotline that residents can call to report instances of illegal dumping.

To address the lack of familiarity with environmental law, the City can hold seminars and workshops with the departments involved with investigation, enforcement and prosecution of illegal dumpers. Some cities have established environmental courts or designated certain prosecutors as specialist in environmental law to assist in the prosecution of illegal dumpers.

9.4.3 Provide Convenient and Affordable Drop-off Location

In order to eliminate illegal dumping the City must provide a convenient and affordable alternative to dumping material illegally. The City is currently providing residents with two disposal options for large material by allowing residents to bring

material to the Public Works yard or using the a City owned dump truck to dispose of material. Residents can participate in these disposal options free of charge with a recent utility bill and local driver's license. City residents are allowed access to the Public Works yard on Monday through Friday from 7:00 am to 1:00 pm. The dump truck is available to one resident at a time for up to a full day, however, the dump tuck is typically reserved and not available for immediate access. Both current disposal options provided by the City allow residents to dispose of material legally, but both options are provided to residential customers for limited times and do not allow disposal for commercial customers (i.e. contractors, yard workers, etc.)

SAIC recommends the City work to expand upon the local disposal options. For example, the City can continue to accept material at the Public Works yard, but extend the hours material is accepted and allow commercial customers to dump material at the yard, in addition to residential customers. The City can recover the cost of operating the drop-off location and disposal of material in the following ways:

- Charge commercial customers, do not charge residential customers
- Charge both commercial and residential customers
- Include the drop-off operating cost and disposal cost in the residential rate

SAIC recommends that if the City does decide to charge for disposal at the drop-off location that the City set the drop-off rate as competitively as possible. By setting the rates at a similar or lower level than surrounding disposal options, there is a greater likelihood haulers will legally dispose of material. After several years of a competitive rate, SAIC recommends the City transition the drop-off rate to be consistent with the cost of service for operating the facility, however, in an interest to change behavior and decrease illegal dumping SAIC recommends the City delay the use of a cost of service drop-off rate. The manner in which the City recovers the cost of operating the drop-off location at the Public Works yard is ultimately a policy decision and at the discretion of the City Council and City Manager.

The City can also provide additional disposal locations for the City by requiring the City's disposal provider to include a convenient disposal site as part of their services. SAIC has recommended that the City conduct a formal procurement to re-procure disposal services for the City. When developing the RFP for the City's disposal services, the City outline a convenient disposal location that accepts City self-haulers as a required aspect of the disposal proposal.

9.4.4 Provide Brush and Bulk Services Citywide

The City provides bulk trash services twice a month to centrally located residents. Other residents outside of the City's center six mile boundaries do not receive bulk trash collection services. As discussed in Section 4, SAIC recommends the City provide brush and bulky services to all City residents on a less frequent basis. Ensuring that all residents have equal access to brush and bulk collection, allows residents to dispose of brush and bulk material at the curb and decreases the likelihood that such material will be illegally dumped. Based on SAIC's analysis, the City will

be able to provide all City residents with bulk trash collection, under a less frequent collection schedule, without the need for an additional brush and bulky route.

9.4.5 Track Common Dump Locations and Offenders

SAIC recommends the City create a database to track the locations of illegal dumping, the repeat illegal dumping offenders, the material being illegally dumped and the quantity. SAIC recommends the City develop an Access or Excel database where the information regarding illegal dumping can be stored. Understanding the behavior, the ability to prepare for illegal dumping violations and the opportunity to efficiently respond to the illegal dumping is a very valuable tool in decreasing the City's illegal dumping.

9.5 Additional Resources

Funding

There are multiple funding options available to the City including:

- Local Funds (Ad Valorem Tax or Solid Waste User Fees)
- State Funds
- Supplemental Environmental Projects or 'SEP'
- Grant Funding

Local funds, state funds and SEP funding are all methods to provide long-term funding to the illegal dumping program. Grant funding can be a good source of short-term funding to initiate and develop an illegal dumping program. Possible grant funding sources for the City could include:

- USDA Rural Development – Solid Waste Grant
- Department of Environmental Protection
- Arizona Department of Environmental Quality
- Keep Arizona Beautiful

Reference Manuals

SAIC has produced multiple manuals for counties and states in the United States on illegal dumping. If the City would like to access these resources for further reference, these documents can be found at the following locations:

- How to Establish and Operate An Illegal Dumping Prevention & Cleanup Program New Mexico Environment Department (Originally prepared for Missouri Department of Natural Resources) http://www.nmenv.state.nm.us/swb/pdf/NM%20Illegal%20Dumping%20manual%2005-2004.pdf

- How to Establish and Operate an Illegal Dumping Prevention and Response Program
  Iowa Department of Natural Resources
  http://www.iowadnr.gov/portals/idnr/uploads/waste/idguide1.pdf

- Regional Stop Illegal Dumping Cost/ Benefit Analysis Study
  North Central Texas Council of Governments
  http://www.nctcog.org/envir/SEELT/documents/CBFINAL_Main.pdf

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Section 10
LANDFILL CLOSURE AND POST-CLOSURE COST ESTIMATES

10.1 Background

This section provides an update to the City's existing Closure and Post-Closure cost estimates. The closure design for the Landfill was completed in July 1998 by Hansen Engineering of Coolidge, Arizona and, per the City, the design has been approved by the Arizona Department of Environmental Quality (ADEQ). Furthermore, the City has conducted post-closure monitoring at the Landfill since the Landfill stopped receiving waste in 1992, and more recently (in 2008) installed a series of landfill gas (LFG) monitoring wells at the Landfill.

10.2 Landfill Closure

As outlined in the July 1998 Landfill Closure Plan prepared by Hansen Engineering, the final closure design for the Landfill will be as follows:

> *"The final landfill cover will have a minimum depth of two feet. The bottom 18 inches will be compacted to at least 90% relative compaction to achieve a permeability no greater than $1x10^{-5}$ cm/sec. This will be achieved by using soil from the Casa Grande soil group." … "Prior to construction, testing of the soil source(s) will be performed to confirm actual soil properties, optimum moisture and permeability at 90% relative compaction.*
>
> *The upper 6 inches of the cover will be placed without significant compactive effort. The top layer will be graded to finish grades per construction drawings.*
>
> *The channels will be lined with an impermeable synthetic liner. The liner will be covered with 18 inches of fill compacted to 90% relative density. The final 6 inches will be compacted and graded to finish elevations.*
>
> *Upon completion of the construction of the cover, the site will be "mulched" with straw to provide initial protection from erosion. The area will also be seeded to promote growth of native and drought resistant plants. No ongoing irrigation of the site is planned.*
>
> *The landfill has been non-operational since 1992. Existing cover depth ranges from 1.3 to 8.5 feet. Differential settlement of the landfill is likely in the future. The City will perform ongoing maintenance fill and grading operations to maintain the grades and drainage of the landfill."*

Utilizing the design outlined in the 1998 Landfill Closure Plan, SAIC has updated the Landfill closure estimate provided by the City of Coolidge for the closure of 16.5 acres. Values for the estimate of closure are provided in 2012 dollars. The closure

estimate for the Landfill is provided as Table 10-1. It should be noted that while the previous closure cost estimate was for a 4-foot thick cover soil, SAIC utilized the 2-foot thick final cover design as identified in the 1998 Landfill Closure Plan. Unit costs were verified with local contractors and material suppliers.

Table 10-1
Closure Cost Estimate

Closure Cost Item	Amount		Unit Cost		Total Cost FY 2012
Grading of Intermediate Cover	16.5	Acres	$500	per Acre	$8,250
Supply & Placement of Cover Soil (2-feet Thick):					
Final Cover Soil Purchase and Transportation	53,240	CY	$10.00	per CY	$532,400
Final Cover Soil Placement (18-inch Compacted)	39,930	CY	$4.00	per CY	$159,720
Final Cover Soil Placement (6-inch Non-Compacted)	13,310	CY	$3.00	per CY	$39,930
Supply & Placement of Geosynthetics:					
Synthetic Cap Material (LLDPE or PVC) and Installation	176,000	SF	$0.55	per SF	$96,800
Drainage Layer Material and Installation	0	CY	$0.00	per CY	$0
Supply & Placement of Soil Conditioners:					
Fertilizer and Lime	16.5	Acres	$1,290.00	per Acre	$21,285
Supply & Application of Seed:					
Seed Purchase and Application	16.5	Acres	$1,520.00	per Acre	$25,080
Other (List):					
Leachate Headwells	0	Each	$0.00	Each	$0
Gas System	0	LS	$0.00	LS	$0
Project Management	0	LS	$0.00	LS	$0
SUBTOTAL					$875,215
Engineering Certification and QA/QC		*10%*			*$87,522*
Contingency		*10%*			*$87,522*
TOTAL					$1,050,258

The differences between the previous Closure Cost Estimate provided by the City and the updated Closure Cost Estimate provided as Table 10-1 are summarized as follows:

- Included grading of Intermediate Cover (at $500 per acre) in the updated estimate;
- Updated volume quantities and costs for soil purchase and placement;
- Updated costs for synthetic cap material; and
- Added Engineering Certification, quality assurance/quality control (QA/QC), and contingency costs to the cost estimate.

It also should be noted that the Closure Cost Estimate provided presents a conservative approach for the total amount of cover soil material to be purchased and transported to

the Site. The City may be able to obtain the needed material (at a decreased cost) from one of the following outlets:

- Canal companies completing work in the area could be contracted to haul excess materials to the Landfill likely at a reduced cost from the purchase and transportation costs provided in Table 10-1.
- The City may be able to obtain some of the required material from the existing on-site intermediate cover. During the 1998 Landfill Closure Plan development, core drillings were completed on the cover that indicated depth ranges from 1.3 to 8.5 feet. Depending on the existing site grading, areas that have extra material may be able to be graded out to utilize this additional material as final cover. There may be limitations to the amount of material able to be reused onsite due to grading for stormwater flow and also for contaminated material. The City could investigate the area further by completing auger borings to determine the depth of material available in certain areas. Additionally, the City may decide that the effort to locate, excavate and stockpile the material may not be worth the effort for the potential limited amount of suitable material. It should be noted that an existing conditions survey was not completed at the Landfill for this study due to the existence of millings stockpiles onsite. These millings are to be utilized in other City projects and, upon removal, a site survey could be completed to verify the existing grades and the potential for usable material already onsite.

In the event that the City is able to utilize the above mentioned processes (or from an alternate unmentioned method) to obtain material, the Closure Cost Estimate should be decreased for the "Final Cover Soil Purchase and Transportation" line item by the amount of material the City is able to obtain.

10.3 Landfill Post-Closure

The City has completed post-closure like activities at the Landfill since the final date of receipt of waste in 1992. The City currently has the costs for post-closure care within the annual budget and, with the exception of inflation, SAIC does not anticipate an increase in these budgeted numbers. It should be noted that the timing for the 30-year post-closure care period would begin upon receipt of an officially closed letter from the ADEQ. The officially closed letter will be issued when the ADEQ receives a construction quality assurance report (CQA) certifying that the closure was completed in substantial conformance with the closure plan.

The components of the FY 2013 Landfill budget for post-closure like costs are provided in Table 10-2. The costs include engineering fees, testing required by the ADEQ, landfill gas monitoring, rent payment on ADOT property, annual ADEQ registration fee, financial assurance demonstration, and costs for miscellaneous repairs.

Table 10-2
FY 2013 Landfill Budget
(Includes Post-Closure Costs)

Landfill Cost Item	Total Cost FY 2013
Professional Services	$5,000
Rentals & Leases	$302
Fuel & Lubricants	$0
Dues, Memberships, Fees	$3,700
Operating Expenses	$200
Total	$9,202

10.4 Key Findings and Recommendations

- **Update Landfill closure cost estimate:** SAIC utilized the design outlined in the 1998 Landfill Closure Plan to generate a Landfill closure cost estimate. SAIC incorporated updated cost estimates for materials and included grading of Intermediate Cover, Engineering Certification, quality assurance/quality control (QA/QC), and contingency costs to the cost estimate. The updated estimated closure cost for the City's Landfill is $1,050,258.
- **Budget for Landfill final closure costs:** SAIC recommends the City begin budgeting for final closure costs of the Landfill. SAIC has added $50,000 per year to the City's revenue requirement for the next five years in order to create a fund for the down payment on final closure costs.

11.1 Introduction

This section provides a review of the City's current solid waste codes and ordinances. SAIC evaluated the City's ordinance to determine its effectiveness in addressing key issues currently facing the City. Specifically, SAIC reviewed Chapter 10 - Health and Sanitation of the City's ordinances.

11.2 Bad Debt Expense

Per City staff, approximately ten percent of the City's solid waste accounts have been moved to bad debt for failure to pay their solid waste utility bills. This section provides a review of the City's ordinance related to the billing and collection of solid waste fees, as detailed in **Section 10-1-4: Refuse and Trash Collection Charges** of the City's ordinance.

11.2.1 Section 10-1-4 (C) Application for Service. Subsections i. and ii.

Overview

This section states the City has the right to repossess customers' refuse containers and discontinue service when those customers are delinquent in payment of any monies due to the City for solid waste services provided.

Recommendation

SAIC recommends the City increase its enforcement of this ordinance by picking up customers' refuse containers and discontinuing service in order to send a strong message to residents of the consequences for non-payment. Transitioning to a completely curbside collection program (i.e., discontinuing alleyway collection of shared containers) would allow the City to apply this consistently to all residents. Additionally, this would help prevent non-paying commercial customers (e.g., triplexes, etc.) from utilizing residential services.

11.2.2 Section 10-1-4 (G) Rates and Bills – Residential and Non-Commercial Premises. Subsection i.

Overview

This section states that charges for refuse and trash collection services will be billed quarterly and that charges are "due and payable when rendered and shall be deemed delinquent thirty (30) days after the statement is rendered."

However, per the City's website, "Customers can pay the entire quarter up front, or monthly if they choose. The City deems a monthly fee delinquent if it is paid after the last day of the month."

Recommendation

In an effort to curb the amount of delinquent payments and debt owed the City from residents, SAIC recommends the City 1) standardize its billing language and 2) heavily promote the monthly payment option (if it doesn't already) via newsletters, bill stuffers, or printed information on the bill itself. The City may also consider providing an incentive for residents to pay monthly by offering a discount (e.g., the City could charge its standard rate for monthly payment and a slightly higher rate for paying at longer intervals).

The City could also explore the possibility of switching from a quarterly billing system to a monthly system altogether. The smaller dollar amount of a monthly bill may be more manageable for some residents and may result in fewer delinquent payments. SAIC recognizes, however, that this could potentially increase the time and expense required by the billing process and may ultimately not be financially or operationally viable for the City.

Additionally, the City currently assesses a $1.00 per month penalty for late payments. SAIC recommends the City increase the late penalty to between $5.00 and $10.00 per month to encourage prompt payment.

11.2.3 Section 10-1-4 (G) Rates and Bills – Residential and Non-Commercial Premises. Subsection x.

Overview

This section states that when the City has to make special collection efforts on an account three times in a 12 month period, the City may require an additional deposit equal to three times the average of the resident's last three bill amounts.

Recommendation

It is not clear if the "last three bill amounts" refers to the last three months (one quarter) or the last three quarters (nine months). SAIC recommends the City clarify this language. SAIC recommends the City begin to make collection attempts after an account has been delinquent 30 days and then continue to make collection attempts on, at minimum, a monthly basis, so that it can request an additional deposit no later than 90 days after the initial non-payment.

11.3 Bulk Trash Setouts

This section provides a review of the City's ordinance related to the size and specifications related to bulk trash setouts, as found in **Section 10-2-1: Preparation of Refuse**. The City does not have clearly defined setout limits for bulk trash material (including brush). In SAIC's experience, the lack of clear setout limits typically

results in a less efficient bulk trash collection operation as bulk trash crews must spend more time, on average, collecting each setout than they would otherwise.

11.3.1 Section 10-2-1 (B) Brush.

Overview

The City's ordinance specifies a maximum length of brush pieces (six feet) and states the individual pieces must be piled in neat order with all branches parallel.

Recommendation

SAIC recommends the City specify the maximum setout size in quantity or volume (height and/or depth). Some examples of bulk waste limits set by other municipalities include the following:

- The City of Tempe, Arizona provides collection of bulk waste twice per year and brush four times per year. The city has implemented a setout limit of 10 cubic yards.
- The City of Oklahoma City, Oklahoma provides collection of bulk waste and tree limbs once per month, at no extra charge. The city allows, "as much as four cubic yards of bulk waste (about the size of two refrigerators) at no charge every month. If you put out more than four cubic yards, we'll charge you $9.12 for every cubic yard over the limit."[1]
- The Town of Queen Creek, Arizona provides collection of bulk waste and yard debris once per month, at no extra charge. The town allows 6 cubic yards of bulk waste to be set out.[2]
- The City of El Paso, Texas provides bulk and brush waste collection, by appointment only, for a fee of $35 for 5 cubic yards or less; $7 for each additional cubic yard beyond the first 5 cubic yards.[3]

11.3.2 Section 10-2-1 (C) Appliances and Vehicles.

Overview

The ordinance states that the City will collect discarded appliances from dwelling premises that "two persons can readily lift into a truck."

Recommendation

In SAIC's opinion, the ordinance's language should be more precise in order to avoid causing customer confusion, inconsistent enforcement, and potential injuries to personnel and/or damage to City equipment. SAIC therefore recommends the City consider revising the language to either limit the number of appliances or be more specific as to how the appliances will be collected (e.g., no larger than the City's collection equipment can lift, which is approximately ___ pounds or ____ length/width).

[1] Source: City of Oklahoma City website: http://www.okc.gov/trash/bulky/guide.html.
[2] Source: Town of Queen Creek website: http://www.queencreek.org/Index.aspx?page=892
[3] Source: City of El Paso website:
http://www.elpasotexas.gov/environmental_services/sp_collection.asp

11.3.3 Timing of Bulk Trash Setouts

Overview

The City does not currently specify when residents may place their bulk trash out for collection.

Recommendation

SAIC recommends the City add language to its ordinance regarding when residents may place their bulk trash out for collection. In SAIC's experience, communities often allow residents to place their bulk trash out for collection either 1) the day before they are scheduled for collection, or 2) the week of their scheduled collection. Implementing a restriction on when residents may set out their bulk trash is beneficial for several reasons, including:

- Improved aesthetics
- Decreased rodent and vermin activity
- Decreased illegal dumping activity

11.4 City Cleanup Fees

This section provides a review of the City's ordinance related to the fees the City can assess for removing solid waste from a resident's property as a result of the resident's failure to comply with the City's ordinance, as found in **Section 10-5-10: Removal by City**.

Overview

Per the ordinance, the City adds five percent to the cost of site inspection related to the removal and disposal of any litter or dilapidated structures from a resident's property if the resident fails to comply with the City's notice.

Recommendation

In cases where a bill for City-provided cleanup is relatively modest, a five percent surcharge may not cover the cost of the City's inspection efforts. SAIC recommends that in addition to the five percent, the City consider specifying a minimum charge (e.g., $200).

11.5 Solid Waste Utility Liens

Per SAIC's understanding, the City does not assess liens for unpaid trash fees. However, as currently worded, the City's ordinance related to assessing a lien on a resident's property for a resident's failure to comply with the City's ordinance, as found in **Section 10-5-11: Lien for Removal**, is unclear and should be clarified as no liens can be assessed for non-payment of solid waste fees, per the State of Arizona Legislature.

Overview

This section allows the City to assess a lien against a resident's property for failure to comply with the City's solid waste ordinance (ostensibly including non-payment of the resident's solid waste utility bill).

Recommendation

It is SAIC's understanding that the City only assesses liens for code violations. The City should review the ordinance's existing language and clarify that liens may only be assessed for code enforcement issues.

11.6 Key Findings and Recommendations

- **Increase enforcement activities for non-payment:** The City should make an effort to repossess customers' refuse carts immediately upon non-payment of the solid waste utility bill. SAIC would emphasize that this could most easily be accomplished with 96-gallon containers. Additionally, the City should increase the penalty for late payments from $1.00 per month to between $5.00 and $10.00 per month. SAIC would note that if a customer has their cart repossessed three times, this would be grounds for the loss of the customer's deposit and would require an additional deposit be paid to reclaim the cart, pursuant to the City's existing ordinance.
- **Adopt a monthly billing system:** In SAIC's opinion, the City may be able to decrease its bad debt expense by moving to a monthly billing system. Although bills are sent quarterly and payments are assessed monthly, the smaller dollar amounts associated with monthly bills may be more manageable and recognizable for some residents and may therefore result in fewer delinquent payments. Alternatively, the City could provide a financial incentive for paying monthly, as opposed to paying at longer intervals.
- **Make collection attempts on a monthly basis:** While the language regarding collection attempts is unclear and should be clarified, it is SAIC's understanding that the City makes regular collection attempts on accounts delinquent more than 90 days. SAIC recommends the City begin to make collection attempts after an account has been delinquent 30 days and then continue to make collection attempts on, at minimum, a monthly basis. In SAIC's opinion, addressing non-payments as soon as possible may help to decrease the City's bad debt expense.
- **Specify setout limits for bulk trash collection:** The City's ordinance does not currently specify a setout limit for brush trash collection. SAIC recommends the City define clear setout limits in order to improve efficiency in the bulk trash collection operation, as well as to decrease the potential for injury to the City's personnel and/or equipment.
- **Institute a minimum bill for City-provided cleanup services:** The City currently assesses a five percent inspection charge for City-provided cleanup services when a resident does not comply with City ordinance. If the total bill is relatively modest,

however, the City may not fully recoup its inspection costs. SAIC therefore recommends the City institute a minimum bill for these services (e.g., $200).

- **Review ordinance language related to assessing liens:** The City should review the ordinance's existing language and clarify that liens may only be assessed for code enforcement issues.

12.1 Introduction

SAIC identified several policy issues to be considered by the City staff and City Council. This section provides a discussion of each issue. SAIC provides recommendations on these issues, where appropriate, but ultimately it is the City Council's prerogative to determine how to proceed.

12.2 Cost of Service and Rate Design

This section provides an overview of policy issues related to the cost of service and rate design component of this Study.

12.2.1 Establishing a Progressive Rate Structure

The City currently utilizes a combination of 96-gallon and 300-gallon containers to provide residential refuse service to residents. 300-gallon containers are typically shared between three customers but are occasionally utilized by only one customer.[1] Per City staff, all residential customers are charged $20 per month for residential services. SAIC would recommend charging a premium for the additional disposal capacity afforded those customers with an unshared 300-gallon container (especially any customers who receive twice weekly service).

12.2.2 Monitor the Need for Future Rate Increases

The City is operating its solid waste operation in a dynamic environment. SAIC recommends the City try to implement as many of the operational changes outlined in this report as possible in order to increase the efficiency of its solid waste operation. As SWD makes progress with the operational changes listed, the City may be able to decrease the need for future solid waste services rate increases.

12.2.3 New Account Setup Fee

Many cities charge a new account setup fee to defray the costs of initiating service for a customer. For example, the City of Sherman, TX assesses a $50 new account fee and Peoria, AZ charges a $28 new account fee.[2] If the City decides to assess a new account setup fee, SAIC would recommend setting the fee initially at $25.

[1] It is SAIC's understanding that most customers with an unshared 300-gallon container receive service only once per week.

[2] SAIC would note that both of these fees are for the initiation of solid waste, water, and wastewater services.

12.2.4 New Account Deposit Fee

It is SAIC's understanding that the City has not begun to collect a new service deposit from residents. Many cities charge a deposit fee to offset unpaid fees for service. SAIC recommends the City set its deposit equal to the cost of the solid waste cart and three months of solid waste service. In the City's case, the deposit would be approximately $113.[3] The deposit should be collected for both new customer accounts and existing customer accounts after three collection activities following a non-payment. SAIC also recommends the City modify its ordinance language such that the City will return a customer's deposit only upon discontinuance of service and the return of the City-provided container.

12.3 Operations Review

This section provides an overview of policy issues related to the operations review component of this Study.

12.3.1 Decrease Bulk Trash Collection Frequency

The City currently provides residents twice per month bulk trash collection. In SAIC's experience, this is a very high level of service which results in a relatively expensive program. Decreasing the frequency of collection to once per month or once per quarter would significantly decrease the City's bulk trash collection costs while still providing a high level of service.

12.3.2 Extend Bulk Trash Collection to All Residents

Currently, the City provides bulk trash collection to approximately 75 percent of its residents. All customers, regardless of whether they receive bulk trash collection, are charged the same monthly rate. While rate-setting is ultimately a policy decision, SAIC would recommend the City consider extending service to all customers in order to minimize the potential for perceived inequality in the City's rates.

12.3.3 Implement Curbside Recycling Collection[4]

The City currently provides twice per week refuse collection. While transitioning one of the City's refuse routes to recycling would result in a modest increase to the City's cost of service, as indicated in Section 5 of this report, SAIC recommends the City consider implementing a curbside recycling program. Given historical increases to disposal costs, recycling is likely to financially benefit the City over the next several

[3] The cost of carts is $53 and service is currently $20 per month. $53 + (3 * $20) = $113. This should be adjusted as the City's cart costs and monthly service fees change.

[4] It is SAIC's understanding that the City would need to request and receive a variance waiver to implement a one and one refuse and recycling program from Pinal County and the Arizona Department of Environmental Quality. An example of this process can be found at http://www.maricopa.gov/EnvSvc/WaterWaste/SolidWaste/Approvals.aspx.

years. SAIC would also note that the City could potentially increase the annual revenue by making a strong commitment to recycling and increasing its participation and recycling rates beyond those modeled in this report.

12.3.4 Transition to 4/40 Work Schedule

SWD currently runs collection routes five days per week. In SAIC's experience, solid waste collection operations are more efficiently run on a four day per week, 10 hour per day schedule. This minimizes the amount of time spent on non-collection activities (e.g., lunches, breaks, inspection time, etc.) and maximizes the amount of productive time a driver can spend on route. SAIC therefore recommends the City consider moving its refuse and bulk trash collection operations to a 4/40 work schedule.

12.4 Illegal Dumping

This section provides an overview of policy issues related to the City's illegal dumping problem.

12.4.1 Discontinue Alleyway Collection

The City currently faces significant problems with illegal dumping. Per City staff, much of this activity transpires in residential alleyways used for refuse and bulk trash collection. In SAIC's experience, discontinuing alleyway collection and limiting access to the alleyways are effective deterrents to illegal dumping. SAIC has determined that the City could provide efficient refuse and bulk trash collection service without the use of alleyway collection and therefore recommends the City consider exiting the alleys.

12.4.2 Develop Illegal Dumping Abatement Strategy

Reducing and/or eliminating illegal dumping within a community requires a comprehensive approach and City-wide involvement. The City will need to draft necessary changes to its ordinance, designate an appropriate level of funding, and increase enforcement activities in order to decrease the level of illegal dumping in the City.

12.5 Disposal

Per conversations with City staff, surrounding communities, including Eloy and Casa Grande, are approaching capacity limits at their landfills. Similarly, the Ironwood landfill, which was formerly a county-owned landfill, is also approaching its capacity limit. It is SAIC's understanding that there may be an interest in developing a regional landfill or transfer station at such time as these landfills have reached capacity. While SAIC recommends procuring a five to 10-year disposal contract at this time, SAIC would also note that the City should begin exploring the possibility of

a regional landfill or transfer station, as this could become a cost-effective disposal option in the future.

12.6 Develop Reserve Funds

SWD does not currently have any reserve funds and must therefore request additional funds from the General Fund when it is unable to meet its revenue requirements. Given the nature and extent of the operational changes recommended in this report, developing reserves from SWD revenues may not be practicable in the short-term. However, the City should monitor its financial situation as it implements the recommendations of this report and, as appropriate, begin setting aside money for the following reserve funds:

- Operating Reserve
- Capital Replacement Reserve
- Landfill Reserve

12.7 Outsourcing Solid Waste Collection

Throughout the solid waste industry, cities are currently experiencing high levels of competitive pressure to perform as efficiently and cost effectively as possible. A key part of this study was to perform an assessment of the SWD's operational efficiency and performance. During the course of the review, SAIC identified multiple opportunities for improvement, which, if implemented, could increase the operation's efficiency and significantly decrease the operation's cost of service.

While SAIC recognizes that the SWD provides a very high level of service compared to many other municipally-provided solid waste operations, the SWD's current cost of service is relatively high in SAIC's experience. As such, the City should consider making the changes recommended in this report to be a critical step to achieving financial sustainability at an affordable cost to residents. SAIC anticipates these changes could require one to two years to implement.

SAIC understands that neighboring communities are currently considering privatization of their solid waste utilities. If the private contractors under consideration in these communities could provide similar pricing to the City for solid waste services, it is possible that this would represent an initial cost savings to the City. However, SAIC would caution that the City should keep in mind the following regarding privatization:

- The prices quoted will likely be for a different level of service than is currently provided by the City (e.g., providing less frequent bulk trash collection, etc.)
- When a private contractor takes over, they may offer low prices initially; however, when the City has exited its solid waste operations, the prices will likely increase over time (especially for an area like Coolidge which may not attract a large pool of potential competitors)

- Once the City privatizes, re-instituting a solid waste operation will be extremely difficult

SAIC therefore recommends the City use the next two years to attempt making the operational changes highlighted in this report prior to considering privatization. During this time, the City should actively monitor the pricing, level of service, and satisfaction of the outsourced solid waste operations in nearby communities. If, after two years, significant increases in operational efficiency and decreases in cost have not materialized, the City may then want to consider privatizing its solid waste operation.

12.8 Key Findings and Recommendations

- **Establish a progressive rate structure:** Currently, all residential customers are charged $20 per month for residential services, regardless of their container size. SAIC would recommend charging a premium for the additional disposal capacity afforded those customers with an unshared 300-gallon container (especially any customers who receive twice weekly service).
- **Monitor the need for future rate increases:** SAIC has recommended a variety of operational changes in this report designed to increase the efficiency of the City's solid waste operation. As SWD makes progress with the proposed operational changes, the City may be able to decrease the need for future solid waste services rate increases. The City should therefore monitor its need for rate increases on an annual basis.
- **Institute a new account set up fee:** Many cities charge a new account setup fee to defray the costs of initiating service for a customer. For example, the City of Sherman, TX assesses a $50 new account fee and Peoria, AZ charges a $28 new account fee. SAIC recommends the City assess a new account setup fee of $25.
- **Institute a new deposit fee:** Many cities charge a deposit fee to offset unpaid fees for service. SAIC recommends the City assess a deposit fee of approximately $113, which is equal to three months service and the cost of the cart, for new customer accounts and existing customer accounts after three collection activities following a non-payment.
- **Extend bulk trash collection service to all residents:** The City currently provides bulk trash collection to approximately 75 percent of its residents. However, all customers are charged the same monthly rate, regardless of whether they receive bulk trash collection. SAIC recommends the City extend service to all customers in order to minimize the potential for perceived inequality in the City's rates.
- **Discontinue alleyway collection:** The City currently faces significant problems with illegal dumping. In SAIC's experience, discontinuing alleyway collection and limiting access to the alleyways are effective deterrents to illegal dumping. SAIC has determined that the City could provide efficient refuse and bulk trash collection service without the use of alleyway collection and therefore recommends the City consider exiting the alleys.

- **Develop illegal dumping abatement strategy:** Reducing and/or eliminating illegal dumping within a community requires a comprehensive approach and City-wide involvement. SAIC recommends the City develop a coordinated illegal dumping abatement strategy. Initial steps could include drafting necessary changes to City ordinance, appropriating the necessary funding, and increasing enforcement activities.
- **Consider developing a regional landfill with surrounding communities:** It is SAIC's understanding that neighboring communities may have an interest in developing a regional landfill or transfer station when their landfills have reached capacity. SAIC recommends the City procure a five to 10-year disposal contract at this time, but advises the City to begin exploring the possibility of a regional landfill or transfer station, as this could become a cost-effective disposal option in the future.
- **Develop reserve funds:** SWD does not currently have any reserve funds and must therefore request additional funds from the General Fund when it is unable to meet its revenue requirements. As the SWD is able, it should begin developing Operating, Capital, and Landfill reserve funds.

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13.1 Introduction

This section provides a suggested priority list for the operational changes suggested in this report, as well as the cost of service impacts associated with certain recommendations.

13.2 Implementation Priority Matrix

Table 13-1 provides a summary of the changes recommended in this report, along with a suggested priority and timeline for approaching these changes.

Table 13-1
Implementation Priority Matrix

Recommendation	Priority	Timeline
Cost of Service		
Increase Residential Rates	High	Immediately
Pursue Operational Efficiencies	High	Immediately
Monitor the Impacts of Operational Changes	High	Ongoing Basis
Residential Refuse Collection		
Redraw and Rebalance Routes	High	Immediately
Utilize a Shared Supervisor as Backup Driver	High	Immediately
Move to 4/40 Collection Schedule	High	3 – 6 months
Develop Comprehensive Vehicle Maintenance Schedule	High	6 months
Decrease Use of 300-Gallon Containers and/or Discontinue Alleyway Collection	Medium	12 – 48 months
Increase Collection Vehicle Size	Medium	12 – 60 months
Bulk Trash Collection		
Implement Bulk Trash Setout Limits	High	3 – 6 months
Move to 4/40 Collection Schedule	High	3 – 6 months
Decrease Bulk Trash Collection Frequency	High	6 – 12 months
Change Crew and Equipment Configuration	Medium	12 – 48 months
Replace Dump Trucks	Low	12 – 24 months
Recycling Feasibility		
Consider Implementing 1+1 Refuse and Recycling Collection Program	Low	12 – 60 months

Utilize Excess Recycling Capacity to Provide Commercial Services	Low	Contingent on Implementation of Recycling Program
Vehicle Maintenance Division		
Make Pre- and Post-Trip Inspections a Point of Emphasis	High	Immediately
Explore Alternatives to Purchasing a New Automated Side Load Collection Vehicle	High	Immediately
Obtain Independent Review of SWD Fleet	High	3 months
Increase Training for VMD Mechanics	High	12 – 24 months
Maintain a High Level of Fleet Standardization	High	Ongoing Basis
Set Aside Non-Collection Days for Vehicle Maintenance	Medium	3 – 6 months
Smooth Vehicle Replacement Schedule	Medium	Ongoing Basis
Monitor O&M costs	Medium	Ongoing Basis
Transfer Station Feasibility and Disposal Options Review		
Begin Disposal Procurement Process	High	Immediately
Continue Direct Hauling	Medium	Ongoing Basis
Commercial Contract Evaluation		
Develop Standard Franchise Fee or Commercial Permit Fee Agreement	Medium	3 – 6 months
Secure Competitive Commercial Rates	Medium	3 – 6 months
Review Commercial Contract for HB 2604 Compliance	Low	12 – 24 months
Illegal Dumping		
Develop a Comprehensive Illegal Abatement Strategy	Medium	12 months
Landfill Closure and Post-Closure		
Update Landfill Closure Cost Estimate	High	Immediately
Budget for Landfill Final Closure Costs	Medium	Ongoing Basis
Ordinance Review		
Make Collection Attempts Monthly	High	Immediately
Collect Deposits Consistently	Medium	Immediately
Increase Enforcement Activities for Non-Payment	High	6 months
Encourage Monthly Billing	Medium	6 – 12 months
Pre-Bill Customers for Service	Medium	6 – 12 months
Institute Minimum Bill for City-Provided Cleanup Services	Medium	6 – 12 months
Policy Issues		
Extend Bulk Trash Collection to All Residents	Medium	12 – 24 months
Develop Reserve Funds	Medium	12 – 60 months
Establish a Progressive Rate Structure	Low	12 – 24 months

13.3 Cost of Service Impact

This section provides an overview of what the cost of service impacts might be if the City implement certain operational changes recommended in this report.

13.3.1 Increase Residential Rates

Per SAIC's cost of service analysis (found in Section 2 of this report), the City is projected to significantly under-recover its cost of service in each year of the five-year forecast. If the City elects not to pursue the operational recommendations outlined in this report, SAIC would expect the City to require significant rate increases to remain solvent. However, if the City is able to make the changes recommended in this report, SAIC believes the rate increases required will be more modest. SAIC would expect the more modest rate increases would provide an additional **$86,328** to **$215,820** of annual revenue.

13.3.2 Move to 4/40 Schedule

By moving to a 4/40 work schedule, SWD would be able to reduce its number of residential routes from three to two. This would allow the City to reduce the number of employees and vehicles required for each operation. The savings generated by reducing residential routes are projected to be approximately **$116,229** per year.

13.3.3 Utilize a Shared Backup Driver Between the Residential and Bulk Trash Collection Operations

As mentioned in Section 3 of this report, a 20 percent personnel backup ratio is necessary to maintain efficient residential and bulk trash operations. Given the relatively small size of Coolidge, this ratio may be higher in the City's case. Based on SAIC's suggested staffing of two FTEs for residential refuse collection (see Section 3.5) and approximately 1.5 FTEs for bulk trash collection and miscellaneous duties such as burn pile and brush chipping (see Section 4.7.4), the City will need approximately 0.7 FTEs combined to serve as a backup. SAIC recommends the City use a shared backup between the two operations. This would result in a combined operational need for 4.2 total FTEs.

If the City were able to reduce the amount of time required by miscellaneous duties such as burn pile and brush chipping, it could potentially decrease the total required staffing, including backup, to four FTEs (two for residential refuse collection, one for bulk trash, and one backup).

Initially, SAIC would suggest designating one of the City's three existing bulk collection drivers as a backup driver for both operations. As the City implements the changes outlined in this report, SAIC expects SWD could transition one of the existing bulk collection drivers to another position within the City. At such, time SAIC would recommend utilizing the Waste Operations Superintendent as a part-time backup driver in order to provide additional coverage capacity for those times when a single backup driver may be insufficient to meet the City's daily collection needs (e.g., when

two drivers are out sick, etc.). SAIC would expect the frequency of such instances to be fairly limited.

13.3.4 Decrease Bulk Trash Collection Frequency

In SAIC's experience, the City's current bulk trash collection operation is relatively expensive compared to other communities in Arizona. Decreasing the frequency of collection would likely substantially reduce the City's costs, while still providing a valuable service to residents.

Once Per Month

If the City were to decrease bulk trash collection to once per month, while simultaneously expanding collection City-wide, the City would need less than one full bulk trash route (as shown in Section 5 of this report). Per SAIC's understanding, one of SWD's bulk collection employees recently transferred to another department. By decreasing collection frequency to once per month, the City would not need to fill the vacancy created by this transfer. This would generate annual savings of approximately **$44,709**.

Additionally, the City currently has two dump trucks used in the bulk trash operation, which should be replaced soon. Reducing collection frequency would allow the City to replace only one of these vehicles and instead utilize its rear load vehicle in a backup capacity. This would generate annual savings of approximately **$9,806** in financing and O&M costs.

Once Per Quarter

If the City were to decrease bulk trash collection to once per quarter, while simultaneously expanding collection City-wide, the City would need less than one full bulk trash route (as shown in Section 5 of this report). As in the once per month scenario, the City would not need to fill the vacancy created by the transfer of one of its employees. Additionally, the City would able to reduce the number of employees required by one. This would generate annual savings of approximately **$76,191**.

As in the once per month scenario, reducing collection frequency would allow the City to replace only one of its existing dump trucks and instead utilize its rear load vehicle in a backup capacity. This would generate annual savings of approximately **$9,806** in financing and O&M costs.

13.3.5 Change Bulk Trash Equipment Configuration

The City currently uses a front loader to collect bulk trash materials and move them into a dump truck. This type of operation requires two drivers (one for the dump truck and one for the front loader), which can be supplemented by manual laborers (in the City's case, this labor is supplied by trustees). Alternatively, the City could utilize a rotoboom truck, which combines a grapple for collecting bulk materials and a dump truck body for transporting material to the landfill. These vehicles require one driver and could be supplemented by a manual laborer, if desired.

Per SAIC's analysis, moving to a rotoboom truck would be best accomplished by simultaneously decreasing the frequency of bulk trash collection to a monthly or quarterly collection schedule. From a personnel standpoint, the financial impact of moving to a rotoboom truck on a once per month collection schedule would generate annual savings of approximately **$76,191**. From a vehicle standpoint, the cost would be essentially cost neutral, as the City would not need to replace either dump truck but could utilize its rear load vehicle in a backup capacity.

13.3.6 Procure a New Disposal Contract

The City currently pays $35.57 per ton in disposal fees. In SAIC's experience, the City's disposal rate is relatively high for the area. Per SAIC's analysis, the City could expect to obtain a per ton cost of $28.00 to $32.00 by conducting a formal procurement for a new disposal contract. Based on the City's current disposal volumes, this would translate to an annual savings of between **$24,152** and **$51,213**.

13.3.7 Develop a Comprehensive Vehicle Maintenance Schedule

While it is difficult to quantify the savings associated with developing a comprehensive vehicle maintenance schedule, SAIC would expect that developing and following such a schedule could help prevent more costly repairs in the future.

13.3.8 Increase Vehicle Collection Size

SWD's current vehicle size is smaller than SAIC typically finds in solid waste operations. By purchasing vehicles with increased capacity, SWD could decrease its daily number of trips to the landfill and increase its collection efficiency and capacity at a minimal cost. While the City should be able to reduce the number of residential refuse routes by moving to a 4/40 schedule, increasing the size of SWD vehicles will likely become more important as the City considers curbside recycling and explores disposal facilities located a greater distance from the City

13.3.9 Reduce the Use of 300-Gallon Containers

The City has indicated a desire to reduce the number of shared 300-gallon containers used throughout the City, regardless of whether alleyway collection is discontinued. This could be accomplished by replacing any 300-gallon containers used by a sole residence and/or by duplexes, triplexes, etc. with multiple 96-gallon containers. Given the City's need to replace approximately 10 percent of its containers on an annual basis, SAIC calculated the City's potential annual savings if it is able to replace all of the 300-gallon containers with smaller, 96-gallon containers to be approximately **$5,500** to **$7,500**.

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Test Year

Dept	Division	Account Number	Account Name	FY 2013 Budget	Adjustments	Test Year	Comment
PERSONNEL							
44	485	111	Salaries and Wages	$ 352,915		$ 352,915	
44	485	131	Employee Benefits - AZ Retirement	39,315		39,315	
44	485	132	Employee Benefits - OASI	26,998		26,998	
44	485	133	Employee Benefits - Medical/Li	46,588		46,588	
44	485	134	Other Employee Enhancement	23,388		23,388	
44	485	135	Employee Benefits - Workers Comp	15,250		15,250	
44	485	136	Employee Benefits - Unemployment	1,166		1,166	
NA	NA	NA	Separation Cost	-		-	
			SUBTOTAL PERSONNEL	$ 505,620.00	$ -	$ 505,620.00	
OPERATING EXPENSES							
44	485	211	Office Supplies	$ 100	$ 150	$ 250	A
44	485	212	Postage	2,700	500	3,200	A
44	485	214	Printing Exterior	500		500	
44	485	216	Recording Fees	100	(100)	-	A
44	485	225	Bad Debt Expense	78,954		78,954	I
44	485	227	Contracted Labor	1,600		1,600	
44	485	229	Professional Services	7,000		7,000	
44	485	231	Liability & Fire Insurance	9,348		9,348	
44	485	232	Vehicle Insurance	4,707		4,707	
44	485	233	Property Insurance	-		-	
44	485	236	Legal Notices	1,100		1,100	
44	485	239	Other Advertising	500		500	
44	485	251	Maintenance & Repairs - Vehicle	42,000		42,000	
44	485	252	Maintenance & Repairs - Bldg	-		-	
44	485	253	Maintenance & Repairs - Equipment	2,000		2,000	
44	485	255	Maintenance Contract	756		756	
44	485	256	Fuel & Lubricants	52,800	3,200	56,000	A
44	485	262	Gas/Southwest	-		-	
44	485	266	Tipping Fees	281,760		281,760	
44	485	267	Dues - Membership - Fees	200		200	
44	485	269	Education	200		200	

Test Year

Dept	Division	Account Number	Account Name	FY 2013 Budget	Adjustments	Test Year	Comment
44	485	271	Travel & Conference	200		200	
44	485	282	Minor Equipment	2,000		2,000	
44	485	283	Safety Equipment	1,780		1,780	
44	485	285	Operating Expenses	1,500		1,500	
44	485	286	Clothing	1,820		1,820	
			SUBTOTAL OPERATING EXPENSES	$ 493,625	$ 3,750	$ 497,375	
			TOTAL REFUSE COLLECTION	$ 999,245	$ 3,750	$ 1,002,995	
LANDFILL							
44	486	229	Professional Services	$ 5,000		$ 5,000	
44	486	241	Rentals & Leases	302		302	
44	486	256	Fuel & Lubricants	-		-	
44	486	267	Dues, Memberships, Fees	3,700		3,700	
44	486	285	Operating Expenses	200		200	
			SUBTOTAL OPERATING EXPENSES	$ 9,202	$ -	$ 9,202	
			TOTAL LANDFILL	$ 9,202	$ -	$ 9,202	
SOLID WASTE CIP							
44	489	*	Vehicle Replacement	$ 68,203		$ 68,203	E
44	489	**	Container Replacement	25,029		25,029	F
44	489	***	Landfill Closure/Post Closure	50,000		50,000	G
			TOTAL CIP EXPENSES	$ 143,232	$ -	$ 143,232	
MISCELLANEOUS & NON-RECURRING							
NA	NA	NA	General Fund Transfer	$ -	$ 82,500	$ 82,500	B
NA	NA	NA	Consulting Study	$ 65,000	$ (50,000)	$ 15,000	H
			TOTAL MISC & NON-RECURRING	$ 65,000	$ 32,500	$ 97,500	
			TOTAL FUND EXPENDITURES	$ 1,216,679.01	$ 36,250.00	$ 1,252,929.01	
REVENUE OFFSETS							
44	30	5100	Carry Over	$ -		$ -	

Test Year

Dept	Division	Account Number	Account Name	FY 2013 Budget	Adjustments	Test Year	Comment
44	35	1910	Right Away Disposal Reimb	45,000	(4,206)	40,794	A
44	35	1920	Right Away Disposal Adm Fee	6,165	2,835	9,000	
44	35	3120	Trash Revenue	789,540	(789,540)	-	C
44	36	3210	Miscellaneous Revenue	750	(200)	550	A
44	36	3310	LGIP Interest			-	
44	36	3410	RPA Interest	450		450	
44	37	9110	Transfer Out to General Fund	-		-	
NA	NA	NA	Lease/Purchase Loan	250,000	(250,000)	-	D
			TOTAL REVENUE	$ 1,091,905		$ 50,794	
			TOTAL REVENUE REQUIREMENT	$ 124,774		$ 1,202,135	

Comment Legend

A	Adjusted to match previous year's actual balances
B	General Fund Transfer at end of year based on FTEs for indirect admin costs
C	To be determined based on the cost of service analysis and resulting proposed rates
D	Loan transfer in for equipment purchase; cost allocated in CIP payments to cover loan amount
E	Adjusted to reflect vehicle replacement schedule and estimated costs
F	Adjusted to reflect a 10 year replacement schedule
G	Based on SAIC's analysis
H	One time fee for SAIC consulting study (distributed over 5 year forecast)
I	Per City staff's estimate

Revenue Requirement Forecast

Dept	Division	Account Number	Account Name	Test Year	Year 1 FY 2013	Year 2 FY 2014	Year 3 FY 2015	Year 4 FY 2016	Year 5 FY 2017	Inflation Factor
PERSONNEL										
44	485	111	Salaries and Wages	$ 352,915	$ 352,915	$ 361,738	$ 370,781	$ 380,051	$ 389,552	Salary
44	485	131	Employee Benefits - AZ Retirement	39,315	39,315	40,298	41,305	42,338	43,396	Benefits
44	485	132	Employee Benefits - OASI	26,998	26,998	27,673	28,365	29,074	29,801	Benefits
44	485	133	Employee Benefits - Medical/Li	46,588	46,588	50,315	54,340	58,687	63,382	Health Benefits
44	485	134	Other Employee Enhancement	23,388	23,388	23,973	24,572	25,186	25,816	Benefits
44	485	135	Employee Benefits - Workers Comp	15,250	15,250	15,631	16,022	16,423	16,833	Benefits
44	485	136	Employee Benefits - Unemployment	1,166	1,166	1,195	1,225	1,256	1,287	Benefits
NA	NA	NA	Separation Cost	-	-	-	-	-	-	None
			SUBTOTAL PERSONNEL	$ 505,620	$ 505,620	$ 520,823	$ 536,611	$ 553,015	$ 570,068	
OPERATING EXPENSES										
44	485	211	Office Supplies	$ 250	$ 250	$ 256	$ 263	$ 269	$ 276	Supplies
44	485	212	Postage	3,200	3,200	3,280	3,362	3,446	3,532	Supplies
44	485	214	Printing Exterior	500	500	513	525	538	552	Supplies
44	485	216	Recording Fees	-	-	-	-	-	-	Supplies
44	485	225	Bad Debt Expense	78,954	78,954	78,954	78,954	78,954	78,954	None
44	485	227	Contracted Labor	1,600	1,600	1,640	1,681	1,723	1,766	Professional Services
44	485	229	Professional Services	7,000	7,000	7,175	7,354	7,538	7,727	Professional Services
44	485	231	Liability & Fire Insurance	9,348	9,348	9,582	9,821	10,067	10,318	General
44	485	232	Vehicle Insurance	4,707	4,707	4,825	4,945	5,069	5,196	General
44	485	233	Property Insurance	-	-	-	-	-	-	General
44	485	236	Legal Notices	1,100	1,100	1,128	1,156	1,185	1,214	General
44	485	239	Other Advertising	500	500	513	525	538	552	General
44	485	251	Maintenance & Repairs - Vehicle	42,000	42,000	43,050	44,126	45,229	46,360	Vehicle Maintenance
44	485	252	Maintenance & Repairs - Bldg	-	-	-	-	-	-	Maintenance
44	485	253	Maintenance & Repairs - Equipment	2,000	2,000	2,050	2,101	2,154	2,208	Maintenance
44	485	255	Maintenance Contract	756	756	775	794	814	834	Maintenance
44	485	256	Fuel & Lubricants	56,000	56,000	59,360	62,922	66,697	70,699	Fuel
44	485	262	Gas/Southwest	-	-	-	-	-	-	Fuel
44	485	266	Tipping Fees	281,760	281,760	290,213	298,919	307,887	317,123	Disposal
44	485	267	Dues - Membership - Fees	200	200	205	210	215	221	General
44	485	269	Education	200	200	205	210	215	221	General
44	485	271	Travel & Conference	200	200	205	210	215	221	General
44	485	282	Minor Equipment	2,000	2,000	2,050	2,101	2,154	2,208	General
44	485	283	Safety Equipment	1,780	1,780	1,825	1,870	1,917	1,965	General
44	485	285	Operating Expenses	1,500	1,500	1,553	1,607	1,663	1,721	Capital Equipment
44	485	286	Clothing	1,820	1,820	1,866	1,912	1,960	2,009	Supplies
			SUBTOTAL OPERATING EXPENSES	$ 497,375	$ 497,375	$ 511,219	$ 525,570	$ 540,448	$ 555,876	
			TOTAL REFUSE COLLECTION	$ 1,002,995	$ 1,002,995	$ 1,032,042	$ 1,062,181	$ 1,093,463	$ 1,125,944	

Revenue Requirement Forecast

Dept	Division	Account Number	Account Name	Test Year	Year 1 FY 2013	Year 2 FY 2014	Year 3 FY 2015	Year 4 FY 2016	Year 5 FY 2017	Inflation Factor
LANDFILL										
44	486	229	Professional Services	$ 5,000	$ 5,000	$ 5,125	$ 5,253	$ 5,384	$ 5,519	Professional Services
44	486	241	Rentals & Leases	302	302	310	317	325	333	General
44	486	256	Fuel & Lubricants	-	-	-	-	-	-	Fuel
44	486	267	Dues, Memberships, Fees	3,700	3,700	3,793	3,887	3,984	4,084	General
44	486	285	Operating Expenses	200	200	205	210	215	221	General
			SUBTOTAL OPERATING EXPENSES	$ 9,202	$ 9,202	$ 9,432	$ 9,668	$ 9,910	$ 10,157	
			TOTAL LANDFILL	$ 9,202	$ 9,202	$ 9,432	$ 9,668	$ 9,910	$ 10,157	
SOLID WASTE CIP										
44	489	*	Vehicle Replacement	$ 68,203	$ 68,203	$ 60,003	$ 60,003	$ 108,859	$ 153,882	
44	489	**	Container Replacement	25,029	25,029	25,374	25,757	26,197	26,667	
44	489	***	Landfill Closure/Post Closure	50,000	50,000	50,000	50,000	50,000	50,000	
			TOTAL CIP EXPENSES	$ 143,232	$ 143,232	$ 135,377	$ 135,760	$ 185,056	$ 230,549	
MISCELLANEOUS & NON-RECURRING										
NA	NA	NA	General Fund Transfer	$ 82,500	$ 82,500	$ 84,563	$ 86,677	$ 88,843	$ 91,065	General
NA	NA	NA	Consulting Study	$ 15,000	$ 15,000	$ 15,375	$ 15,759	$ 16,153	$ 16,557	General
			TOTAL MISC & NON-RECURRING	$ 97,500	$ 97,500	$ 99,938	$ 102,436	$ 104,997	$ 107,622	
			TOTAL FUND EXPENDITURES	$ 1,252,929	$ 1,252,929	$ 1,276,789	$ 1,310,044	$ 1,393,426	$ 1,474,272	
REVENUE OFFSETS										
44	30	5100	Carry Over	$ -	$ -	$ -	$ -	$ -	$ -	None
44	35	1910	Right Away Disposal Reimb	40,794	40,794	42,018	43,278	44,577	45,914	
44	35	1920	Right Away Disposal Adm Fee	9,000	9,000	9,000	9,000	9,000	9,000	None
44	35	3120	Trash Revenue	-	-	-	-	-	-	None
44	36	3210	Miscellaneous Revenue	550	550	550	550	550	550	None
44	36	3310	LGIP Interest	-	-	-	-	-	-	None
44	36	3410	RPA Interest	450	450	450	450	450	450	None
44	37	9110	Transfer Out to General Fund	-	-	-	-	-	-	None
NA	NA	NA	Lease/Purchase Loan	-	-	-	-	-	-	None
			TOTAL REVENUE	$ 50,794	$ 50,794	$ 52,018	$ 53,278	$ 54,577	$ 55,914	
			TOTAL REVENUE REQUIREMENT	$ 1,202,135	$ 1,202,135	$ 1,224,771	$ 1,256,766	$ 1,338,849	$ 1,418,358	

Residential Cost of Service

	Year 1 FY 2013	Year 2 FY 2014	Year 3 FY 2015	Year 4 FY 2016	Year 5 FY 2017
Unit Cost of Residential Service					
Refuse Collection					
Refuse Collection	$ 345,820	$ 349,298	$ 359,059	$ 402,768	$ 444,295
Annual Collections	272,584	282,360	291,096	299,000	306,072
Cost per Collection	**$ 1.27**	**$ 1.24**	**$ 1.23**	**$ 1.35**	**$ 1.45**
Disposal					
Disposal	$ 240,966	$ 248,195	$ 255,641	$ 263,310	$ 271,210
Annual Disposal Capacity (CY)	189,124	189,124	189,124	189,124	189,124
Cost per CY of Capacity	**$ 1.27**	**$ 1.31**	**$ 1.35**	**$ 1.39**	**$ 1.43**
Billing Units					
Residential Refuse Customers	3,597	3,597	3,597	3,597	3,597
Total Residential Cost of Service					
Direct Allocation					
Refuse Collection	$ 345,820	$ 349,298	$ 359,059	$ 402,768	$ 444,295
Recycling Collection	(550)	(550)	(550)	(550)	(550)
Brush and Bulky	231,233	236,431	243,713	263,483	282,620
Yard Drop Off	10,651	10,970	11,302	11,646	12,005
Commercial Dumpster	-	-	-	-	-
Disposal: Refuse	240,966	248,195	255,641	263,310	271,210
Disposal: Brush Chipping	14,169	14,475	14,945	16,293	17,596
Disposal: Burn Pile	16,471	16,965	17,478	18,011	18,565
Subtotal	*$ 858,760*	*$ 875,784*	*$ 901,588*	*$ 974,962*	*$ 1,045,740*

Residential Cost of Service

	Year 1 FY 2013	Year 2 FY 2014	Year 3 FY 2015	Year 4 FY 2016	Year 5 FY 2017
Indirect Allocation					
Admin	$ 268,700	$ 274,092	$ 279,652	$ 285,386	$ 291,302
Closed Landfill	59,202	59,432	59,668	59,910	60,157
Illegal Dumping	2,037	2,098	2,162	2,228	2,296
Code Enforcement	-	-	-	-	-
Rental of Dump Truck	13,436	13,365	13,697	16,364	18,863
Subtotal	*$ 343,375*	*$ 348,987*	*$ 355,178*	*$ 363,887*	*$ 372,619*
Total Residential Cost of Service	**$ 1,202,135**	**$ 1,224,771**	**$ 1,256,766**	**$ 1,338,849**	**$ 1,418,358**
Monthly Residential Cost of Service (per HH)					
Direct Allocation					
Refuse Collection	$ 8.01	$ 8.09	$ 8.32	$ 9.33	$ 10.29
Recycling Collection	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Brush and Bulky	5.36	5.48	5.65	6.10	6.55
Yard Drop Off	0.25	0.25	0.26	0.27	0.28
Commercial Dumpster	-	-	-	-	-
Disposal: Refuse	5.58	5.75	5.92	6.10	6.28
Disposal: Brush Chipping	0.33	0.34	0.35	0.38	0.41
Disposal: Burn Pile	0.38	0.39	0.40	0.42	0.43
Subtotal	*$ 19.90*	*$ 20.29*	*$ 20.89*	*$ 22.59*	*$ 24.23*
Indirect Allocation					
Admin	$ 6.23	$ 6.35	$ 6.48	$ 6.61	$ 6.75
Closed Landfill	1.37	1.38	1.38	1.39	1.39
Illegal Dumping	0.05	0.05	0.05	0.05	0.05
Code Enforcement	-	-	-	-	-
Rental of Dump Truck	0.31	0.31	0.32	0.38	0.44
Subtotal	*$ 7.96*	*$ 8.09*	*$ 8.23*	*$ 8.43*	*$ 8.63*
Total Residential Cost of Service	**$ 27.85**	**$ 28.37**	**$ 29.12**	**$ 31.02**	**$ 32.86**
Annual Revenue Recovery (COS by HH)	**$ 1,202,135**	**$ 1,224,771**	**$ 1,256,766**	**$ 1,338,849**	**$ 1,418,358**

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Test Year

Dept	Division	Account Number	Account Name	FY 2013 Budget	Adjustments	Test Year	Comment
PERSONNEL							
44	485	111	Salaries and Wages	$ 352,915		$ 352,915	
44	485	131	Employee Benefits - AZ Retirement	39,315		39,315	
44	485	132	Employee Benefits - OASI	26,998		26,998	
44	485	133	Employee Benefits - Medical/Li	46,588		46,588	
44	485	134	Other Employee Enhancement	23,388		23,388	
44	485	135	Employee Benefits - Workers Comp	15,250		15,250	
44	485	136	Employee Benefits - Unemployment	1,166		1,166	
NA	NA	NA	Separation Cost	-		-	
			SUBTOTAL PERSONNEL	$ 505,620.00	$ -	$ 505,620.00	
OPERATING EXPENSES							
44	485	211	Office Supplies	$ 100	$ 150	$ 250	A
44	485	212	Postage	2,700	500	3,200	A
44	485	214	Printing Exterior	500		500	
44	485	216	Recording Fees	100	(100)	-	A
44	485	225	Bad Debt Expense	78,954		78,954	I
44	485	227	Contracted Labor	1,600		1,600	
44	485	229	Professional Services	7,000		7,000	
44	485	231	Liability & Fire Insurance	9,348		9,348	
44	485	232	Vehicle Insurance	4,707		4,707	
44	485	233	Property Insurance	-		-	
44	485	236	Legal Notices	1,100		1,100	
44	485	239	Other Advertising	500		500	
44	485	251	Maintenance & Repairs - Vehicle	42,000		42,000	
44	485	252	Maintenance & Repairs - Bldg	-		-	
44	485	253	Maintenance & Repairs - Equipment	2,000		2,000	
44	485	255	Maintenance Contract	756		756	
44	485	256	Fuel & Lubricants	52,800	3,200	56,000	A
44	485	262	Gas/Southwest	-		-	
44	485	266	Tipping Fees	281,760		281,760	
44	485	267	Dues - Membership - Fees	200		200	
44	485	269	Education	200		200	

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Test Year

Dept	Division	Account Number	Account Name	FY 2013 Budget	Adjustments	Test Year	Comment
44	485	271	Travel & Conference	200		200	
44	485	282	Minor Equipment	2,000		2,000	
44	485	283	Safety Equipment	1,780		1,780	
44	485	285	Operating Expenses	1,500		1,500	
44	485	286	Clothing	1,820		1,820	
			SUBTOTAL OPERATING EXPENSES	$ 493,625	$ 3,750	$ 497,375	
			TOTAL REFUSE COLLECTION	$ 999,245	$ 3,750	$ 1,002,995	
LANDFILL							
44	486	229	Professional Services	$ 5,000		$ 5,000	
44	486	241	Rentals & Leases	302		302	
44	486	256	Fuel & Lubricants	-		-	
44	486	267	Dues, Memberships, Fees	3,700		3,700	
44	486	285	Operating Expenses	200		200	
			SUBTOTAL OPERATING EXPENSES	$ 9,202	$ -	$ 9,202	
			TOTAL LANDFILL	$ 9,202	$ -	$ 9,202	
SOLID WASTE CIP							
44	489	*	Vehicle Replacement	$ 68,203		$ 68,203	E
44	489	**	Container Replacement	25,029		25,029	F
44	489	***	Landfill Closure/Post Closure	-	50,000	50,000	G
			TOTAL CIP EXPENSES	$ 93,232	$ 50,000	$ 143,232	
MISCELLANEOUS & NON-RECURRING							
NA	NA	NA	General Fund Transfer	$ -	$ 82,500	$ 82,500	B
NA	NA	NA	Consulting Study	$ 65,000	$ (50,000)	$ 15,000	H
			TOTAL MISC & NON-RECURRING	$ 65,000	$ 32,500	$ 97,500	
			TOTAL FUND EXPENDITURES	$ 1,166,679.01	$ 86,250.00	$ 1,252,929.01	

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Test Year

Dept	Division	Account Number	Account Name	FY 2013 Budget	Adjustments	Test Year	Comment
REVENUE OFFSETS							
44	30	5100	Carry Over	$ -		$ -	
44	35	1910	Right Away Disposal Reimb	45,000	(3,883)	41,117	A
44	35	1920	Right Away Disposal Adm Fee	6,165	2,835	9,000	
44	35	3120	Trash Revenue	789,540	(789,540)	-	C
44	36	3210	Miscellaneous Revenue	750	(200)	550	A
44	36	3310	LGIP Interest			-	
44	36	3410	RPA Interest	450		450	
44	37	9110	Transfer Out to General Fund	-		-	
NA	NA	NA	Lease/Purchase Loan	250,000	(250,000)	-	D
			TOTAL REVENUE	$ 1,091,905		$ 51,117	
			TOTAL REVENUE REQUIREMENT	$ 74,774		$ 1,201,812	

Comment Legend

A	Adjusted to match previous year's actual balances
B	General Fund Transfer at end of year based on FTEs for indirect admin costs
C	To be determined based on the cost of service analysis and resulting proposed rates
D	Loan transfer in for equipment purchase; cost allocated in CIP payments to cover loan amount
E	Adjusted to reflect vehicle replacement schedule and estimated costs
F	Adjusted to reflect a 10 year replacement schedule
G	Based on SAIC's analysis
H	One time fee for SAIC consulting study (distributed over 5 year forecast)
I	Per City staff's estimate

Appendix A - Schedule 2

Revenue Requirement Forecast

Dept	Division	Account Number	Account Name	Test Year	Year 1 FY 2013	Year 2 FY 2014	Year 3 FY 2015	Year 4 FY 2016	Year 5 FY 2017	Inflation Factor
PERSONNEL										
44	485	111	Salaries and Wages	$ 352,915	$ 352,915	$ 361,738	$ 370,781	$ 380,051	$ 389,552	Salary
44	485	131	Employee Benefits - AZ Retirement	39,315	39,315	40,298	41,305	42,338	43,396	Benefits
44	485	132	Employee Benefits - OASI	26,998	26,998	27,673	28,365	29,074	29,801	Benefits
44	485	133	Employee Benefits - Medical/Li	46,588	46,588	50,315	54,340	58,687	63,382	Health Benefits
44	485	134	Other Employee Enhancement	23,388	23,388	23,973	24,572	25,186	25,816	Benefits
44	485	135	Employee Benefits - Workers Comp	15,250	15,250	15,631	16,022	16,423	16,833	Benefits
44	485	136	Employee Benefits - Unemployment	1,166	1,166	1,195	1,225	1,256	1,287	Benefits
NA	NA	NA	Separation Cost	-	-	-	-	-	-	None
			SUBTOTAL PERSONNEL	$ 505,620	$ 505,620	$ 520,823	$ 536,611	$ 553,015	$ 570,068	
OPERATING EXPENSES										
44	485	211	Office Supplies	$ 250	$ 250	$ 256	$ 263	$ 269	$ 276	Supplies
44	485	212	Postage	3,200	3,200	3,280	3,362	3,446	3,532	Supplies
44	485	214	Printing Exterior	500	500	513	525	538	552	Supplies
44	485	216	Recording Fees	-	-	-	-	-	-	Supplies
44	485	225	Bad Debt Expense	78,954	78,954	78,954	78,954	78,954	78,954	None
44	485	227	Contracted Labor	1,600	1,600	1,640	1,681	1,723	1,766	Professional Services
44	485	229	Professional Services	7,000	7,000	7,175	7,354	7,538	7,727	Professional Services
44	485	231	Liability & Fire Insurance	9,348	9,348	9,582	9,821	10,067	10,318	General
44	485	232	Vehicle Insurance	4,707	4,707	4,825	4,945	5,069	5,196	General
44	485	233	Property Insurance	-	-	-	-	-	-	General
44	485	236	Legal Notices	1,100	1,100	1,128	1,156	1,185	1,214	General
44	485	239	Other Advertising	500	500	513	525	538	552	General
44	485	251	Maintenance & Repairs - Vehicle	42,000	42,000	43,050	44,126	45,229	46,360	Vehicle Maintenance
44	485	252	Maintenance & Repairs - Bldg	-	-	-	-	-	-	Maintenance
44	485	253	Maintenance & Repairs - Equipment	2,000	2,000	2,050	2,101	2,154	2,208	Maintenance
44	485	255	Maintenance Contract	756	756	775	794	814	834	Maintenance
44	485	256	Fuel & Lubricants	56,000	56,000	59,360	62,922	66,697	70,699	Fuel
44	485	262	Gas/Southwest	-	-	-	-	-	-	Fuel
44	485	266	Tipping Fees	281,760	281,760	290,213	298,919	307,887	317,123	Disposal
44	485	267	Dues - Membership - Fees	200	200	205	210	215	221	General
44	485	269	Education	200	200	205	210	215	221	General
44	485	271	Travel & Conference	200	200	205	210	215	221	General
44	485	282	Minor Equipment	2,000	2,000	2,050	2,101	2,154	2,208	General
44	485	283	Safety Equipment	1,780	1,780	1,825	1,870	1,917	1,965	General
44	485	285	Operating Expenses	1,500	1,500	1,553	1,607	1,663	1,721	Capital Equipment
44	485	286	Clothing	1,820	1,820	1,866	1,912	1,960	2,009	Supplies
			SUBTOTAL OPERATING EXPENSES	$ 497,375	$ 497,375	$ 511,219	$ 525,570	$ 540,448	$ 555,876	
			TOTAL REFUSE COLLECTION	$ 1,002,995	$ 1,002,995	$ 1,032,042	$ 1,062,181	$ 1,093,463	$ 1,125,944	

Appendix A - Schedule 2

Revenue Requirement Forecast

Dept	Division	Account Number	Account Name	Test Year	Year 1 FY 2013	Year 2 FY 2014	Year 3 FY 2015	Year 4 FY 2016	Year 5 FY 2017	Inflation Factor
LANDFILL										
44	486	229	Professional Services	$ 5,000	$ 5,000	$ 5,125	$ 5,253	$ 5,384	$ 5,519	Professional Services
44	486	241	Rentals & Leases	302	302	310	317	325	333	General
44	486	256	Fuel & Lubricants	-	-	-	-	-	-	Fuel
44	486	267	Dues, Memberships, Fees	3,700	3,700	3,793	3,887	3,984	4,084	General
44	486	285	Operating Expenses	200	200	205	210	215	221	General
			SUBTOTAL OPERATING EXPENSES	$ 9,202	$ 9,202	$ 9,432	$ 9,668	$ 9,910	$ 10,157	
			TOTAL LANDFILL	$ 9,202	$ 9,202	$ 9,432	$ 9,668	$ 9,910	$ 10,157	
SOLID WASTE CIP										
44	489	*	Vehicle Replacement	$ 68,203	$ 68,203	$ 60,003	$ 60,003	$ 108,859	$ 153,882	
44	489	**	Container Replacement	25,029	25,029	25,374	25,757	26,197	26,667	
44	489	***	Landfill Closure/Post Closure	50,000	50,000	50,000	50,000	50,000	50,000	
			TOTAL CIP EXPENSES	$ 143,232	$ 143,232	$ 135,377	$ 135,760	$ 185,056	$ 230,549	
MISCELLANEOUS & NON-RECURRING										
NA	NA	NA	General Fund Transfer	$ 82,500	$ 82,500	$ 84,563	$ 86,677	$ 88,843	$ 91,065	General
NA	NA	NA	Consulting Study	$ 15,000	$ 15,000	$ 15,375	$ 15,759	$ 16,153	$ 16,557	General
			TOTAL MISC & NON-RECURRING	$ 97,500	$ 97,500	$ 99,938	$ 102,436	$ 104,997	$ 107,622	
			TOTAL FUND EXPENDITURES	$ 1,252,929	$ 1,252,929	$ 1,276,789	$ 1,310,044	$ 1,393,426	$ 1,474,272	
REVENUE OFFSETS										
44	30	5100	Carry Over	$ -	$ -	$ -	$ -	$ -	$ -	None
44	35	1910	Right Away Disposal Reimb	41,117	41,117	42,351	43,622	44,930	46,278	
44	35	1920	Right Away Disposal Adm Fee	9,000	9,000	9,000	9,000	9,000	9,000	None
44	35	3120	Trash Revenue	-	-	-	-	-	-	None
44	36	3210	Miscellaneous Revenue	550	550	550	550	550	550	None
44	36	3310	LGIP Interest	-	-	-	-	-	-	None
44	36	3410	RPA Interest	450	450	450	450	450	450	None
44	37	9110	Transfer Out to General Fund	-	-	-	-	-	-	None
NA	NA	NA	Lease/Purchase Loan	-	-	-	-	-	-	None
			TOTAL REVENUE	$ 51,117	$ 51,117	$ 52,351	$ 53,622	$ 54,930	$ 56,278	
			TOTAL REVENUE REQUIREMENT	$ 1,201,812	$ 1,201,812	$ 1,224,438	$ 1,256,423	$ 1,338,496	$ 1,417,994	

Appendix A - Schedule 3

Residential Cost of Service

	Year 1 FY 2013	Year 2 FY 2014	Year 3 FY 2015	Year 4 FY 2016	Year 5 FY 2017
Unit Cost of Residential Service					
Refuse Collection					
Refuse Collection	$ 345,820	$ 349,298	$ 359,059	$ 402,768	$ 444,295
Annual Collections	272,584	282,360	291,096	299,000	306,072
Cost per Collection	**$ 1.27**	**$ 1.24**	**$ 1.23**	**$ 1.35**	**$ 1.45**
Disposal					
Disposal	$ 240,643	$ 247,862	$ 255,298	$ 262,957	$ 270,845
Annual Disposal Capacity (CY)	189,124	189,124	189,124	189,124	189,124
Cost per CY of Capacity	**$ 1.27**	**$ 1.31**	**$ 1.35**	**$ 1.39**	**$ 1.43**
Billing Units					
Residential Refuse Customers	3,597	3,597	3,597	3,597	3,597
Total Residential Cost of Service					
Direct Allocation					
Refuse Collection	$ 345,820	$ 349,298	$ 359,059	$ 402,768	$ 444,295
Recycling Collection	(550)	(550)	(550)	(550)	(550)
Brush and Bulky	231,233	236,431	243,713	263,483	282,620
Yard Drop Off	10,651	10,970	11,302	11,646	12,005
Commercial Dumpster	-	-	-	-	-
Disposal: Refuse	240,643	247,862	255,298	262,957	270,845
Disposal: Brush Chipping	14,169	14,475	14,945	16,293	17,596
Disposal: Burn Pile	16,471	16,965	17,478	18,011	18,565
Subtotal	*$ 858,436*	*$ 875,451*	*$ 901,245*	*$ 974,609*	*$ 1,045,375*

Appendix A - Schedule 3

Residential Cost of Service

	Year 1 FY 2013	Year 2 FY 2014	Year 3 FY 2015	Year 4 FY 2016	Year 5 FY 2017
Indirect Allocation					
Admin	$ 268,700	$ 274,092	$ 279,652	$ 285,386	$ 291,302
Closed Landfill	59,202	59,432	59,668	59,910	60,157
Illegal Dumping	2,037	2,098	2,162	2,228	2,296
Code Enforcement	-	-	-	-	-
Rental of Dump Truck	13,436	13,365	13,697	16,364	18,863
Subtotal	*$ 343,375*	*$ 348,987*	*$ 355,178*	*$ 363,887*	*$ 372,619*
Total Residential Cost of Service	**$ 1,201,812**	**$ 1,224,438**	**$ 1,256,423**	**$ 1,338,496**	**$ 1,417,994**
Check	*$ -*	*$ -*	*$ -*	*$ -*	*$ -*
Monthly Residential Cost of Service (per HH)					
Direct Allocation					
Refuse Collection	$ 8.01	$ 8.09	$ 8.32	$ 9.33	$ 10.29
Recycling Collection	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Brush and Bulky	5.36	5.48	5.65	6.10	6.55
Yard Drop Off	0.25	0.25	0.26	0.27	0.28
Commercial Dumpster	-	-	-	-	-
Disposal: Refuse	5.58	5.74	5.91	6.09	6.27
Disposal: Brush Chipping	0.33	0.34	0.35	0.38	0.41
Disposal: Burn Pile	0.38	0.39	0.40	0.42	0.43
Subtotal	*$ 19.89*	*$ 20.28*	*$ 20.88*	*$ 22.58*	*$ 24.22*
Indirect Allocation					
Admin	$ 6.23	$ 6.35	$ 6.48	$ 6.61	$ 6.75
Closed Landfill	1.37	1.38	1.38	1.39	1.39
Illegal Dumping	0.05	0.05	0.05	0.05	0.05
Code Enforcement	-	-	-	-	-
Rental of Dump Truck	0.31	0.31	0.32	0.38	0.44
Subtotal	*$ 7.96*	*$ 8.09*	*$ 8.23*	*$ 8.43*	*$ 8.63*
Total Residential Cost of Service	**$ 27.84**	**$ 28.37**	**$ 29.11**	**$ 31.01**	**$ 32.85**
Annual Revenue Recovery (COS by HH)	**$ 1,201,812**	**$ 1,224,438**	**$ 1,256,423**	**$ 1,338,496**	**$ 1,417,994**
	$ -	$ -	$ -	$ -	$ -

Appendix B
STAFFING ANALYSIS

Table B-1
Staffing Analysis

	Residential Refuse Collection	Bulk Trash Collection
Total Hours Available per FTE	2,080	2,080
Non-Work Hours per FTE		
Vacation	120	120
Sick Time	96	96
Holidays	80	80
Training	10	10
Light Duty/Workers Compensation	40	40
Total Non-Work Hours per FTE	346	346
Work Hours Available per FTE	1,734	1,734
Routes	2	0.6
Total Hours Required	4,160	1,157
Frontline Drivers Needed (1)	2.0	1.8
Backup Drivers Needed	0.4	0.4
Total Drivers Needed (2)	2.4	2.1
Backup Percentage (2)	20.0%	20.0%

1 Under the City's current equipment configuration.

2 Any discrepancies in calculations are a product of rounding.

Appendix C
Staffing Analysis

Table C-1
Staffing Analysis

	Residential Refuse Collection	Bulk Trash Collection
Total Hours Available per FTE	2,080	2,080
Non-Work Hours per FTE		
Vacation	120	120
Sick Time	96	96
Holidays	80	80
Training	10	10
Light Duty/Workers Compensation	40	40
Total Non-Work Hours per FTE	346	346
Work Hours Available per FTE	1,734	1,734
Routes	2	0.6
Total Hours Required	4,160	1,157
Frontline Drivers Needed (1)	2.0	1.8
Backup Drivers Needed	0.4	0.4
Total Drivers Needed (2)	2.4	2.1
Backup Percentage (2)	20.0%	20.0%

(1) Under the City's current equipment configuration.
(2) Any discrepancies in calculations are a product of rounding.