

Final Draft Report

**Solid Waste System  
Long Term Alternatives Study and Business  
Case**

Presented to:

**Santa Cruz County**



Public Works Department  
275 Rio Rico Drive  
Rio Rico, AZ 85648  
(520) 375-7830

Presented by:

**SCS ENGINEERS**  
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May 27, 2014  
File No. 01214053.00

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- C - Pro Forma Model Worksheets

## ABBREVIATIONS AND ACRONYMS

Abbreviation/Acronym	Definition
ADEQ	Arizona Department of Environmental Quality
BLM	U.S. Bureau of Land Management
BOS	Board of Supervisors
CAA	Federal Clean Air Act
C&D	Construction and Demolition Debris
CFR	Code of Federal Regulations
County	Santa Cruz County, AZ
CPI	Consumer Price Index
Division	Santa Cruz County Solid Waste Division
EG	Emission Guidelines
EREF	Environmental Research and Education Foundation
FCA	Full Cost Accounting
FTE	Full Time Equivalent
GCCS	Gas Collection and Control Systems
GHG	Greenhouse Gas
LEL	Lower Explosive Limit
LFG	Landfill Gas
LFGE	Landfill Gas-to-Energy
LOGO	Local Government Financial Test
MFPA	Master Facility Planning Approval
Mg	Megagrams
Model	Pro Forma Model
MRF	Materials Recovery Facility
MRR	Mandatory Reporting Rule
MSW	Municipal Solid Waste
NMOC	Non Methane Organic Compounds
NRWS	Nogales Recycling and Waste Systems
NSPS	New Source Performance Standards
PCC	Post Closure Care
PPP	Public Private Partnership
PSD	Prevention of Significant Deterioration
PTE	Part Time Equivalent
RFP	Request for Proposals
RRLF	Rio Rico Sanitary Landfill
RSWA	Regional Solid Waste Authority
SCS	SCS Engineers
SELF	Sonita-Elgin Sanitary Landfill
SWANA	Solid Waste Association of North America
System	Solid Waste System
TATS	Tubac-Amado Transfer Station
USEPA	U.S. Environmental Protection Agency

WM	Waste Management, Inc.
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## 1.0 EXECUTIVE SUMMARY

### 1.1 STUDY SCOPE OF WORK

The County's Solid Waste System (System) has seen many changes in recent years. Its major waste generator, the City of Nogales, decided not to renew a Governmental Agreement with the County and negotiated a long-term landfill disposal agreement with DKL Holdings to dispose of its municipal solid waste (MSW) at the Marana Landfill. This resulted in a significant reduction in MSW being disposed of at the Rio Rico Landfill (RRLF). In the meantime, System labor, benefit, and equipment costs have increased straining the overall budget. While the County continues to rely on the "local government test" for long-term closure and post-closure landfill costs, the County may need to begin establishing some reserves to pay for these long-term liabilities. Further, last year the County decided not to proceed with construction and operation of a landfill gas-to-energy project due to concerns about long-term County liabilities. All of these issues suggested a need for development of a long-term business case for the System.

This study is focused on conducting an analysis of the long-term financial viability of the County's System. This analysis includes evaluating and verifying the costs for operations, maintenance, equipment replacement, regulatory compliance, and closure and post closure care. Lastly, the study reviews various management strategies for operation of the System including opportunities to change levels of service, privatization of System operations, and sale of System assets and liabilities to a private service provider. This report details advantages and disadvantages of each of these management alternatives.

### 1.2 FINDINGS

On the basis of our review of the County's Solid Waste System and the Division, SCS makes the following major findings:

1. The amount of MSW tonnage entering the County's System has been reduced by 40 percent over the last five years (roughly from 60,400 to 37,500 tons per year), primarily the result of the loss of MSW from the City of Nogales, but also as a result of the decline in MSW generation due to the impacts from the Great Recession, and increased recycling. .
2. A review of the equipment logs maintained by the Division suggests that many major pieces of equipment will need to be replaced in upcoming years. Several pieces of equipment (compactor, and dozers) have required expensive repairs and maintenance to extend their service life. For example, the Caterpillar 826G compactor and Caterpillar 963G wheeled loader have required service repairs amounting to \$260,157 and \$267,076, respectively in the last two fiscal years (2013 and 2014). The Division estimates that current fleet and equipment needs over the 30-year planning period to be \$3.1 million, taking into account estimated replacement costs.
3. The County owns and operates the Rio Rico Landfill (RRLF), which provides the residential and commercial solid waste disposal needs of the unincorporated areas of the County. The RRLF occupies approximately 60 acres of land owned by the County, and is classified as a canyon-fill type solid waste facility reflecting the topography of the site. RRLF has been expanded in 2009. RRLF receives an average of 120 tons per day and with this waste flow is expected to have estimated remaining capacity till 2040. Operating costs for RRLF currently are \$35.73 per ton.
4. Since 1970, the County has operated the Sonita-Elgin Landfill (SELF) for the disposal of construction and demolition debris (C&D) and some municipal solid waste (MSW), which is deposited in large roll-off containers. SELF receives an average of 7 tons per day (open three days per week) and with this waste flow is expected to have estimated remaining capacity until 2129. SELF was developed on land provided to the County by the BLM. Currently, the County does not hold clear title to this parcel. Operating costs for SELF currently are \$153.83 per ton.

5. Pursuant to Federal and State solid waste regulations, the County employs the services of a third-party engineer (SCS) to prepare landfill closure and 30-year post-closure cost estimates:
  - a. 2013 closure and post-closure care estimates: \$1,815,575 closure and \$2,200,095 post-closure for RRLF and \$448,149 closure and \$685,085 post-closure for SELF.
  - b. If the landfills were closed at the end of their landfill design life (2040 RRLF and 2129 SELF) \$3,279,296 closure and \$3,973,817 post-closure for RRLF and \$5,987,485 closure and \$9,153,063 for post-closure for SELF.
6. TATS is used by the public in the area of the unincorporated County as a household drop-off facility. MSW is stored temporarily in roll-off boxes, and when full, are transported by County staff to the RRLF. Approximately eight roll-off boxes are transported to the Landfill every month (roughly 2 tons per day). Operating costs for TATS are currently \$176.95 per ton.
7. The County operates four drop-off areas (RRLF, SELF, TATS, and Town of Patagonia) for recyclables (cardboard, mixed paper, plastics, and scrap metals). Operating costs for TATS are currently \$263.65 per ton, taking into account all operating expenses and recyclables revenues.
8. The customer tipping fee and rate increases enacted in 2013 were an excellent start at placing the County's System on a good financial footing. However, with long-term landfill, financial liabilities (closure and post-closure) for both the RRSF and SELF, the County should take immediate steps to begin to fully fund reserve funds for these programs, as well as funding future capital improvements and fleet replacement. A 30-year business case was developed with the assistance of a Pro Forma Model.
9. The landfill industry at the time of this writing is in a state of flux. The proposed issuance of the new landfill gas (LFG) rules by USEPA is expected to have a major impact on the regulatory costs for larger landfills across the United States through new reporting requirements and addition of active LFG collection systems. Smaller landfills like the RRLF will probably need to plan for enhanced LFG monitoring and reporting. The County should make plans to reserve funds for the expansion of its current LFG collection system, possibly in the 2025 time period.
10. There are viable management alternatives for the County's System. Each has its own relative advantages and disadvantages in terms of short and long-range costs, flexibility for the County, and risks. This is more fully discussed in Section 7 of the Report.

## 1.3 RECOMMENDATIONS

Relative to our findings noted above, we make the following recommendations for consideration by the Board of Supervisors (BOS).

### 1.3.1 System Optimization

At the outset of this study, we reviewed the Division's current operations and levels of service. Based on SCS's knowledge of the solid waste industry and similarly-sized communities in the Southwest, we are of the opinion that the Division appears to be "right sized" in its staffing and equipment deployment for the RRLF. Staffing appears similar to smaller-sized landfills (daily tonnage less than 250 tons) represented in a Solid Waste Association of America (SWANA) Landfill Benchmarking Study, which was conducted several years ago. Current staffing could allow the County to process more than 500 tons per day at RRLF, if available.

However, given the low daily tonnage and numbers of customer visits, the level of service (hours of operation) for the TATS and SELF appear somewhat excessive (ranging from \$154 to \$177 per ton). Many small communities find it difficult to achieve economies of scale operating small landfills (SELF) and drop-off stations (TATS). These communities have tried to minimize costs by considering reducing hours and days of operation. The drawback to these changes is a potential increase in illegal dumping along public right-of-ways and private property.

We recommend that the Division explore the option of further reducing the number of days these facilities are open, preferably those days with the highest customer peak use. This change would reduce the operating cost of these facilities and save limited Division financial resources.

### 1.3.2 Revenue Enhancement

Under this management alternative, the County would pursue MSW and other waste streams to help boost the incoming flow into the Rio Rico Landfill. Currently, the RRLF is receiving an average of 120 tons of MSW and sludge per day. “Revenue enhancement” through an increased waste stream would help improve the economies of scale for the System.

The largest potential MSW generator in the watershed is the City of Nogales. Until 2009, the City disposed of its waste at RRLF. At that time, the City contracted with a private hauler/landfill owner/operator to provide disposal services. The cost to transport the City’s waste stream to this remote landfill in Tucson (Marana Regional Landfill) is substantial. One suggestion is for the County to approach this hauler with a long-term proposal to accept the City’s MSW stream from the City’s Transfer Station at the RRLF for a negotiated tipping fee (less than a reported gate rate of \$27.00 per ton). This additional waste stream would enhance the County’s solid waste revenues and improve the RRLF’s economies of scale. Obviously, the downside to this potential increase in MSW tonnage to RRLF would be the reduction in landfill life and the need for new System capacity earlier than anticipated.

Other possible options for the County to consider in improving the System economics are the implementation of landfill design modifications (substitution of geocomposite covers in lieu of soil for RRLF to save landfill capacity) and the use of global positioning system (GPS) technology in its landfill compactors to more accurately place and compact MSW and cover soil. SCS clients have significantly reduced the amount of time, labor, and expense associated with such landfill surveying and cover soil.

### 1.3.3 Long-Term Business Case

SCS developed a Pro Forma Model (Model) for this business case to provide preliminary, planning-level cost estimates, which can be used by the BOS to help evaluate the County’s tipping fees and customer rates and the impact of long-term financial liabilities. The Model is a spreadsheet program that projects annual revenues and costs to operate, administer, and maintain the System and provides a means for comparing alternative operational, institutional, and facility scenarios.

Various assumptions were made regarding yearly solid waste quantities, demographic information, escalation factors for waste growth and costs, administration, personnel and utility costs, transport and processing cost. The costs of various programs and disposal options were estimated using published information on the County’s System, SCS’s experience on other similar projects, input from the private solid waste industry, other published information, and planning-level cost estimates prepared by SCS.

Three different Model scenarios were constructed:

- **No Annual Landfill Tipping Fee and Customer Charge Adjustment** – This scenario assumes that the County would not annually adjust tipping fees and customer charges based on inflation.
- **Annual Landfill Tipping Fee and Customer Charge Adjustment** - This scenario assumes that the County would annually adjust tipping fees and customer charges based on inflation.
- **Tipping Fees and Customer Charges Adjusted For Breakeven System Budget** – This scenario assumes that the County would adjust tipping fees and customer charges to provide a “breakeven budget” for the System.

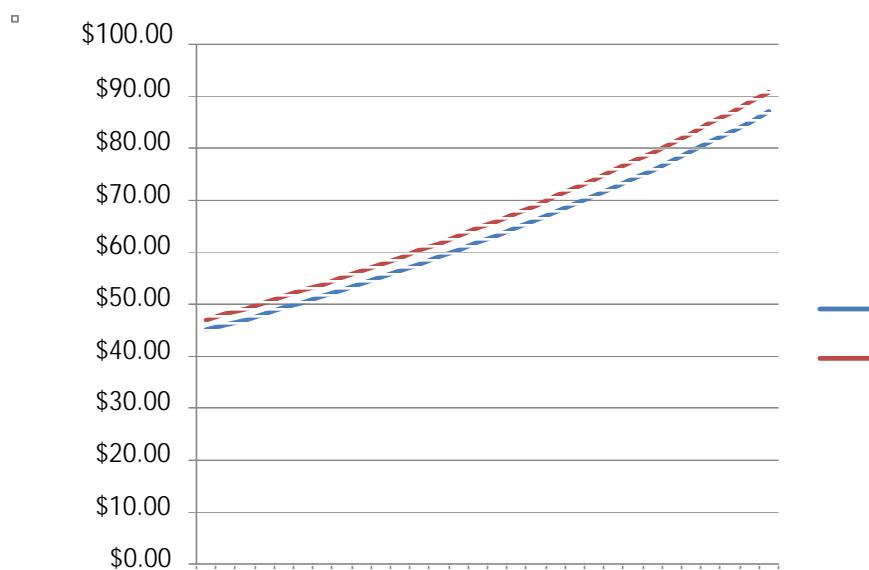
The first scenario provides the County with an annualized projection of the actual costs of running the System without making adjustments to System tipping fees and customer charges. Scenario two is a more realistic option with tipping fees and customer charges being annually adjusted based on changes in the estimated inflation rate over the 30-year planning period (Exhibit 27). However, the Pro Forma Model indicates that these adjustments are not adequate

to provide the System with a “breakeven budget” and also meet all of the required reserve requirements (closure, post closure, equipment, and capital improvements).

Using the Model, we were able to project a breakeven tipping fee to meet the projected expenses and reserves for the entire 30-year planning period. It appears by adjusting the tipping fee from \$45.00 to \$47.00 in FY 2015, and, then annually adjusting the tipping fee by an estimated inflation rate, would enable the System to achieve a “breakeven budget” throughout the entire business planning period.

There are a number of caveats should the County decide to take this System funding approach. If the tipping fee becomes too high, then certain waste generators may find alternative waste disposal locations, and then those wastes may exit the System. The County should look for ways to entice other waste generators to utilize the System (e.g., City of Nogales) through a specially designed, long-term tipping fee to increase waste tonnage and thus improve the System’s economy of scale.

**Exhibit 1. Tipping Fee Projections Under Model Scenarios**



**1.3.4 Privatization**

One of the major concerns about privatization is the potential effects on competition, service for quality, and overall costs. As we have pointed out, the County has a number of viable options for managing its Solid Waste System, each with its particular advantages and disadvantages. A recent landfill privatization RFP issued by Pima County only received one proposer. Appendix B contains examples of five recent Requests for Proposals (on DVD), which were issued by similarly-sized communities for the option as noted in the paragraphs below:

1. **Cooperative Agreements Between Private Entities and the County.** This option assumes that the County would enter into a cooperative agreement with a private landfill developer or major waste generator. In this case, the County would operate and own most functions of the System, but provide access to the County’s assets for MSW both within and outside the watershed for an agreed long-term price. In essence, the County would sell part of its remaining landfill capacity to help increase waste tonnage and thereby take advantage of economies of scale. This public-private partnership (PPP) is not without its disadvantages because the agreed disposal tipping fee may be less than that provided to County residents. Also, some may argue that the County would become a “dumping ground” for other community wastes.
2. **Private Operation of the County Solid Waste System and County Ownership.** This particular management option has been utilized by many local governments across the United States. This arrangement offers many advantages because it allows the County to continue ownership of its assets, but can tap into a breadth of private-sector experience, knowledge, and potential economies of scale with respect to equipment, labor, and capital. In essence, the County would still be providing the solid waste

services, but no longer actually providing it through its own workforce. This option may require lengthy contract negotiations and continued contract monitoring costs to ensure that the contract conditions and specifications are being met by the private party to the business transaction.

3. **Complete Asset Divestiture to a Private Operator.** This option assumes that the County would be able to completely divest all of its solid waste assets and financial liabilities to the State of Arizona for landfill closure and 30-years post closure care. The latter might result from receipt of an immediate cash flow from the asset sale to fund these liability reserves, or if, as a result of negotiations, these liabilities are acquired by the private owner. This also assumes that a clear title can be received by the BLM or through Congressional action regarding the SELF. This option could reduce or nearly eliminate long-term financial risks for closure and post-closure, but the County could lose any leverage in long-term tipping fees and customer costs unless these are included in the contract negotiations.

If the County wishes to consider complete or partial outsourcing of its System, we typically recommend the following:

- Develop a document that provides a comprehensive description of the types and level of service it provides, and clearly articulate the expectations it would have of a contractor were it to outsource all or part of the services it currently provides. This document could serve as the framework for a bid specification.
- Generally, an entity acquiring a landfill asset does not want to accept liability for potential risks (e.g., contamination) that exists on a site because of prior events and activities. The typically approach is to do a “baseline” study to define the existing conditions and then provide this in either the procurement document or contract that the asset purchaser has no liability for pre-existing conditions. Another option is to sell the sites “as is.” We generally do not recommend this approach for maximizing the sale price. Indeed, we would expect the purchase price to be significantly reduced in cases where the contamination is bad, or not well defined, or subject to major uncertainties affecting the cost of cleanup.
- Get input from the community and the private sector regarding the service level descriptions and expectations.
- Develop and issue a RFP and allow the County the flexibility to award or not award a contract depending on the results of the bids.
- Evaluate bids based on costs, level of services, track record, and the intangible factors described above.

## 2.0 INTRODUCTION

The County's System has seen many changes in recent years. Its major waste generator, the City of Nogales, decided not to renew an Interlocal Agreement with the County and negotiated a long-term landfill disposal agreement with DKL Holdings to dispose of its municipal solid waste (MSW) at the Marana Landfill. This resulted in a significant reduction in MSW being disposed of at the RRLF. In the meantime, System labor, benefit, and equipment costs have increased straining the overall budget. While the County continues to rely on the local government test for long-term closure and post-closure landfill costs, there is a concern that the County needs to begin establishing some reserves to pay for these long-term liabilities. Further, last year the County decided not to proceed with construction and operation of a landfill gas-to-energy project due to concerns about long-term County liabilities. All of these issues suggested a need for development of a long-term business case for the System.

This study is focused on conducting an analysis of the long-term financial viability of the County's solid waste system (System). This analysis includes evaluating and verifying the costs for operations, maintenance, equipment replacement, regulatory compliance, and closure and post closure care. A Pro Forma Model (Model) was constructed to help develop estimates/projections of needed operating revenues and expenses as well as possible debt instruments over a 30-year planning period. This Model was crafted so as the County grows and solid waste volumes increase, financial planning estimates can be revised or modified.

Lastly, the study reviews various management strategies for operation of the System including opportunities to change levels of service, privatization of System operations, and sale of System assets and liabilities to a private service provider. This report details advantages and disadvantages of each of these management alternatives.

## 3.0 EXISTING SOLID WASTE SYSTEM

### 3.1 COLLECTION

#### 3.1.1 Unincorporated Areas

The following five refuse haulers provide collection services to the unincorporated areas of the County: Age Contractor (construction and demolition waste only), Canyon Disposal, Rio Rico Sanitation, Rock and Roll Roll off, and Waste Management. These companies, except for Waste Management, are locally owned and serve areas of the unincorporated County including Tubac, Tumacacori, and Sonita.

#### 3.1.2 City of Nogales

The City of Nogales offers twice-weekly refuse collection for residential customers. The City also provides commercial refuse collection services (1 to 8 cubic yards) six days per week, except Sundays and City recognized holidays. Presently, the City of Nogales has a collection agreement with Nogales Recycling and Waste Services (NRWS) to collect recyclables curbside within the City and to operate a transfer station, which is used to transport waste to the Marana Landfill. The City has negotiated a long-term landfill disposal agreement with DKL Holdings to dispose of its municipal solid waste (MSW) at the Marana Landfill, which is located roughly 90 miles haul distance from the City of Nogales.

#### 3.1.3 Town of Patagonia

Municipal Solid Waste (MSW) generated within Patagonia is collected by Town employees using municipal collection equipment and is disposed of their MSW at the SELF on Fridays and RRLF on Mondays. Town residents also deliver MSW directly to the Rio Rico Landfill. The County also maintains a recycling drop-off facility (Exhibit 2Exhibit 2) for Town residents.



**Exhibit 2. Recycling Facility Operated by the County in the Town of Patagonia**

### 3.2 TUBAC-AMANDO TRANSFER FACILITY

The County's Tubac-Amado Transfer Station (TATS) is used by the public in the area as a household drop-off facility (Exhibits 3 and 4). MSW is stored temporarily in roll-off boxes, and when full, (Exhibit 4Exhibit 3) are transported by County staff to the Rio Rico Landfill. Approximately eight roll-off boxes are taken to the Landfill every month. The Station also includes roll-off boxes for drop-off of recyclables (cardboard, mixed paper, plastics, and scrap metals)



**Exhibit 3. Tubac-Amado Transfer Station**



**Exhibit 4. Tubac-Amado Transfer Station**

### 3.3 LANDFILLS

#### 3.3.1 Rio Rico Landfill

The County owns and operates the RRLF, which provides the residential and commercial solid waste disposal needs of the unincorporated areas of the County. The RRLF occupies approximately 60 acres of land owned by the County, and is classified as a canyon-fill type solid waste facility reflecting the topography of the site. The RRLF has been receiving MSW since 1981, although County scale records were only maintained since 1996 (Exhibit 5 Exhibit 5).

The RRLF is authorized by the Arizona Department of Environmental Quality (ADEQ) to operate under Master Facility Plan Approval (MFPA) Number 12001800.04. The MFPA incorporates a “Type III Change” that allows the County to dispose of dewatered septage and sludge along with MSW.

The RRLF had an original design capacity of 998,500 tons. On November 4, 2009, the ADEQ approved the County’s permit application to expand the design capacity of the Landfill to approximately 2.8 million cubic yards, which is roughly equivalent to 1.9 million tons of MSW. The RRLF was approved for a vertical expansion that increased the maximum elevation of the landfill by 28 feet to 3,708 feet above sea level (Exhibit 6 Exhibit 6).

In 1998/1999, the County installed a landfill gas (LFG) collection and control system (GCCS). This system originally consisted of two interior LFG extraction wells and 13 perimeter LFG extraction wells along the northwest and southern boundaries of the Landfill. LFG collected by the GCCS is directed to a LFG flare and carbon absorption system. The two interior LFG wells were decommissioned in 2005 to allow additional placement of MSW on the site. Well #15 was brought back on line in 2012 as part of the LFGE evaluation project and is still working. Well #14 was blocked and is not operating.

Estimated LFG flow from the flare station currently ranges from 420 to 500 standard cubic feet per minute (scfm) with methane content from 20 to 40 percent.



**Exhibit 5. Rio Rico Scalehouse**



**Exhibit 6. Rio Rico Landfill**

The RRLF has been granted permission to apply alternative daily covers (foam, tarps, automatic tarping systems, or Posi-Shell).

Pursuant to Section 2.5 of the RRLF operating permit, the County must continue to meet closure and post-closure requirements in accordance with Federal landfill permitting statutes (40 CFR Part 258) until released by ADEQ. The County employs the services of a consulting engineer to provide an annual cost estimate for closure and post-closure care.

Final closure of the site is permitted by ADEQ and requirements vary across the site. The top deck of the landfill (3,700 feet or higher) must include a minimum of 12-inches of soil cover underlain by an infiltration barrier layer of 30-inches of soil of low permeability ( $8.8 \times 10^{-5}$  centimeters/second). For Area 2 (sloped areas of the landfill below an elevation of 3,700 feet), the final cover must include a minimum of 12-inches of soil cover underlain by an infiltration barrier layer of 24-inches of soil of low permeability ( $5.2 \times 10^{-4}$  centimeters/second).

Post-closure care requirements are mandated in the State permit for 30 years from the date of final closure. This would include a minimum of maintaining the integrity of the closure cap, providing repairs due to differential settlement and erosion, maintaining and operating the groundwater monitoring system, maintaining and operating the LFG collection and monitoring system, and maintaining in good repair all stormwater control structures, internal roads, signs, fences, and any other structures required for monitoring activities and post-closure care of the site.

### 3.3.2 Sonita-Elgin Landfill

Since 1970, the County has operated the SELF for the disposal of construction and demolition debris (C&D) and MSW, which is deposited in large roll-off containers. MSW is weighed (Exhibit 7) and assessed the County's tipping fee.

The SELF is located on approximately 40 acres in Sonita, at the intersection the north side of State Highway 83 and Lower Elgin Road, approximately 2 1/2 miles east of the State Highway 83 and 82 interchanges. The SELF was developed on land provided to the County by the U.S. Bureau of Land Management (BLM). Currently, the County does not hold clear title to this parcel.

Pursuant to ADEQ's Master Facility Plan approval number 12005400.01, the SELF was granted a "small landfill exemption" pursuant to 40 CFR 258.1(f)(1), which makes it exempt from typical landfill design criteria, groundwater monitoring, and corrective action. As such, the SELF was not designed and constructed with either a base liner, leachate or landfill gas collection system. MSW is disposed in unlined, trench-fill excavations and as area fills. The site has no groundwater monitoring wells. However, the County must continue to conduct routine (quarterly) LFG monitoring.

Pursuant to Section 2.5 of the SELF operating permit, the County must meet closure and post-closure requirements in accordance with Federal landfill permitting statutes (40 CFR Part 258) until released by ADEQ. The County employs the services of a consulting engineer to provide an annual cost estimate for closure and post-closure care.

Final closure on the site is permitted by ADEQ to consist of a six-inch vegetative/erosion solid cover overlying a 24-inch thick earthen material with a permeability of  $5.2 \times 10^{-4}$  cm/sec overlying a 12-inch thick intermediate cover or foundation layer over lying the waste materials. Post-closure care is mandated in the State permit for 30 years from the date of final closure. This would include a minimum of maintaining the integrity of the closure cap, providing repairs due to differential settlement and erosion, and maintaining and operating the LFG monitoring system.



**Exhibit 7. Weigh Station Sonita-Elgin Landfill**

**3.3.3 Town of Patagonia Landfill**

The Town of Patagonia Landfill is located approximately two miles north of the Town. The Landfill consists of a 60-acre site, which is currently permitted by the ADEQ as a small landfill (less than 20 tons of MSW daily, annual average). The Landfill area encompasses a four-acre parcel. The Landfill is open by appointment on the second Thursday of the month from 11:00 A.M. to 2:00 P.M starting May 8, 2014. The City allows residents to leave brush and vegetative wastes at the site, which are then chipped into mulch at the site. However, the Landfill does not accept C&D materials. The Town currently is disposing of its MSW collected within the Town at the RRLF and SELF.

**3.4 LANDFILL DISPOSAL AND CAPACITY**

**3.4.1 Landfill Disposal**

Exhibit 8 Exhibit 8 shows MSW disposed at the RRLF and tipping fee revenues received at the RRLF from 2008 to 2014. Exhibit 9 lists the non-paid tons received at the RRLF. Exhibit 10 Exhibit 10 lists the top 25 customers of the RRLF during the last fiscal year.

**Exhibit 8. Solid Waste and Revenues Received By Santa Cruz County, RRLF, 2008-2014**

Year	Total Tons	Total Revenues (\$)
2008	63,175	2,004,160
2009	49,881	1,488,960
2010	35,154	671,048
2011	32,559	809,590
2012	24,098	829,881
2013	37,529	1,051,359
2014*	33,744	1,327,464

\*Partial Fiscal Year (July 1 – April, 2014)

Source: Santa Cruz County, 2014

**Exhibit 9. Non-Paid Tons Santa Cruz County, RRLF, 2007-2014**

Fiscal Year	Customer						Total
	Avatar	Manny	Borderland	SCC	SELF	Tubac	
2007	1,947	1	1,560	1,708	482	0	5,698
2008	1,978	28	1,722	1,940	1,076	446	7,190
2009	225	0	2,806	3,549	1,017	481	8,078
2010	194	0	1,259	617	1,016	515	3,601
2011	124	0	1,757	177	129	436	2,623
2012	154	0	1,536	154	0	343	2,187
2013	78	0	3,117	133	0	288	3,616
2014*	0	0	1,082	139	0	224	1,399

\*Year to date (March)

Source: Santa Cruz County, 2014

**Exhibit 10. County's Top 25 Solid Waste Customers, RRLF, Fiscal Year 2013 (July 1- June 30)**

Rank	Customer	Tons	Revenues (\$)
1	Red Feather Technical Solutions LLC	11,239	270,091
2	Cash	5,086	224,718
3	Canyon Disposal	4,970	201,926
4	Borderland Food Bank	3,096	0
5	Waste Management	1,755	70,463
6	Rio Rico Sanitation	1,311	52,190
7	Age Contracting	1,115	44,566
8	County Public Works	973	38,890
9	Tri Car Sales	673	26,285
10	County Flood Control	636	25,440
11	Rock and Roll Rolloff	509	20,226
12	Tubac Transfer Station	306	0
13	Nacquin Precision Earth Moving	305	12,610
14	Big Chuy	305	12,161
15	Chamberlain	285	11,380
16	Agri Packing	242	9,769
17	Vegi Inc.	239	9,508
18	Delta Fresh	183	7,278
19	G Mendez and Company	161	6,507
20	Calixtro	129	5,150
21	Affordable Mini Rolloff	119	4,775
22	The Guimarra Company	111	4,440
23	Saguaro Environmental	104	4,148
24	International Boundary Waters Commission	101	4,049
25	Patagonia Lake	92	3,677
All Others		88	3,167
<b>Totals</b>		<b>35,496</b>	<b>1,051,359</b>

Source: Santa Cruz County, 2014

**3.4.2 Landfill Disposal Capacity**

Landfill capacity calculations are typically developed by local solid waste agencies to help plan for future solid waste disposal capacity needs, as well as providing an estimate of present and projected tipping fees that will be used to support the operations of the solid waste system.

Many agencies use aerial photography to monitor changes in the landfill by comparing the differences in capacity volumes from year to year; others conduct these flyovers only periodically. The estimated net remaining airspace at a landfill is calculated based on the proposed final contours for the landfill operations permit. Waste disposal quantities are then used to estimate the average in-place density of the waste and volume of cover materials for closure. Then, by comparing the ground elevations provided in the aerial topographic survey and the proposed final contours of the original landfill design, an estimate can be made of the gross

remaining airspace available for placement of waste material, cover soils, and the closure cap. Since 2001, the Department has been conducting this study on a five-year cycle.

Exhibits 11 and 12 show the most recent remaining capacities for the Rio Rico and Sonita-Elgin Landfills, respectively, as of June 30, 2013. This data estimates that with current waste generation trends, the Rio Rico Landfill will reach capacity between July 1, 2039 and June 30, 2040. Similarly, the Sonita-Elgin Landfill is estimated to reach capacity between July, 1, 2128 and June 30, 2129.

**Exhibit 11. Waste Disposal Capacity and Remaining Life Calculations for Fiscal Year 2013, Rio Rico Landfill**

Fiscal Year (FY)	FY Start Date	FY End Date	Annual Waste Disposed (tons)	Remaining Disposal Capacity on June 30 (tons)	Comments
2012	-	23-Aug-11	-	979,000	Based on Annual Disposal Records for FY 2011
	24-Aug-11	30-Jun-12	19,445	959,555	Based on Annual Disposal Records for FY 2012
2013	1-Jul-12	30-Jun-13	26,470	933,085	Based on Annual Disposal Records for FY 2013
2014	1-Jul-13	30-Jun-14	26,735	906,351	Future Disposal Rates - Assumes 1% growth
2015	1-Jul-14	30-Jun-15	27,269	879,081	Future Disposal Rates - Assumes 2% growth
2016	1-Jul-15	30-Jun-16	27,815	851,266	
2017	1-Jul-16	30-Jun-17	28,371	822,895	
2018	1-Jul-17	30-Jun-18	28,938	793,957	
2019	1-Jul-18	30-Jun-19	29,517	764,440	
2020	1-Jul-19	30-Jun-20	30,108	734,332	
2021	1-Jul-20	30-Jun-21	30,710	703,622	
2022	1-Jul-21	30-Jun-22	31,324	672,298	
2023	1-Jul-22	30-Jun-23	31,950	640,348	
2024	1-Jul-23	30-Jun-24	32,589	607,758	
2025	1-Jul-24	30-Jun-25	33,241	574,517	
2026	1-Jul-25	30-Jun-26	33,906	540,611	
2027	1-Jul-26	30-Jun-27	34,584	506,027	
2028	1-Jul-27	30-Jun-28	35,276	470,751	
2029	1-Jul-28	30-Jun-29	35,981	434,770	
2030	1-Jul-29	30-Jun-30	36,701	398,069	
2031	1-Jul-30	30-Jun-31	37,435	360,634	
2032	1-Jul-31	30-Jun-32	38,184	322,450	
2033	1-Jul-32	30-Jun-33	38,947	283,502	
2034	1-Jul-33	30-Jun-34	39,726	243,776	
2035	1-Jul-34	30-Jun-35	40,521	203,255	
2036	1-Jul-35	30-Jun-36	41,331	161,924	
2037	1-Jul-36	30-Jun-37	42,158	119,766	
2038	1-Jul-37	30-Jun-38	43,001	76,765	
2039	1-Jul-38	30-Jun-39	43,861	32,904	Reaches Capacity sometime between July 1, 2039 and June 30, 2040.
2040	1-Jul-39	30-Jun-40	44,738	(11,835)	

Source: SCS Engineers, 2013

**Exhibit 12. Waste Disposal Capacity and Remaining Life Calculations for Fiscal Year 2013, Sonita-Elgin Landfill**

Fiscal Year (FY)	Start Date	End Date	Annual Waste Disposed (tons)	Remaining Disposal Capacity on June 30 (tons)	Comments
2008	-	12-Dec-07		177,296	Remaining Capacity as of December 12, 2007 - 243,930 CY. Assumes a 20% waste:soil ratio, 1350 lb/cy compaction and a 3' cap. Based on Airspace Calculations from Aerial Topographic Map dated 12/12/2007.
	12-Dec-07	30-Jun-08	1,060	176,236	Pro-rated for this date range based on known waste disposal July 1, 2007 - June 30, 2008 (i.e. 1925/365 = 5.27 Tons/day x 201 days).
2009	1-Jul-08	30-Jun-09	1,060	175,176	Based on Annual Disposal Records from SCC
2010	1-Jul-09	30-Jun-10	761	174,415	
2011	1-Jul-10	30-Jun-11	562	173,853	Based on Annual Disposal Records for FY 2013 Future Disposal Rates - Assumes 1% growth Future Disposal Rates - Assumes 2% growth, and a maximum of 1,500 Tons/Year.
2012	1-Jul-11	30-Jun-12	1,241	172,612	
2013	1-Jul-12	30-Jun-13	1,500	171,112	
2014	1-Jul-13	30-Jun-14	1,500	169,612	
2015	1-Jul-14	30-Jun-15	1,500	168,112	
2016	1-Jul-15	30-Jun-16	1,500	166,612	
2017	1-Jul-16	30-Jun-17	1,500	165,112	
2018	1-Jul-17	30-Jun-18	1,500	163,612	
2019	1-Jul-18	30-Jun-19	1,500	162,112	
2020	1-Jul-19	30-Jun-20	1,500	160,612	
2021	1-Jul-20	30-Jun-21	1,500	159,112	
2022	1-Jul-21	30-Jun-22	1,500	157,612	
2023	1-Jul-22	30-Jun-23	1,500	156,112	
2024	1-Jul-23	30-Jun-24	1,500	154,612	
2025	1-Jul-24	30-Jun-25	1,500	153,112	
2026	1-Jul-25	30-Jun-26	1,500	151,612	
2027	1-Jul-26	30-Jun-27	1,500	150,112	
2028	1-Jul-27	30-Jun-28	1,500	148,612	
2029	1-Jul-28	30-Jun-29	1,500	147,112	
2030	1-Jul-29	30-Jun-30	1,500	145,612	
2031	1-Jul-30	30-Jun-31	1,500	144,112	
2032	1-Jul-31	30-Jun-32	1,500	142,612	
2033	1-Jul-32	30-Jun-33	1,500	141,112	
2034	1-Jul-33	30-Jun-34	1,500	139,612	
2035	1-Jul-34	30-Jun-35	1,500	138,112	
2036	1-Jul-35	30-Jun-36	1,500	136,612	
2037	1-Jul-36	30-Jun-37	1,500	135,112	
2038	1-Jul-37	30-Jun-38	1,500	133,612	
2039	1-Jul-38	30-Jun-39	1,500	132,112	
2040	1-Jul-39	30-Jun-40	1,500	130,612	
2041	1-Jul-40	30-Jun-41	1,500	129,112	
2042	1-Jul-41	30-Jun-42	1,500	127,612	
2043	1-Jul-42	30-Jun-43	1,500	126,112	
2044	1-Jul-43	30-Jun-44	1,500	124,612	
2045	1-Jul-44	30-Jun-45	1,500	123,112	
2046	1-Jul-45	30-Jun-46	1,500	121,612	
2047	1-Jul-46	30-Jun-47	1,500	120,112	
2048	1-Jul-47	30-Jun-48	1,500	118,612	
2049	1-Jul-48	30-Jun-49	1,500	117,112	
2050	1-Jul-49	30-Jun-50	1,500	115,612	
2051	1-Jul-50	30-Jun-51	1,500	114,112	
2052	1-Jul-51	30-Jun-52	1,500	112,612	
2053	1-Jul-52	30-Jun-53	1,500	111,112	
2054	1-Jul-53	30-Jun-54	1,500	109,612	
2055	1-Jul-54	30-Jun-55	1,500	108,112	
2056	1-Jul-55	30-Jun-56	1,500	106,612	
2057	1-Jul-56	30-Jun-57	1,500	105,112	
2058	1-Jul-57	30-Jun-58	1,500	103,612	
2059	1-Jul-58	30-Jun-59	1,500	102,112	
2060	1-Jul-59	30-Jun-60	1,500	100,612	
2061	1-Jul-60	30-Jun-61	1,500	99,112	
2062	1-Jul-61	30-Jun-62	1,500	97,612	
2063	1-Jul-62	30-Jun-63	1,500	96,112	
2064	1-Jul-63	30-Jun-64	1,500	94,612	
2065	1-Jul-64	30-Jun-65	1,500	93,112	
2066	1-Jul-65	30-Jun-66	1,500	91,612	
2067	1-Jul-66	30-Jun-67	1,500	90,112	
2068	1-Jul-67	30-Jun-68	1,500	88,612	
2069	1-Jul-68	30-Jun-69	1,500	87,112	
2070	1-Jul-69	30-Jun-70	1,500	85,612	
2071	1-Jul-70	30-Jun-71	1,500	84,112	
2072	1-Jul-71	30-Jun-72	1,500	82,612	
2073	1-Jul-72	30-Jun-73	1,500	81,112	
2074	1-Jul-73	30-Jun-74	1,500	79,612	
2075	1-Jul-74	30-Jun-75	1,500	78,112	
2076	1-Jul-75	30-Jun-76	1,500	76,612	
2077	1-Jul-76	30-Jun-77	1,500	75,112	
2078	1-Jul-77	30-Jun-78	1,500	73,612	
2079	1-Jul-78	30-Jun-79	1,500	72,112	
2080	1-Jul-79	30-Jun-80	1,500	70,612	
2081	1-Jul-80	30-Jun-81	1,500	69,112	
2082	1-Jul-81	30-Jun-82	1,500	67,612	
2083	1-Jul-82	30-Jun-83	1,500	66,112	
2084	1-Jul-83	30-Jun-84	1,500	64,612	
2085	1-Jul-84	30-Jun-85	1,500	63,112	
2086	1-Jul-85	30-Jun-86	1,500	61,612	
2087	1-Jul-86	30-Jun-87	1,500	60,112	
2088	1-Jul-87	30-Jun-88	1,500	58,612	
2089	1-Jul-88	30-Jun-89	1,500	57,112	
2090	1-Jul-89	30-Jun-90	1,500	55,612	
2091	1-Jul-90	30-Jun-91	1,500	54,112	
2092	1-Jul-91	30-Jun-92	1,500	52,612	
2093	1-Jul-92	30-Jun-93	1,500	51,112	
2094	1-Jul-93	30-Jun-94	1,500	49,612	
2095	1-Jul-94	30-Jun-95	1,500	48,112	
2096	1-Jul-95	30-Jun-96	1,500	46,612	
2097	1-Jul-96	30-Jun-97	1,500	45,112	
2098	1-Jul-97	30-Jun-98	1,500	43,612	
2099	1-Jul-98	30-Jun-99	1,500	42,112	
2100	1-Jul-99	30-Jun-00	1,500	40,612	
2101	1-Jul-00	30-Jun-01	1,500	39,112	
2102	1-Jul-01	30-Jun-02	1,500	37,612	
2103	1-Jul-02	30-Jun-03	1,500	36,112	
2104	1-Jul-03	30-Jun-04	1,500	34,612	
2105	1-Jul-04	30-Jun-05	1,500	33,112	
2106	1-Jul-05	30-Jun-06	1,500	31,612	
2107	1-Jul-06	30-Jun-07	1,500	30,112	
2108	1-Jul-07	30-Jun-08	1,500	28,612	
2109	1-Jul-08	30-Jun-09	1,500	27,112	
2110	1-Jul-09	30-Jun-10	1,500	25,612	
2111	1-Jul-10	30-Jun-11	1,500	24,112	
2112	1-Jul-11	30-Jun-12	1,500	22,612	
2113	1-Jul-12	30-Jun-13	1,500	21,112	
2114	1-Jul-13	30-Jun-14	1,500	19,612	
2115	1-Jul-14	30-Jun-15	1,500	18,112	
2116	1-Jul-15	30-Jun-16	1,500	16,612	
2117	1-Jul-16	30-Jun-17	1,500	15,112	
2118	1-Jul-17	30-Jun-18	1,500	13,612	
2119	1-Jul-18	30-Jun-19	1,500	12,112	
2120	1-Jul-19	30-Jun-20	1,500	10,612	
2121	1-Jul-20	30-Jun-21	1,500	9,112	
2122	1-Jul-21	30-Jun-22	1,500	7,612	
2123	1-Jul-22	30-Jun-23	1,500	6,112	
2124	1-Jul-23	30-Jun-24	1,500	4,612	
2125	1-Jul-24	30-Jun-25	1,500	3,112	
2126	1-Jul-25	30-Jun-26	1,500	1,612	
2127	1-Jul-26	30-Jun-27	1,500	112	
2128	1-Jul-27	30-Jun-28	1,500	(1,388)	Reaches Capacity sometime between July 1, 2128 and June 30, 2129. See below for details.
2129	1-Jul-28	30-Jun-29	1,500	(2,888)	

Source: SCS Engineers, 2013

### 3.5 COUNTY SOLID WASTE SYSTEM OPERATIONS

A brief review of current solid waste system operations is provided in this section.

#### 3.5.1 Staffing

The County Department of Public Works (PW) is responsible for the operation of the Solid Waste System, with management the responsibility of the Solid Waste Division (Division). The Division includes seven full-time equivalent (FTE) employees, one part-time employee, (PTE) and three temporary employees (Exhibit 13). The staffing includes the following classifications: Solid Waste Manager, Landfill Operations Foreman, Heavy Equipment Operator, Maintenance Worker, Landfill Spotter, and a Fee Shed Attendant. The Assistant Foreman position is currently vacant.

#### Exhibit 13. Department Organizational Chart

Source: Santa Cruz County Solid Waste Division, 2014

#### 3.5.2 Levels of Service

Exhibit 14 shows the levels of service provided to the public for various facilities of the County’s Solid Waste System. It is important to note that the two PTEs and one PTE at the SELF and the Transfer Station are really FTE, but they only work at these facilities on the days they are open. The remainder of their time is covered by the RRLF budget.

#### Exhibit 14. System Levels of Service

Facility	Staffing	Days of Operation
Rio Rico Landfill	8 Full Time Employees	Mon-Sat
Sonita-Elgin Landfill	2 Part Time Employees	Thurs, Fri, Sat
Tubac-Amado Transfer Station	1 Part-time Employee	Sat, Sun, Mon
Patagonia Recycling Drop Off Station	Unattended	Mon-Sun

Source: Santa Cruz County Solid Waste Division, 2014

### 3.6 EQUIPMENT

Appendix A includes a listing of the Division’s equipment and estimated appraisal value. As shown, the Department owns 14 major pieces of equipment, primarily for use at the Rio Rico Landfill, as well 29 miscellaneous recycling trailers and containers. The Division estimates that current fleet and equipment needs over the 30-year planning period to be \$3.1 million taking into account estimated replacement costs.

A review of the equipment logs maintained by the Division suggests that many major pieces of equipment will need to be replaced in upcoming years. Several pieces of equipment (compactor, and dozers) have required expensive rehabs to extend their service life. For example, the Caterpillar 826G compactor and Caterpillar 963G wheeled loader have required service repairs

amounting to \$260,157 and \$244,473, respectively in the last two fiscal years (2013 and 2014). In addition the 826G Compactor was rebuilt in 2007 at a cost of \$225,600.

In 2013, the Department employed a licensed appraiser (Dugan) to estimate the resale value of the equipment, in the event the County chooses in the future to privatize the solid waste system. Using best appraisal practices, Dugan estimated the current value of the equipment at \$614, 233.

## 3.7 AGREEMENTS

### 3.7.1 Flow Control Legislation

One of the more critical issues facing public officials pursuing solid waste and recycling projects is what is commonly termed “waste flow control.” In essence, each community must be able to assure those who will be operating its facility and the financial underwriters for such a project that the solid waste or recyclables generated from residential, commercial, and industrial establishments within the community will be available on a long-term basis to supply the facility. Without control of the solid waste stream, there is the potential for solid waste from the community to be diverted to other processing or disposal facilities in the region. This could be an unacceptable situation because revenues from both tipping fees and the sale of electricity and/or recovered materials are the main collateral for the financing the construction and long-term operation of such solid waste facilities.

Waste flow control has been a controversial issue in recent years in the United States. Simply put, many local governments favor waste flow control and solid waste haulers and the waste recycling industry are opposed. The latter group argues against the imposition of monopolistic waste flow control measures by local government for solid waste facilities because these measures threaten to reduce their traditional access to recyclable materials available for extraction from the waste stream, thus leading to a reduction in revenue and profit. Representatives of waste haulers have asserted that diversion of materials from a community’s waste stream via a recycling program typically benefit rather than impair the financial integrity of solid waste programs because the size and capital costs of such facilities could be reduced through initiation of waste flow reduction programs.

Local government agencies in the United States are empowered to exercise legal or regulatory authority over the collection, removal, and disposal of solid waste generated by citizens and businesses in their areas of jurisdiction. Courts have long upheld the rights of governments to adopt reasonable regulations in this regard since property rights are considered to be superseded by local government’s police powers. That being said, the County has not enacted any solid waste flow control legislation to prohibit the transport and disposal of MSW at facilities not owned or operated by the County or those located outside the County.

### 3.7.2 Inter-Governmental Agreements

Over the years, the County and the City of Nogales have entered into inter-local agreements for the operation of the RRLF. The most recent inter-local agreement was signed in 2005 for the purpose of establishing a Regional Solid Waste Authority (RSWA). The purpose of the RSWA

was to take over the solid waste disposal function for the County, City, and the Town of Patagonia. However, the parties were unable to develop the RSWA, and the interlocal agreement terminated after one year, in February 28, 2006.

**3.7.3 Federal Agreements**

The County and the BLM entered into a lease agreement (“Recreation or Public Purposes Lease”) on January 29, 1970 for the 40-acre property where the Sonita-Elgin Landfill was eventually developed. The agreement mandates conformance with existing Federal and State solid waste regulations and specific permit conditions. The County is required to pay an annual rental fee of \$10.00 for the use of property for a landfill.

The lease agreement is silent on whether or not it can be transferred to another party, especially if the County decides to privatize all its solid waste facilities at some time in the future. As of this report, the County has requested a formal determination from the BLM on the limits of the lease with BLM, what the County can do, and more importantly, what it cannot do with regards to privatization of the SELF. Discussions have also been initiated with local Congressional offices on what it would take to gain congressional action to turn the parcel over to the County.

**3.8 COMPARISON OF REGIONAL LANDFILL AND TRANSFER STATION TIPPING FEES**

Exhibit 15 Exhibit 15 provides a brief comparison of landfill and ancillary solid waste facilities across Arizona.

**Exhibit 15. Comparison of Current Landfill and Transfer Station Tipping Fees**

County or City	Facility	\$/Ton	Other Facility Fees	Comments
Cochise County	Landfill	52.00	\$2.00 Per Bag \$4.00 Per Car 7.00 Per Pickup	Public
Gila County	Russell Gulch Landfill	39.41 Residential 47.03 Commercial 34.50 Green Waste	5.00 Minimum Charge	Public
Graham County	Regional Landfill	42.00 + 5% Landfill Closure Fee		Public

	Transfer Station		2.00 Per Bag 5.00 Second Bag 15.00 Trailer 20.00 Pickup of Double Axle Vehicle	
Maricopa County	Butterfield Station Landfill City of Glendale	27.00  15.79 Residents 32.25 Non Residents	No Charge <2,000 Pounds Self Hauled 12.00 White Goods 10.00 Per Computer Monitor/Television	Public Landfill  Private Landfill  Tires Not Accepted
	Salt River Landfill	38.00 40.00 Palm Fronds	35.00 Per Ton Special Handling Fee +Tipping Fee 38.00 Per Ton Appliances + 10.00 Freon Discharge Fee	Private Landfill
	Southwest Regional Landfill	No Data Available		Private Landfill
Pima County	Los Reales Landfill	32.00	15.00 Per Load (<1 Ton); 2.00 Per Tire	Public Landfill
	Marina Landfill	25.50 (MSW, Green Waste and C&D)	40.00 large self haul loads; 12.00 small loads, 10.00 < 1ton	Private Landfill
	Sahuarita Landfil *	32.50		Public
	Tangerine Landfill	Closed	15.00 Per Vehicle	Public

\*Will soon close according to Pima County

Source: SCS Engineers, 2014

## 3.9 ADDITIONAL BACKGROUND STUDIES

Additional studies have been performed for the County's solid waste system, which are briefly summarized below.

### 3.9.1 Materials Recovery Feasibility Study

In 1992, SCS was engaged by the County to conduct a brief review of the feasibility and physical arrangements necessary for MSW composting. Windrow and stacked aerobic composting arrangement were analyzed. SCS recommended the development of a pilot composting program to verify the costs of operation in the County.

### 3.9.2 Compost Facility Feasibility Study

In 1997, SCS performed a Compost Facility Feasibility Study. This study evaluated several composting technologies including windrow composting, aerated pile composting, and in-vessel composting. After analysis of the County's waste stream, SCS concluded that the volume of spoiled organics currently landfilled would require a large amount of bulking agents for composting. However, limited bulking agents were located within close proximity to the RRLF. Further, the location of the residential housing subdivisions downwind (south) of the Landfill would create a significant potential for odor problems.

The report developed a series of land requirements for different types of composting technologies as well as capital costs. Briefly, the report concluded that composting in 1999 dollars was relatively expensive for the County and other methods of disposal of spoiled produce wastes should be further investigated. The authors of the report recommended that easily separable yard waste at the Landfill should be considered as alternative daily cover.

### 3.9.3 Fatal Flaw Analysis for Conceptual Alternative Facilities

SCS was retained by the County in 2007 to provide an overview and analysis of various MSW disposal alternatives. At that time, the County was experiencing higher than anticipated population growth, which could exhaust the existing design capacity of the RRLF, thereby requiring the County to initiate Landfill closure activities in 2013 unless alternative disposal capacity or facilities could be implemented.

SCS reviewed commercially feasible and innovative waste conversion technologies for MSW disposal. Based on discussions with the County, nine MSW disposal alternatives were explored for further evaluation. These included the following:

- Landfill expansion at the RRLF.
- Retrofitting the Patagonia and/or the SELF.
- Transfer Station at the RRLF.
- Materials Recovery Facility (MRF).
- MRF and Transfer Station.
- Waste-to-Energy Facility.

- Composting.
- Anaerobic Digestion.

The technical, environmental, and economic advantages and disadvantages of these eight alternatives were then assessed. Based on this analysis, the most feasible options were ranked from highest to lowest costs:

1. Existing landfills in the County offer the most cost effective alternative and should be included for consideration in the next phase of the study (Rio Rico and Town of Patagonia Landfills).
2. Next lowest cost alternative were consideration of a MRF and/or transfer station. A stand-alone facility or in combination with an existing landfill should be included as an option for detailed analysis in the next phase of the study.
3. The last and most expensive of the three disposal options evaluated was consideration to site a new landfill somewhere in Santa Cruz County.

#### **3.9.4 Feasibility Study for Alternative Solid Waste Facilities Phase II**

To assist the County in its decision-making process, SCS was retained in April 2007 to provide closer examination of the highest ranking options included in the Phase I study, including possible landfill designs and their costs. These included a review of a vertical expansion of the RRLF, a retrofit of the Town of Patagonia Landfill, and development of a new landfill in the County. Development design concepts were prepared for each alternative followed up with engineering volume calculation and initial cost estimates.

The study concluded that with various design configurations (lateral and vertical expansion of the footprint) the capacity gain varies between four and 17 years with the vertical expansion of the RRLF being the most economically feasible to implement initially (Exhibit 16Exhibit 15).

The report also included recommendations for the County to consider expansion of its recycling program by increasing the number of recycling centers within the County, and the existing recycling facility at the RRLF.

#### **3.9.5 Landfill Gas-to-Energy Feasibility**

In 2009, the County was awarded a Technical Assistance Grant from the North American Development Bank to study the feasibility of recovering LFG from the RRLF. The objective of this study was to assess the technical, economic, institutional, and regulatory viability of this project. At the time of the study, the consultants estimated that approximately 707,000 tons of MSW had been disposed at the RRLF based on recordkeeping started in 1996.

The feasibility study indicated that the LFG-to-energy project (LFGE) could potentially provide the County with a net profit of \$10 million, including debt service, and assuming base energy sales at \$0.075 per kilowatt hour to a private energy purchaser needing renewable energy credits. Due to the perceived risks to the County with regards to the energy purchase, the BOS decided in

January 2013 to terminate negotiations with the energy purchaser and to terminate the project.

**Exhibit 16. Comparisons of Conceptual Alternative Facilities**

	Capital Costs	O&M Costs	Engineering Costs	Environmental and Social Factors	Process Reliability and Risk Assessment	Overall Assessment
<b>Landfill Expansion at Rio Rico</b>	\$200,000 to \$400,000 per acre.	\$5 to \$25 per ton.	\$300,000 to \$500,000.	Site already approved as landfill, and has been accepted by the community.	Landfill disposal has been determined to be reliable, when properly designed.	Landfills are typically less expensive, but environmentally unacceptable due to aesthetics,
<b>Retrofitting Patagonia and/or SELF</b>	\$300,000 to \$800,000 per acre.	\$5 to \$25 per ton.	\$500,000 to \$1,000,000.	Site already approved as landfill, and has been accepted by the community.	Landfill disposal has been determined to be reliable, when properly designed.	Landfills are typically less expensive, but environmentally unacceptable due to aesthetics, odors, and vectors.
<b>New Landfill</b>	\$600,000 to \$800,000 per acre.	\$5 to \$25 per ton	\$1,000,000 to \$1,500,000.	Location of potential sites could present environmental challenges, but can be permitted. Public may oppose to landfill locations.	Landfill disposal has been determined to be reliable, when properly designed.	Landfills are typically less expensive, but environmentally unacceptable due to aesthetics, odors, and vectors.
<b>Transfer Station at Rio Rico</b>	\$1,000,000 to \$2,000,000 per 100 tons per day.	\$30 to \$40 per ton.	\$500,000 to \$1,000,000.	Increased traffic (potential air pollution). Can be permitted. Jobs created at the transfer station will replace those lost at closed	Process has been proven to be reliable.	Transfer station offers lower collection costs, reduced fuel and maintenance costs and the opportunity to recover recyclables and compostables at the transfer
<b>Material Recovery Facility</b>	\$5,000,000 to \$10,000,000.	\$30 to \$40 per ton.	\$500,000 to \$1,000,000.	Land conservation (by reducing MSW going to landfills). Can be permitted. Will affect current individual recyclers.	Process has been proven to be reliable and low risk.	Has been implemented commercially for many years, and can be implemented immediately at local level.
<b>Material Recovery Facility/Transfer Station</b>	\$6,000,000 to \$12,000,000.	\$30 to #40 per ton.	\$500,000 to \$1,000,000.	Same as described above, for transfer stations and MRF.	Same as described above, for transfer stations and MRF.	Same as described above, for transfer stations and MRF.
<b>Waste To Energy</b>	\$150,000,000 to \$200,000 per ton.	\$100 to \$150 per ton.	\$2,000,000 to \$3,000,000.	Air permit difficult to obtain. Facility siting very difficult.	Somewhat reliable, based on limited facilities.	Expensive alternative and limited reliability.
<b>Composting</b>	\$243,000 to \$6,750,000.	\$23 to \$54 per ton.	\$500,000 to \$1,000,000.	Runoff may be contaminated. Process creates odor problems.	Proven technology; however, difficult to control odors, and therefore somewhat risky.	Based on 1997 study, not cost feasible for implementation in Santa Cruz County.
<b>Anaerobic Digestion</b>	\$90,000 to \$245,000 per ton.	\$65 to \$75 per ton.	\$2,000,000 to \$3,000,00.	Relatively easy to acquire environmental permits. Generated electricity can be used by the local community.	Facility designs are relatively new. The majority of the existing facilities are outside the United States.	Expensive alternative and unproven for large facilities (greater than 75 tons per day).

Notes: O&M Costs do not include debt service.

## 4.0 FUTURE ENVIRONMENTAL ISSUES

The air quality and greenhouse gas (GHG) regulatory framework at the federal level is currently in a state of flux with respect to landfills. The landfill industry awaits the issuance of a revised version of the MSW Landfill New Source Performance Standards (NSPS) under 40 Code of Federal Regulations (CFR), Part 60, Subpart WWW. At the same time, the industry is awaiting a final legal decision on whether biogenic (manmade) emissions must be counted as regulated greenhouse gases (carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride) and subject to all of the requirements of the Clean Air Act (Prevention of Significant Deterioration (PSD) and Title V permitting programs).

Recently, the U.S. Environmental Protection Agency (USEPA) issued changes to the GHG mandatory reporting rule (MRR) promulgated under 40 CFR Part 98, which directly affect MSW landfills and take effect for 2014. Collectively, these regulatory changes are expected to alter the way landfills are regulated for the foreseeable future with a potential to add additional compliance costs for landfill owners.

### 4.1 EXISTING LANDFILL EMISSION REGULATIONS

On March 12, 1996, the USEPA promulgated LFG emissions rules under the Federal Clean Air Act (CAA). The intent of the NSPS and Emission Guidelines (EG) was to reduce emissions of LFG gas, which is composed of non-methane organic compounds (NMOCs) and methane. Compliance requirements are based on the design capacity of the landfill and its NMOC emission rate (tons per year) calculated by the USEPA Landfill Emissions Model.

Landfills that exceed the NMOC emissions limit are required to install a LFG collection system to extract and combust LFG (e.g., in a flare, boiler, or engine generator). Operations, monitoring, record keeping, and reporting for the installed collection system must be in accordance with the stated requirements. Specific provisions of the NSPS and EG are summarized below:

#### 4.1.1 New Source Performance Standards (NSPS)

NSPS Standards include the following requirements:

- Applies to all "new" landfills. A new landfill is defined as each MSW landfill that started construction, or began initial waste acceptance on or after May 30, 1991. An existing landfill modification (i.e., a lateral expansion) that occurred between May 30, 1991 and March 12, 1996 also subjects the whole landfill to the NSPS.
- Within 30 months after an MSW landfill calculates an NMOC emission rate >50 megagrams (Mg) per year, the provisions of the rule require installation and start-up of a gas collection and control system at the landfill.

#### 4.1.2 Emission Guidelines

Emission guidelines include all "existing" MSW landfills that satisfy two conditions:

- The landfill received waste on or after November 8, 1987 or has additional permitted capacity which may be filled in the future.
- The construction, modification, or reconstruction of the landfill began before the proposal date of May 30, 1991.

The requirements of the emission guidelines are almost identical to those of the NSPS. Distinguishing characteristics of the EG and NSPS are as follows:

- Applicability criteria are for "existing" landfills.
- There is flexibility for a State- implemented emission standard.
- Arizona was required to develop a plan to implement the requirements of an EG.
- The EG implementation schedule is similar to that of the NSPS:
- Capacity and Emission Reports within 90 days of the EG effective date.
- Design Plan within one year of the NMOC Emission Report.
- Start-Up within 30 months of state plan approval by U.S. EPA.

#### **4.1.3 Title V Operating Permits**

Any facility with a design capacity exceeding 2.5 million Mg must obtain a Title V operating permit, whether or not the 50 Mg per year NMOC threshold is exceeded (Exhibit 17).

#### **4.1.4 Current Conditions at RRLF**

As noted in the paragraphs above, the NSPS Guidelines are not triggered unless a landfill design capacity exceeds 2.5 million cubic meters. The 2003 RRLF permit modification performed by SCS stated that the design capacity of the RRLF was 1,917,993 cubic yards. The vertical expansion increases the estimated design capacity by an estimated 931,519 cubic yards for a total design capacity of 2,849,512 or 2,178,526 cubic meters at landfill closure. Therefore, under the current USEPA standards, the RRLF is not currently subject to the NSPS Guidelines. Similarly, the design capacity of the SELF, which is a magnitude smaller than RRLF, is also not subject to the NSPS Guidelines.

Pursuant to its landfill operating permit for RRLF, the County is required to monitor for LFG and estimate NMOCs. The landfill has a perimeter LFG collection system because it exceeded the 25 percent Lower Explosive Limit (LEL) at the property line in the mid 1990s. When RRLF exceeds the 50 Mg limit for NMOCs, the County will have to mitigate with the expansion of this LFG collection system. This may include completion of the perimeter collection system and installation of horizontal collectors. The recent LFGE feasibility analysis estimated construction costs of \$400,000 to \$500,000 at 2013 dollars. SCS projects need for the LFG collection system by 2025.

**Exhibit 17. Title V Operating Permit Issues**

Exemptions	Maximum design capacity <2.5 million megagrams (Mg) (approximately 2.75 million tons) or 2.5 million m <sup>3</sup> (approximately 3.27 million yd <sup>3</sup> )
Affected MSW Landfills	MSW landfills with design capacity > 2.5 million Mg and annual emissions > 50 Mg (approximately 55 tons) non-methane organic compounds (NMOC)
Disposal Areas Requiring Control	Active areas where the first refuse deposited in the areas has reached an age of 5 years or more or areas closed or at final grade where the first refuse deposited in the area has reached an age of 2 years or more
Surface Monitoring	Quarterly monitoring for surface concentrations not to exceed 500 parts per million (ppm) methane
Emission Control Requirements	Installing a gas collection system and gas utilization or disposal system that achieves a 98 percent reduction of collected NMOC emissions
Implementation Schedule	Design Capacity Reports and Emission Reports (if necessary) are due on June 10, 1996 - Design Plan within one year of the first NMOC Emission Report - Start-Up within 30 months of first NMOC Emission Report for NSPS; 30 months of state plan approval for EG sites.

## 4.2 RECENT MRR CHANGES

### 4.2.1 Background

MSW landfills are categorically required to report annual GHG emissions under 40 CFR Part 98, Subpart HH if they meet the definition of the source category under Subpart HH and their methane generation exceeds 25,000 metric tons of carbon dioxide equivalent (MtCO<sub>2</sub>e). Landfills required to report under the MRR must also meet general reporting requirements (Subpart A), report all stationary combustion, excluding flares (Subpart C), and report other applicable sectors, if present.

### 4.2.2 Major Changes

Major changes in the Technical Corrections that will impact MSW landfills include:

- Changing the global warming potential (GWP) of methane from 21 to 25
- Adding LFG as a fuel type separate from biogas
- Adding an oxygen correction to the first-order methane generation equation
- Reducing the methane monitoring requirement frequency from weekly to monthly

- Allowing variable methane oxidation values based on methane flux through landfill cover
- Refining the emission calculation equations to explicitly allow multiple LFG destruction devices

#### **4.2.3 Anticipated Impact to RRLF**

As indicated by the commentary at the outset, the landfill industry at the time of this writing is truly in a state of flux. The issuance of the new LFG rules by USEPA is expected to have a major impact on the regulatory costs for larger landfills across the United States through new reporting requirements and addition of active LFG collection systems. Smaller landfills like the RRLF will probably need to plan for enhanced LFG monitoring and reporting. As noted in the paragraphs above, the County should make plans to reserve funds for the expansion of its current LFG collection system, possibly in the 2025 time period.

## 5.0 FINANCIAL ANALYSIS

### 5.1 OVERVIEW OF FINANCIAL SYSTEM

A brief review of the County's financial system in relation to solid waste management is provided below.

#### 5.1.1 Cost Centers

The County has a single cost center for the solid waste program (Landfill Program), which encompasses all of the labor, benefits, and miscellaneous expenses to run the RRLF, SELF, Recycling Programs, and the Transfer Station. The Division Manager has developed estimates to allocate the annual budget costs into the individual operating programs.

#### 5.1.2 Fiscal Year

The County's fiscal year (FY) runs from July 1 to June 30.

#### 5.1.3 User Fees

The BOS appointed a six-person Recycling Committee to help provide recommendations with respect to solid waste rates and recycling operations. The Committee, which is made up of two residents from each of the supervisor districts, released their recommendations in October 2013. Their recommendations to the BOS included an increase in overall user fees at the Tubac Transfer Station, the SELF, and the RRLF. Exhibit 18 Exhibit 18 lists the current rate structure approved by the BOS, which went into effect January 10, 2014.

#### 5.1.4 State Fees

The ADEQ has enacted a solid waste fee system in Arizona, which imposes a fee of \$0.25 per ton of all MSW disposed of in state landfills, public or private. The ADEQ also imposes a fee system for review of new landfill or facility permits (renewal fee). These vary by type of facility.

#### 5.1.5 Free Disposal

Based on BOS policy, the Division provides free MSW disposal for County agencies (Animal Control, Law, Parks and Recreation) and an occasional public service for litter clean up along public right of ways. Further, the Borderland Food Bank is provided free disposal (up to 900 tons per year) at the RRLF.

**Exhibit 18. Santa Cruz County User Fees**

ITEM	USER FEE
<b>Rio Rico Landfill</b>	
Commercial	\$45.00/ton
Residential	
0 to 500 lbs	\$ 8.00/ton
Over 500 lbs	\$45.00/ton
Recycling	No Charge
<b>Sonoita Elgin Landfill</b>	
Commercial	\$45.00/ton
Residential	
0 to 500 lbs	\$ 8.00/load
Over 500 lbs	\$45.00/ton
Recycling	No Charge
<b>Tubac Amado Transfer Station</b>	
<b>(Bagged Garbage Only)</b>	
All loads < bed high	\$ 8.00/load
All loads > bed high	\$16.00/load
Recycling	No Charge
<b>Special Waste Handling Fee</b>	
RRLF & SELF	\$45.00/ton
<b>Tires</b>	
Passenger, Light Truck Tires (Registered Tire Dealer)	No Charge
Large Truck Tires (Semi, etc.)	\$150/ton
5+ Passenger, Light Truck Tires (Non-Registered Origin)	\$150/ton
Passenger Tires on Rims	\$ 5.00/tire
<b>White Goods &amp; Bulky Items</b>	
Refrigerators, Furniture, etc.	\$45.00/ton
<b>Special Waste Hauling and Disposal</b>	
Illegal Dumping, Non-Friable Asbestos, etc.	Normal Oper. Hrs. \$45/ton + \$100/hr Outside of Normal Oper. Hrs. Actual Cost of Disposal
<b>Unsecured/Uncovered Load Penalty Fee</b>	
A. Commercial	Double Secured Load Rates
B. Residential	Double Secured Load Rates

Source: Santa Cruz County, 2014.

## 5.2 CURRENT FINANCIAL RESULTS

The following section provides a brief overview of the current County and Division financial results.

### 5.2.1 Operating Costs and Revenues

Exhibit 19 Exhibit 19 lists the annual operating costs and revenues for Fiscal Years 2008-2013.

**Exhibit 19. Annual Operating Costs and Revenues, County Solid Waste System**

Fiscal Year	Revenues (\$)	Expenses (\$)
2008	1,595,774	1,679,300
2009	1,232,539	1,274,368
2010	1,029,050	1,028,148
2011	851,530	1,020,524
2012	1,021,436	850,719
2013	1,074,278	978,999
2014*	827,271	885,289

\*Partial year (July 1, 2013 – April, 2014)

Source: Santa Cruz County, 2014

### 5.2.2 Fund Balance

Exhibit 20 Exhibit 20 lists the beginning fund balance (July 1) for Fiscal Years 2008-2013. It is the County's intent that 70% of gross revenue is used for operations and 30% placed in reserve. However, given the impact of the Great Recession and the loss of solid waste tipping fees from the City of Nogales in 2009 it had to drawn down the reserve fund to balance the books.

**Exhibit 20. Landfill Fund Balance**

Year Beginning July 1	Fund Balance (\$)	
	Landfill	Reserve
2008	0	2,566,234
2009	0	2,799,967
2010	0	2,468,760
2011	0	1,919,852
2012	0	1,216,055
2013	20,419	1,235,195

Source: Ms Jennifer St. Johns, Santa Cruz County, March 3, 2014.

### 5.2.3 Financial Responsibility

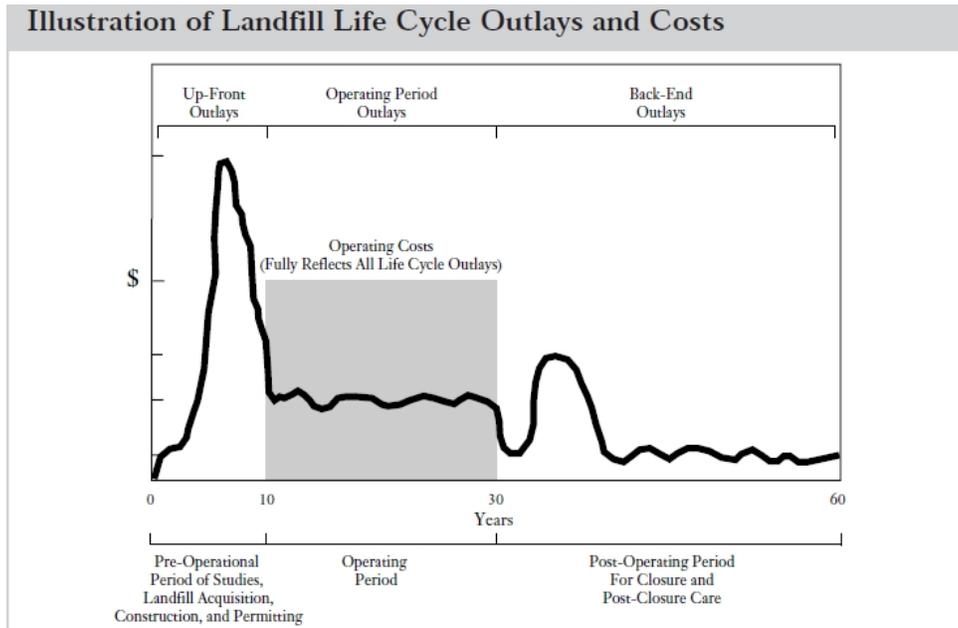
#### 5.2.3.1 Overview

Full-cost accounting (FCA) for landfill management has been advocated by the U.S. Environmental Protection Agency (USEPA) beginning with the promulgation of the landfill disposal regulations in the 1980s. FCA, unlike cash flow accounting, considers direct, indirect (overhead), up-front (past) and back-end (future financial liability) expenses. As shown in Exhibit 21, landfill assets last for many years and exhibit all of these costs, which must be considered in effectively pricing a landfill’s long-term tipping fee.

The Federal landfill regulations (Subtitle D 40 CFR 258) and implementing Arizona regulations mandate specific standards for all owners/operators to follow when closing a landfill and setting up a program of monitoring and maintenance during a 30-year post-closure period.

For 30 years after closure, the owner/operator is responsible for maintaining the integrity of the final cover, monitoring ground water and methane gas, and continuing leachate management. All landfills must also comply with the financial assurance criteria. The owner/operator must demonstrate financial responsibility for the costs of closure, post-closure care, and corrective action for known releases. This requirement can be satisfied by the following mechanisms:

- Trust fund with a pay-in period.
- Surety bond.
- Letter of credit.
- Insurance.
- Guarantee.
- State assumption of responsibility.
- Multiple mechanisms (a combination of those listed above).



**Exhibit 21. Illustration of Landfill Life Cycle Outlays and Costs**

Source: U.S. EPA, 1997.

### 5.2.3.2 Post-Closure Care Period

Existing Federal and State landfill regulations require that consistent monitoring procedures be followed each year during the 30-year post-closure care (PCC) period. This essentially means that the operating entity of the landfill must continue to monitor for groundwater contamination and LFG in a similar fashion as during the pre-closure period.

The 30-year PCC period prescribed in the regulations can be decreased or extended by the Director of the implementing agency of an approved state if it is determined that a change is protective of human health and the environment. Unfortunately, there is little, if any, guidance provided by the USEPA to make this affirmative decision, and if this decision is made, what ground rules can be established on the frequency of monitoring that can be required.

Presently, there is significant uncertainty on the methodology that will be used by State regulators in evaluating whether or not any landfill at the end of its responsibility at the 30-year PCC period will need any additional annual monitoring. Some large agencies and private operators, as well as professional solid waste organizations (Environmental Research and Education Foundation (EREF) and Solid Waste Association of North America (SWANA)), have developed research programs based on analyzing the monitoring data that indicate the performance of the landfill.

### 5.2.4 Santa Cruz County Landfills Financial Responsibility

According to the ADEQ, the vast majority of landfill owners in Arizona demonstrate financial responsibility with either the local government financial test (“LOGO”) or a surety bond:

- 40 CFR 258.74(f): Local Government Financial Test (for landfills owned by cities/counties, like Santa Cruz County). The LOGO requires that the local government must meet two tests: the ratio of its marketable securities to total expenditures must be greater than or equal to 0.05; and its ratio of annual debt service to total expenditures must be less than or equal to 0.20.
- 40 CFR 258.74(b): Surety Bond Guaranteeing Payment or Performance (for landfills owned by private corporations, like Waste Management or Republic Services).

Although these two financial assurance mechanisms are used for well over 90% of the landfill owners in Arizona, any mechanism found in 40 CFR 258.74(a) through (j), including the use of multiple mechanisms (k), is allowed.

Costs must be included for a post-closure care period (generally 30 years) in accordance with 40 CFR 258.72. These costs (as well as closure costs) must be adjusted annually for inflation in accordance with 40 CFR 258.72(a)(2). The latest inflation factor (to be used for fiscal year 2013 FA demonstrations) is 1.49%. ADEQ calculates the inflation factor each year at the end of March when 4th Quarter data from the previous year become available from the US Bureau of

Economic Analysis ([www.bea.gov](http://www.bea.gov)).

The County employs the services of a consulting engineer (SCS) to provide an annual cost estimate for closure and post-closure care for both County landfills. The latest report, which were submitted to ADEQ in 2013, estimated costs as shown in Exhibit 22, assuming that the landfills would close in 2013. The LOGO was attested by the County’s Finance Director and the State’s Auditor General.

**Exhibit 22. Current Financial Responsibility Estimates (\$), Santa Cruz County Landfills**

Landfill	Closure	Annual Post-Closure	Total 30-Years Post Closure Period	Total Closure and 30-Year Post Closure Period
Rio Rico	1,815,575	73,336	2,200,080	4,015,655
Sonita-Elgin	640,281	32,627	978,797	1,639,078

Source: SCS Engineers, 2014.

**5.3 PRO FORMA MODELING**

This section presents SCS’s economic analysis of managing solid waste in the County over a 30-year planning period. SCS developed a Pro Forma Model (Model) specifically for this business case to provide preliminary, planning-level cost estimates, which can be used to evaluate the County’s tipping fees and customer rates and the impact of long-term financial liabilities.

The Model is a spreadsheet program that projects annual revenues and costs to operate, administer, and maintain the System and provides a means for comparing alternative operational, institutional, and facility scenarios. The Model addresses major capital and operational costs to operate the System, as described in more detail in the paragraphs below.

Various assumptions are made regarding yearly solid waste quantities, demographic information, escalation factors for waste growth and costs, administration, personnel and utility costs, transport and processing cost. The costs of various programs and disposal options were estimated using published information on the County’s System, SCS’s experience on other similar projects, input from the private solid waste industry, other published information, and planning-level cost estimates prepared by SCS. The key assumptions are detailed in the following pages.

**5.3.1 Basic Assumptions and Elements of the Pro Forma Model**

A list of major assumptions regarding escalators, interest rates, transportation costs, and other cost elements is presented in Exhibit 23. These assumptions are used throughout the Model, and can be adjusted relatively easily for sensitivity analysis. Other key assumptions regarding waste projections, capital costs and fleet replacement assumptions are presented below.

**Exhibit 23. Major Assumptions Worksheet, County System, Model**

Model Parameters	Assumption	Source/Basis
Planning Period	2015 - 2044	SCS Assumption
Fiscal Year	July 1 - June 30	County Fiscal Reporting System
Waste Flow (Annual)	37,529 (2014)	Division Statistics, Includes Paid and Free Disposal Tons
Consumer Price Index (Inflation rate)	2.3%	Assumed, Last 11-Year Average
Solid Waste Fund Balance (2013 EOY)	\$1,250,000	County
Capital Improvements	\$700,000	SCS Assumption County Fleet Replacement Plan SCS Assumption
Fleet Replacements	\$3,144,573	
Closure and Post-Closure Annual Reserve	\$416,462	

Appendix C contains major worksheets of the Model. The Model contains six basic worksheet modules, which are linked together:

- **Assumptions** – This worksheet contains all of the major assumptions used in calculations throughout the Model.
- **Waste Tonnages** –This worksheet provides historic waste tonnages received (RRLF, SELF, TATS, Sludge, Recycling, Metal, Tires and HHW). An 18-year waste tonnage average for the System was then allocated into the different disposal facilities. And then used as estimates of estimated operating revenues.
- **Cost Center Allocation** – Using data supplied by the Division, the overall System budget was allocated by tons for each disposal facility and estimates made of various major expense items.
- **RRLF and SELF Closure and Post-Closure Care Cost Estimates** – These worksheets utilize SCS’s 2013 financial responsibility report and updates this estimate through the end of the life for both landfills. Estimates of closure and post-closure care costs are provided for three different inflation assumptions (11-year average (2.3%; Higher inflation 3.0%); and Lower Inflation, 1.75%). These spreadsheets are then used to project an annual payment needed to fund the closure and post-closure reserve.
- **Fleet/Equipment Replacement Plan** – This worksheet includes an estimated replacement schedule and estimated replacement costs for the System over the 30-year planning horizon.
- **Pro Forma Model** – Using the results of all the other modules, the Model provides estimates of annual operating revenues, operating expenses, and net surpluses/deficits over the projected 30-year planning horizon.

### 5.3.2 Major Model Findings

Three different Model scenarios were constructed:

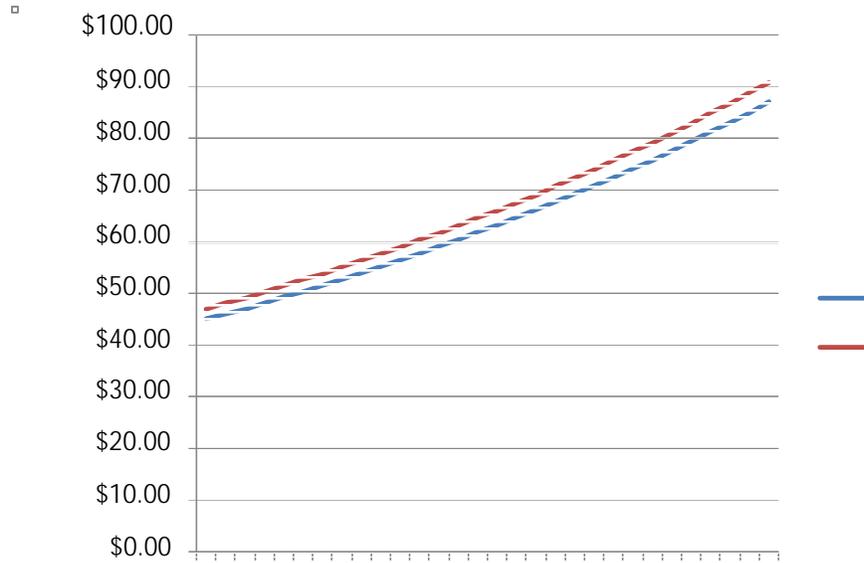
- **No Annual Landfill Tipping Fee and Customer Charge Adjustment** – This scenario assumes that the County would not annually adjust tipping fees and customer charges based on inflation.
- **Annual Landfill Tipping Fee and Customer Charge Adjustment** – This scenario assumes that the County would annually adjust tipping fees and customer charges based on inflation.
- **Tipping Fees and Customer Charges Adjusted For Breakeven System Budget** – This scenario assumes that the County would adjust tipping fees and customer charges to provide a “breakeven budget” for the System.

The first scenario provides the County with a annualized projection of the actual costs of running the System without making adjustments to System tipping fees and customer charges. Scenario two is a more realistic option with tipping fees and customer charges being annually adjusted based on changes in the estimated inflation rate over the 30-year planning period (Exhibit 24). However, the Pro Forma Model indicates that these adjustments are not adequate to provide the System with a “breakeven budget” and also meet all of the required reserve requirements (closure, post closure, equipment, and capital improvements).

Using the Model, we were able to project a breakeven tipping fee to meet the projected expenses and reserves for the entire 30-year planning period. It appears by adjusting the tipping fee from \$45.00 to \$47.00 in FY 2015, and, then annually adjusting the tipping fee by an estimated inflation rate, would enable the System to achieve a “breakeven budget” throughout the entire business casing period.

There are a number of caveats should the County decide to take this System funding approach. If the tipping fee becomes too high, then certain waste generators may find alternative waste disposal locations, and then those wastes may exit the System. The County should look for ways to entice other waste generators to utilize the System (e.g., City of Nogales) through a specially designed, long-term tipping fee to increase waste tonnage and thus improve the System’s economy of scale.

**Exhibit 24. Tipping Fee Projections Under Model Scenarios**



## 6.0 SYSTEM ALTERNATIVES

### 6.1 MANAGEMENT DECISION FACTORS

The decision to self-perform versus outsourcing (privatizing) County solid waste services is complex, and should consider costs as well as the following six major factors:

- Continued level of service and rate control.
- Impacts to public employment.
- Impacts to waste reduction and recycling goals.
- Community pride and public perceptions.
- Organizational values.
- Ability to respond to technological, regulatory, and socio-economic changes.

Evaluating the changes to a County's cost structure from outsourcing or eliminating certain services (e.g., landfill or drop-off station operation) is relatively straightforward. The intangible factors, however, can be just as important as the cost factors in making a decision to outsource services or not. A discussion of the factors that could affect the County's decision to outsource solid waste services is briefly provided below.

- **Level of Service and Control.** Solid waste facilities are particularly vulnerable to public scrutiny regarding "environmental concerns" and some public officials prefer to have more extensive control over the operation of a project than is afforded by private ownership in order to satisfy these public concerns. With public ownership, the County has control over all aspects of System operation and levels of public services. Some public officials prefer to distance themselves from public involvement in such projects and prefer private ownership. However, the community could only have limited control over operation of a privately-owned System. This typically includes only the rights to inspect the facility and require periodic tests to demonstrate guaranteed performance levels. It becomes a subjective decision for the County to weigh the public's reaction to project and rate control when making the ownership decision. For example, some communities have added in agreement clauses to address rate changes pursuant to consumer price index (CPI) adjustments.
- **Impacts to County Employment.** Outsourcing of solid waste services may result in a reduction in a County's work force (salary and benefits). When implementing outsourcing, some positions could be transferred to a private contractor or reassigned within the County. However, it is unlikely that all the positions would transfer to a private company, nor would the benefits provided to the County's staff necessarily be comparable to the pay and benefits currently provided by the County.
- **Impacts to Waste Reduction and Recycling Goals** . Local government in most cases is ultimately responsible for providing the infrastructure and services to meet the state and local recycling goals. Under a County-operated program, the County has direct control over its progress towards these goals and its cost effectiveness. However, under an outsourced solid waste program, a contractor may have incentives

that conflict with these waste reduction goals, depending on the structure of a contract.

- **Community Pride and Public Perception** s. Community pride and public perception are difficult to gauge with respect to solid waste services, except when there are complaints pertaining to problems with the services being provided or inconsistencies or changes in the level of service. The County’s waste management staff is well known throughout the County. Its staff generally takes pride in the services they provide in dealing with special circumstances such as deferring some landfill disposal costs for non-profit organizations or special community events (“free disposal”), or accepting nonhazardous, special wastes from other governmental entities (e.g., public works, County offices, etc.). Outsourcing solid waste services could change public perceptions, although private companies also take pride in the quality of the services they provide as well.
- **Ability to Respond To Technological, Regulatory, and Socio-Economic Changes.** Private companies tend to respond quicker than government agencies to changes in technology (e.g., LFG-to-energy), regulatory initiatives (e.g., disposal bans), and socio-economic changes (e.g., downturn in the economy). When change requires capital investment (e.g., new landfill disposal equipment, drop-off station improvements, etc.), the private sector is typically able to more quickly respond to these financial needs with more readily available access to private capital. Due to its nature, use of public capital is subject to careful budgeting, planning, and the political process. County operations also have the added step of gaining consensus and approval of the BOS before implementing major program changes. The political process can affect the speed of change.

## 6.2 MANAGEMENT OPTIONS

After review of the County’s solid waste operations, SCS identified the following four long-term waste management options for the BOS’s consideration:

- Optimize current System operations.
- Revenue enhancement.
- Sale of County Assets (Privatization).
- County Ownership But Private Operation

Each option is discussed below, along with the advantages and disadvantages of each.

### 6.2.1 Optimize Current Operations

We reviewed the Division’s current operations and levels of service. Based on SCS’s knowledge of the solid waste industry and similarly-sized communities in the Southwest, we are of the opinion that the Division appears to be “right sized” in its staffing and equipment deployment for the RRLF. Staffing appears similar to smaller-sized landfills (daily tonnage less than 250 tons) represented in a Solid Waste Association of America (SWANA) Landfill Benchmarking Study, which was conducted several years ago. Current staffing could allow the County to process

more than 500 tons per day at RRLFRRLF, if available.

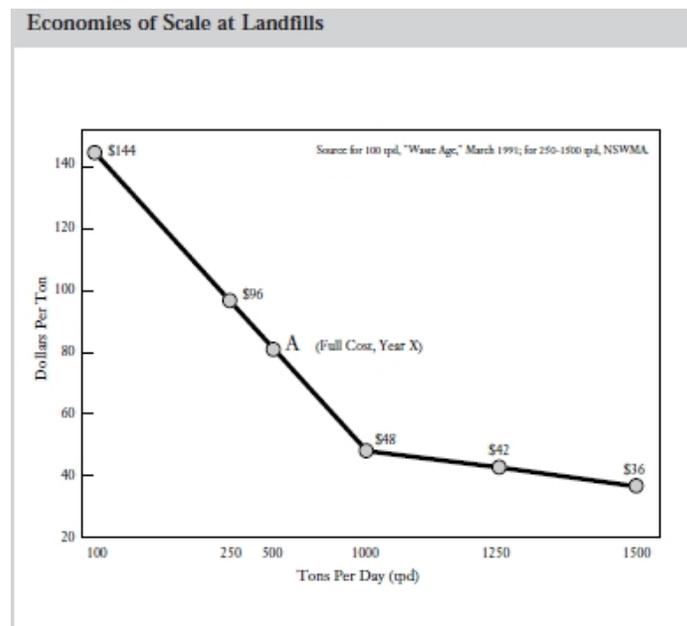
However, given the low daily tonnage and numbers of customer visits, the level of service (hours of operation) for the TATS and SELF appear somewhat excessive (ranging from \$150 to \$175 per ton). Many small communities find it difficult to achieve economies of scale operating small landfills (Sonita-Elgin) and drop-off stations (Tubac-Amado). These communities have tried to minimize costs by considering reducing hours and days of operation. The drawback to these changes is a potential increase in illegal dumping along public right-of-ways and private property.

We recommend that the Division explore the option of reducing the number of days these facilities are open, preferably those days with the highest customer peak use. This change would reduce the operating cost of these facilities and save limited Division financial resources.

### 6.2.2 Revenue Enhancement

Under this management alternative, the County would pursue MSW and other waste streams to help boost the incoming flow into the Rio Rico Landfill. Currently, the RRLF is receiving an average of 121 tons of MSW and sludge per day. “Revenue enhancement” through an increased waste stream would help improve the economies of scale for the System.

Typically, landfills of the size of the RRLF could effectively manage 500 tons of MSW per day without significantly increasing personnel or equipment costs. Exhibit 25 illustrates the advantages of economies of scale, where tipping fees can be significantly lower on a per-ton basis at larger landfills.



**Exhibit 25. Economies of Scale in Landfills**

Source: USEPA, 1997.

The largest potential MSW generator in the watershed is the City of Nogales. Until 2009, the City disposed of its waste at RRLF. At that time, the City contracted with a private hauler/landfill owner/operator to provide disposal services. The cost to transport the City’s waste stream to this remote landfill in Tucson (Marana Regional Landfill) is substantial. One suggestion is for the County to approach this hauler with a long-term proposal to accept the City’s MSW stream from the City’s Transfer Station at the RRLF for a negotiated tipping fee (less than a reported gate rate of \$27.00 per ton). This additional waste stream would enhance the County’s solid waste revenues and improve the RRLF’s economies of scale. Obviously, the downside to this potential increase in MSW tonnage to RRLF would be the reduction in landfill life and the need for new System capacity earlier than anticipated.

Other possible options for the County to consider in improving the System economics are the implementation of landfill design modifications (substitution of alternative daily covers in lieu of soil for RRLF to save landfill capacity) and the use of global positioning system (GPS) technology in its landfill compactors to more accurately place and compact MSW and cover soil. SCS clients have significantly reduced the amount of time, labor and expense associated with such landfill surveying and cover soil.

**6.2.3 Privatization**

The practice of privatization - delegating governmental functions and the fulfillment of public needs to private vendors – is not new. Throughout the nation’s history, federal, state, and local governments have often hired outside contractors to perform essential public functions. States have privatized a great number of governmental functions such as public works, health care, prisons, building security, and public works. Virtually every function of local government has been delegated to the private sector at some time across the United States.

While privatization has been implemented in different ways by various public agencies, a structured approach consisting of the following three basic steps tends to improve the chances of successful privatization:

- A performance-oriented Statement of Work is prepared describing solid waste service requirements and work to be performed.
- The County performs a comparison study of in-house versus contractor costs.
- A thorough contract monitoring system is developed.

Exhibit 26 lists some of the advantages and disadvantages touted by proponents and critics of privatization.

**Exhibit 26. Advantages and Disadvantages of Privatization**

Advantages	Disadvantages
Cost saving measure Greater flexibility Greater choice of providers Greater efficiency	Reduced service quality Higher costs Illusory cost savings Increased service interruptions

Greater productivity Lower initial costs Lower unit costs Greater risk sharing Increased services Specialized skills Greater quality at lower prices More jobs Less red tape Increased tax revenues Competitive pressure Reduces size of government	Loss of flexibility Loss of capital Less accountability Less control Dual system Potential corruption Potential discrimination Displaces public employees Necessity for competition Weakened policies and values
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Source: Rosen, 1997.

Up until the mid-1800s in the United States, solid waste management was the responsibility of private citizens and scavengers. With the emergence of large urban cities and associated solid waste problems at that time, many cities across the country assumed the collection and disposal responsibilities for solid waste management.

**6.2.3.1 County Ownership and Private Operation**

Across the United States, local governments use contracting for a variety of solid waste services. Currently, about 60 percent of publicly-owned landfills are managed or operated by private firms. Locally, Pima County outsources the operation of its remaining landfills to a private operator, but retained ownership of the asset and compliance costs. Exhibit 27 shows a comparison of general advantages and disadvantages to this arrangement.

For landfills, many local governments have entered into long-term agreements (“end-of-life agreements”), which in essence specifies that the new landfill operator is responsible to meet operating/regulatory conditions.

**Exhibit 27. Public Ownership and Private Operation of Landfills**

Advantages	Disadvantages
Maintains all assets Maintain complete oversight of the system Maintain or enforce regulatory authority Create a context for running facilities like a business	Government may have maintain some liabilities Remain responsible for capital needs May face difficulties maintaining operating expertise Monitoring costs for the agreement

<p>Tap into a breadth of public sector experience and knowledge                  May specific in the contract controls on their solid waste stream and prices charged                  Benefit from innovative techniques without going through government bureaucracy                  Takes advantage of competitive opportunities to save money</p>	<p>Potential lengthy contract negotiations</p>
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Source: Segal, et. al, 2000.

### 6.2.4 Asset Sale

Under this management alternative, the County would issue a Request for Proposal (RFP) requesting proposals/bids from private companies for the operation and ownership of all the County’s solid waste assets, including closure and post closure care of all landfill areas. Please see Appendix B for copies of illustrative RFPs from similarly-sized counties.

Once the business arrangement is completed, the private company would then have full responsibility to the State of Arizona for the landfills. Some items that the County could possibly negotiate for under this option include the following:

- Guaranteed disposal for all solid waste.
- Long-term preferred rate (tipping fee) for the disposal of solid waste generated in Santa Cruz County.
- Set limits on the amount of solid waste that the private company can bring in from outside the County.
- Host fees for out-of-county solid waste delivered to landfills.

If the County wishes to consider outsourcing of its System, we typically recommend the following:

- Develop a document that provides a comprehensive description of the types and level of service it provides, and clearly articulate the expectations it would have of a contractor were it to outsource all or part of the services it currently provides. This document could serve as the framework for a bid specification.
- Generally, an entity acquiring a landfill asset does not want to accept liability for potential risks (e.g., contamination) that exists on a site because of prior events and activities. The typically approach is to do a “baseline” study to define the existing conditions and then provide this in either the procurement document or contract that the asset purchaser has no liability for pre-existing conditions. Another option is to sell the sites “as is.” We generally do not recommend this approach for maximizing the sale price. Indeed, we would expect the purchase price to be significantly reduced in cases where the contamination is bad, or not well defined, or subject to major uncertainties affecting the cost of cleanup.

- Get input from the community and the private sector regarding the service level descriptions and expectations.
- Develop and issue a RFP and allow the County the flexibility to award or not award a contract depending on the results of the bids.
- Evaluate bids based on costs, level of services, track record, and the intangible factors described above.

## 7.0 FINDINGS AND RECOMMENDATIONS

The following section briefly provides the report's findings and recommendations for consideration by the BOS.

### 7.1 FINDINGS

On the basis of our review of the County's Solid Waste System and the Division, SCS makes the following major findings:

1. The amount of MSW tonnage entering the County's System has been reduced by 40 percent over the last five years (roughly from 60,400 to 37,500 tons per year), primarily the result of the loss of MSW from the City of Nogales, but also as a result of the decline in MSW generation due to the impacts from the Great Recession, and increased recycling. .
2. A review of the equipment logs maintained by the Division suggests that many major pieces of equipment will need to be replaced in upcoming years. Several pieces of equipment (compactor, and dozers) have required expensive repairs and maintenance to extend their service life. For example, the Caterpillar 826G compactor and Caterpillar 963G wheeled loader have required service repairs amounting to \$260,157 and \$267,076, respectively in the last two fiscal years (2013 and 2014). The Division estimates that current fleet and equipment needs over the 30-year planning period to be \$3.1 million, taking into account estimated replacement costs.
3. The County owns and operates the Rio Rico Landfill (RRLF), which provides the residential and commercial solid waste disposal needs of the unincorporated areas of the County. The RRLF occupies approximately 60 acres of land owned by the County, and is classified as a canyon-fill type solid waste facility reflecting the topography of the site. RRLF has been expanded in 2005. RRLF receives an average of 120 tons per day and with this waste flow is expected to have estimated remaining capacity till 2040. Operating costs for RRLF currently are \$35.73 per ton.
4. Since 1970, the County has operated the Sonita-Elgin Landfill (SELF) for the disposal of construction and demolition debris (C&D) and some municipal solid waste (MSW), which is deposited in large roll-off containers for transport to the RRLF. SELF receives an average of 7 tons per day (open three days per week) and with this waste flow is expected to have estimated remaining capacity until 2129. SELF was developed on land provided to the County by the BLM. Currently, the County does not hold clear title to this parcel. Operating costs for SELF currently are \$153.83 per ton.
5. Pursuant to Federal and State solid waste regulations, the County employs the services of a third-party engineer (SCS) to prepare landfill closure and 30-year post-closure cost estimates:
  - a. 2013 closure and post-closure care estimates: \$1,815,575 closure and \$2,200,095 post-closure for RRLF and \$448,149 closure and \$685,085 post-closure for SELF.

- b. If the landfills were closed at the end of their landfill design life (2040 RRLF and 2129 SELF) \$3,279,296 closure and \$3,973,817 post-closure for RRLF and \$5,987,485 closure and \$9,153,063 for post-closure for SELF.
6. TATS is used by the public in the area of the unincorporated County as a household drop-off facility. MSW is stored temporarily in roll-off boxes, and when full, are transported by County staff to the RRLF. Approximately eight roll-off boxes are transported to the Landfill every month (roughly 2 tons per day). Operating costs for TATS are currently \$176.95 per ton.
7. The County operates four drop-off areas (RSSF, SELF, TATS, and Town of Patagonia) for recyclables (cardboard, mixed paper, plastics, and scrap metals). Operating costs for TATS are currently \$263.65 per ton, taking into account all operating expenses and recyclables revenues.
8. The customer tipping fee and rate increases enacted in 2013 were an excellent start at placing the County's System on a good financial footing. However, with long-term landfill, financial liabilities (closure and post-closure) for both the RSSF and SELF, the County should take immediate steps to begin to fully fund reserve funds for these programs, as well as funding future capital improvements and fleet replacement. A 30-year business case was developed with the assistance of a Pro Forma Model.
9. The landfill industry at the time of this writing is in a state of flux. The proposed issuance of the new LFG rules by USEPA is expected to have a major impact on the regulatory costs for larger landfills across the United States through new reporting requirements and addition of active LFG collection systems. Smaller landfills like the RRLF will probably need to plan for enhanced LFG monitoring and reporting. The County should make plans to reserve funds for the expansion of its current LFG collection system, possibly in the 2025 time period.
10. There are viable management alternatives for the County's System. Each has its own relative advantages and disadvantages in terms of short and long-range costs, flexibility for the County, and risks. These are more fully discussed in Section 6 of the report.

## 7.2 RECOMMENDATIONS

Relative to our findings noted above, we make the following recommendations for consideration by the BOS.

### 7.2.1 System Optimization

We reviewed the Division's current operations and levels of service. Based on SCS's knowledge of the solid waste industry and similarly-sized communities in the Southwest, we are of the opinion that the Division appears to be "right sized" in its staffing and equipment deployment for the RRLF. Staffing appears similar to smaller-sized landfills (daily tonnage less than 250 tons) represented in a Solid Waste Association of America (SWANA) Landfill Benchmarking Study, which was conducted several years ago. Current staffing could allow the County to process

more than 500 tons per day at RRLF, if available.

However, given the low daily tonnage and numbers of customer visits, the level of service (hours of operation) for the TATS and SELF appear somewhat excessive (ranging from \$154 to \$177 per ton). Many small communities find it difficult to achieve economies of scale operating small landfills (SELF) and drop-off stations (TATS). These communities have tried to minimize costs by considering reducing hours and days of operation. The drawback to these changes is a potential increase in illegal dumping along public right-of-ways and private property.

We recommend that the Division explore the option of further reducing the number of days these facilities are open, preferably those days with the highest customer peak use. This change would reduce the operating cost of these facilities and save limited Division financial resources.

### **7.2.2 Revenue Enhancement**

Under this management alternative, the County would pursue MSW and other waste streams to help boost the incoming flow into the Rio Rico Landfill. Currently, the RRLF is receiving an average of 121 tons of MSW and sludge per day. “Revenue enhancement” through an increased waste stream would help improve the economies of scale for the System.

The largest potential MSW generator in the watershed is the City of Nogales. Until 2007, the City disposed of its waste at RRLF. At that time, the City contracted with a private hauler/landfill owner/operator to provide disposal services. The cost to transport the City’s waste stream to this remote landfill in Tucson (Marana Regional Landfill) is substantial. One suggestion is for the County to approach this hauler with a long-term proposal to accept the City’s MSW stream from the City’s Transfer Station at the RRLF for a negotiated tipping fee (less than a reported gate rate of \$27.00 per ton). This additional waste stream would enhance the County’s solid waste revenues and improve the RRLF’s economies of scale. Obviously, the downside to this potential increase in MSW tonnage to RRLF would be the reduction in landfill life and the need for new System capacity earlier than anticipated.

Other possible options for the County to consider in improving the System economics are the implementation of landfill design modifications (substitution of geocomposite covers in lieu of soil for RRLF to save landfill capacity) and the use of global positioning system (GPS) technology in its landfill compactors to more accurately place and compact MSW and cover soil. SCS clients have significantly reduced the amount of time, labor and expense associated with such landfill surveying and cover soil placement.

### **7.2.3 Long-Term Business Case**

SCS developed a Pro Forma Model (Model) for this business case to provide preliminary, planning-level cost estimates, which can be used by the BOS to help evaluate the County’s tipping fees and customer rates and the impact of long-term financial liabilities. The Model is a spreadsheet program that projects annual revenues and costs to operate, administer, and maintain the System and provides a means for comparing alternative operational, institutional, and facility scenarios.

Various assumptions are made regarding yearly solid waste quantities, demographic information, escalation factors for waste growth and costs, administration, personnel and utility costs, transport and processing cost. The costs of various programs and disposal options were estimated using published information on the County's System, SCS's experience on other similar projects, input from the private solid waste industry, other published information, and planning-level cost estimates prepared by SCS.

Three different Model scenarios were constructed:

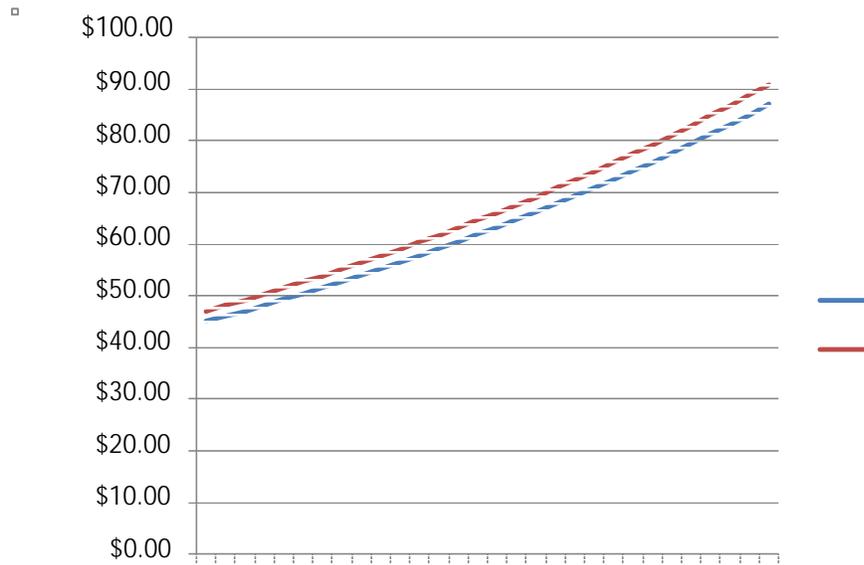
- **No Annual Landfill Tipping Fee and Customer Charge Adjustment** – This scenario assumes that the County would not annually adjust tipping fees and customer charges based on inflation.
- **Annual Landfill Tipping Fee and Customer Charge Adjustment** - This scenario assumes that the County would annually adjust tipping fees and customer charges based on inflation.
- **Tipping Fees and Customer Charges Adjusted For Breakeven System Budget** – This scenario assumes that the County would adjust tipping fees and customer charges to provide a “breakeven budget” for the System.

The first scenario provides the County with a annualized projection of the actual costs of running the System without making adjustments to System tipping fees and customer charges. Scenario two is a more realistic option with tipping fees and customer charges being annually adjusted based on changes in the estimated inflation rate over the 30-year planning period (Exhibit 28). However, the Pro Forma Model indicates that these adjustments are not adequate to provide the System with a “breakeven budget” and also meet all of the required reserve requirements (closure, post closure, equipment, and capital improvements).

Using the Model, we were able to project a breakeven tipping fee to meet the projected expenses and reserves for the entire 30-year planning period. It appears by adjusting the tipping fee from \$45.00 to \$47.00 in FY 2015, and, then annually adjusting the tipping fee by an estimated inflation rate, would enable the System to achieve a “breakeven budget” throughout the entire business planning period.

There are a number of caveats should the County decide to take this System funding approach. If the tipping fee becomes too high, then certain waste generators may find alternative waste disposal locations, and then those wastes may exit the System. The County should look for ways to entice other waste generators to utilize the System (e.g., City of Nogales) through a specially designed, long-term tipping fee to increase waste tonnage and thus improve the System's economy of scale.

**Exhibit 28. Tipping Fee Projections Under Model Scenarios**



**7.2.4 Privatization**

One of the major concerns about privatization is the potential effects on competition, service for quality, and overall costs. As we have pointed out, the County has a number of viable options for managing its Solid Waste System, each with its particular advantages and disadvantages. A recent landfill privatization RFP issued by Pima County only received one proposer. Appendix B contains examples of two recent Requests for Proposals, which were issued by similarly-sized communities for the option as noted in the paragraphs below:

- **Cooperative Agreements Between Private Entities and the County** . This option assumes that the County would enter into a cooperative agreement with a private landfill developer or major waste generator. In this case, the County would operate and own most functions of the System, but provide access to the County’s assets for MSW both within and outside the watershed for an agreed long-term price. In essence, the County would sell part of its remaining landfill capacity to help increase waste tonnage and thereby take advantage of economies of scale. This public-private partnership (PPP) is not without its disadvantages because the agreed disposal tipping fee may be less than that provided to County residents. Also, some may argue that the County would become a “dumping ground” for other community wastes.
- **Private Operation of the County Solid Waste System and County Ownership.** This particular management option has been utilized by many local governments across the United States. This arrangement offers many advantages because it allows the County to continue ownership of its assets, but can tap into a breadth of private-sector experience, knowledge, and potential economies of scale

with respect to equipment, labor, and capital. In essence, the County would still be providing the solid waste services, but no longer actually providing it through its own workforce. This option may require lengthy contract negotiations and continued contract monitoring costs to ensure that the contract conditions and specifications are being met by the private party to the business transaction.

- **Complete Asset Divestiture to a Private Operator.** This option assumes that the County would be able to completely divest all of its solid waste assets and financial liabilities to the State of Arizona for landfill closure and 30-years post closure care. The latter might result from receipt of an immediate cash flow from the asset sale to fund these liability reserves, or if, as a result of negotiations, these liabilities are acquired by the private owner. This also assumes that a clear title can be received by the BLM or through Congressional action regarding the SELF. This option could reduce or nearly eliminate long-term financial risks for closure and post-closure, but the County could lose any leverage in long-term tipping fees and customer costs unless these are included in the contract negotiations.

If the County wishes to consider complete or partial outsourcing of its System, we typically recommend the following:

- Develop a document that provides a comprehensive description of the types and level of service it provides, and clearly articulate the expectations it would have of a contractor were it to outsource all or part of the services it currently provides. This document could serve as the framework for a bid specification.
- Generally, an entity acquiring a landfill asset does not want to accept liability for potential risks (e.g., contamination) that exists on a site because of prior events and activities. The typical approach is to do a “baseline” study to define the existing conditions and then provide this in either the procurement document or contract that the asset purchaser has no liability for pre-existing conditions. Another option is to sell the sites “as is.” We generally do not recommend this approach for maximizing the sale price. Indeed, we would expect the purchase price to be significantly reduced in cases where the contamination is bad, or not well defined, or subject to major uncertainties affecting the cost of cleanup.
- Get input from the community and the private sector regarding the service level descriptions and expectations.
- Develop and issue a RFP and allow the County the flexibility to award or not award a contract depending on the results of the bids.
- Evaluate bids based on costs, level of services, track record, and the intangible factors described above.

## 8.0 REFERENCES

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## Appendices

**Appendix A**  
**Solid Waste Division Appraisal**

EQ#	EQUIP ID.	DESCRIPTION	SERIAL/VIN /LIC.	FMV
25	25	1996 6FGU25 Toyota Pneumatic Tire Forklift, 5,000 LB Capacity, LP Fuel, 4- Stage Mast w/ Hydraulic Side Shift, 42" Tynes on 48" Carriage, Good	64116	6,500
141	G699AS	1997 International 2574 Tandem Axle Dump Truck w/ Cummins N-14, Engine Brake & Cruise Control, Eaton 18sp Road-Ranger, AC, Air Ride Seat 58,000 GVWR , Hendrickson Walking Beam Suspension w/ Springs, Pintle and Chip Spreader Hitches, Plumbed for Trailer Air Brakes, 385/65R 22.5 Front & 11R22.5 Rear Tires on Steel Rims, 16' Southern Truck Dump Bed w/ 8" Channel Iron Bed Side Extensions, 8375 Hours On Meter, 171,465 Miles On Odometer, Bed Fair, Truck Good	1HTGGAET4VH4 17944 Bed 242870596	27,500
142	G700AS	1997 International 2574 Tandem Axle Dump Truck w/ Cummins N-14, Engine Brake & Cruise Control, Eaton 18sp Road-Ranger, AC, Air Ride Seat 58,000 GVWR , Hendrickson Walking Beam Suspension w/ Springs, Pintle and Chip Spreader Hitches, Plumbed for Trailer Air Brakes, 385/65R 22.5 Front & 11R22.5 Rear Tires on Steel Rims, 16' Southern Truck Dump Bed w/ 8" Channel Iron Bed Side Extensions, 12,768 Hours On Meter, 221,220 Miles On Odometer, Bed Fair, Truck Good	1HTGGAET6VH4 17945 Bed 242850596	27,500
212	212	1996 Caterpillar 826G Landfill Compactor / Dozer, 3406C DITA Engine, 2-Speed Powershift, EROPS With AC & Heat, Work Lights, 3'11" Chopper Wheels, Landfill Dozer, Empire Certified Rebuild 10/2013 @ 21,933 Hrs, Current Hours On Meter = 22,144, Very Good	7LN00212	170,475
216	G993DZ	2004 Freightliner M2-106 Tandem Axle Roll Off w/ Caterpillar 3126 Engine, AT, AC, Cruise Control, 80 Ga Aluminum Fuel Tank, 60,000 GVWR, Walking Beam Rear Suspension w/Springs, 11R22.5 Tires on Steel Rims, K-Pac KP60-1740R Hydraulic Roll- Off Hoist, Hydraulic Tarp, 201,467 Miles On Odometer, Good	1FVHCYAK74HM43878 Hoist: 3403	39,500
236	G279EH	1999 International 4900 Single Axle 2,000 Gallon, Water Truck, w/ DT466E Diesel, Automatic, AC, Air Ride Seat, In-Cab Spray Controls, 32,000 GVWR, Air Brakes, PTO Driven 3x4" Cargo Pump, 2-Front, 2-Rear & 1-Side Spray, RS Hose Reel and Hose, Anti Siphon Fill Pipe, Rear Access Ladder, 11R22.5 Tires On Steel Rims, 118,655 Miles On Odometer, Good	1HSSDAAN5XH204101	17,000
658	G968DZ	1986 Autocar Tandem Axle Dump Truck w/ Cummins NTC Engine, RTOF 11607L 7spd, Fulltime Hydraulic Pump, Hendrickson Walking Beam Suspension w/Springs, Pintle And Chip Spreader Hitches, Plumbed For Trailer Brakes 14' Dump Bed, 3747 Hours On Meter, 234,070 Miles On Odometer, Fair	1WBUCJJD8GU300658 Lic: G968DZ	10,500
1131	1131	2003 Tarpmatic Trapping System, Kubota 20Hp Three Cylinder Diesel, Hydrostatic Drive, Nominal 35' Drum, Remote Control, Minor Hydraulic Leaks, 3- 30x100' Weighted Tarps, 1,305 Hours On Meter. Good	30730131	36,200
1172	1172	2004 Caterpillar 928G Articulated Wheel Loader 3116T Engine, PS Auto Shift 4 Forward & 3 Reverse, EROPS w/ AC & Heat, Work Lights, 2.6 Cu/Yd GP Bucket W/ BOCE, 20.5R25 Tires, Minor Front Fender Damage, 6032 Hours On Meter, Good	CAT0928GHJDJO1172	65,000
1672	1672	1996 John Deere 850C Crawler Dozer, 6068T Engine, Hydrostatic Drive, EROPS w/ AC & Heat, 24" Single Bar Grousers, 10'6" Dozer w/ Single Tilt Cylinder, Vail 5-Pocket Ripper w/ 3-Shanks, 8004 Hours On Meter, Fair - Good	T0850CX821672	50,000
2713	963C	2006 Caterpillar 963C Tracked Loader, 3116TA Engine, Hydrostatic Drive, EROPS, AC & Heat, Work Lights, 22" Wide Track Option w/ Double Bar Grousers, GP Bucket w/Teeth, 3-Shank Ripper, 13,864 Hours on Meter, Good	BBD02713	100,000
5754	5754	2004 Marathon Stealth Horizontal Cardboard Bailer, 46 x 60" Feed Opening, 20Hp 460v 3-Phase Induction Motor, Tether Cord Pushbutton Control, Good	405754	25,058
6634	416C	1999 Caterpillar 416C Wheel Loader / Back Hoe w/79HP 3054 Diesel, Power-Shift, 4X4, 1.00cy Front Bucket w/ BOCE, Extendahoe, Manual Quick Coupler, 24" Bucket w/Teeth, Foam Filled Front & Rear Tires, EROPS, AC & Heat, Work Lights, 8590 Hours On Meter, Fair-Good	4ZN16634	24,500
9627	9627	1986 John Deere 750B Dozer w/ 6068T Diesel Engine, Hydrostatic Drive, EROPS w/ AC & Heat, Work Lights, 22" Single Bar Grousers, 10'6" Six Way Dozer w/BOCE, Triple Shank Rear Ripper, 7061 Hours On Meter, Good	T0750BC729627	14,500
			<b>TOTAL FMV</b>	<b>614,233</b>

Source: Dungan & Company, Equipment Appraisal, February 2014

**Appendix B**  
**Privatization RFPs**

Provided on DVD Insert

## **Appendix C**

### **Pro Forma Model Worksheets**