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Madera County

Solid Waste Management System Assessment & Evaluation

March 1, 2024

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March 1, 2024

Mr. Matthew Treber
Chief of Development Services
Madera County Community and Economic Development
200 W. 4th Street, Suite 3100,
Madera CA 93637

Subject: County Solid Waste Management System Assessment and Evaluation

Dear Mr. Treber:

Raftelis is pleased to present the findings of the solid waste management system assessment and evaluation on behalf of Madera County, California (County). The primary purpose of the Study was to: i) perform a comprehensive evaluation of the County's solid waste system; ii) incorporate a robust strategic communications and stakeholder outreach campaign related to the study; iii) perform an operational assessment of existing operations; iv) compare and benchmark with peer communities; v) perform an appraisal and valuation of the landfill; and vi) explore potential changes to the operations of the solid waste management system for the County incorporating stakeholder input. The analysis supporting the findings of the report were completed on or before December 2023, and the findings are based on known conditions. Therefore, it is important to note for disclosure purposes that this Study does not account for conditions, regulations, or developments that may have occurred subsequent to the completion of the study.

Following this letter is an executive summary report documenting our scope, background, key assumptions, and findings for your consideration. We appreciate the opportunity to be of service to the County and staff's support associated with the completion of the Study.

Sincerely,

Thierry A. Boveri, CGFM
Vice President

Matt Wittern
Manager

Jonathan Ingram
Senior Manager

CC: Jared Carter, Madera County Deputy Public Works Director
Boom Phouthavong, Madera County Solid Waste Manager
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Makeena Sturgeon, Consultant, Raftelis

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1. Executive Summary

Raftelis was engaged by the County to perform an evaluation of the County's solid waste system stemming from: i) findings of a prior cost-of-service evaluation performed by Raftelis which identified the need for substantial fee increases; and ii) to address stakeholder concerns related to mandatory collection, perceived inequities in the cost recovery and rates charged to the differing disposal customers of the system, and general understanding of the financial and operational health of the solid waste system to assist with near-term and long-term planning and system operation for the County's Solid Waste Management System ("SWMS"). The evaluation examined the key elements of the County's SWMS including, but not limited to, customer demands, operations review, legal and regulatory environment, contractual relationships, and potential changes to the County's SWMS. As part of the evaluation, a comprehensive stakeholder outreach effort was developed to help ensure input and concerns from residents were identified and addressed. This section provides an overview of the County's SWMS, stakeholder outreach efforts, alternatives to the current SWMS, and our recommendations and considerations. Figure 3 at the end of this section provides a summary of the key elements of the County's SWMS.

1.1. Solid Waste Management System Overview

Madera County spans 2,147 square miles and is the geographical center of California. Its population is approximately 156,000 people. The County was formed in 1893 and derives its name from the City of Madera, the county seat. Madera County is largely rural, with agriculture as the number one industry, accounting for a gross value of agricultural commodities of more than $2 billion annually[1]. The two incorporated cities in the county are the City of Madera, with a population of approximately 66,000, and the City of Chowchilla, with a population of 19,000[2]. They are in the county's western portion, part of the San Joaquin Valley. The county's eastern portion rises into the Sierra Nevada Mountains and includes a portion of Yosemite National Park.

As stated in County Code 7.24.110(G) the purpose of the Solid Waste Management System (SWMS) is to protect the health, safety and well-being of the public and to preserve and improve the quality of the environment by assuring proper storage and disposal of solid waste. Pursuant to authorities under Article XI, Section 7, of the California Constitution and Public Resources Code 40059, the County is responsible for solid waste management within the unincorporated portions of the County and offers a voluntary franchised collection service with a self-haul option to either the County's Fairmead Landfill or North Fork Transfer Station (NFTS). The Fairmead Landfill currently has a 146.9-acre footprint with approximately 23 million cubic yards of capacity. It is located in the western side of the County in the valley region near the City of Chowchilla. The NFTS is located in the eastern portion of the County in the mountain region near the unincorporated communities of Oakhurst, Bass Lake, and North Fork.

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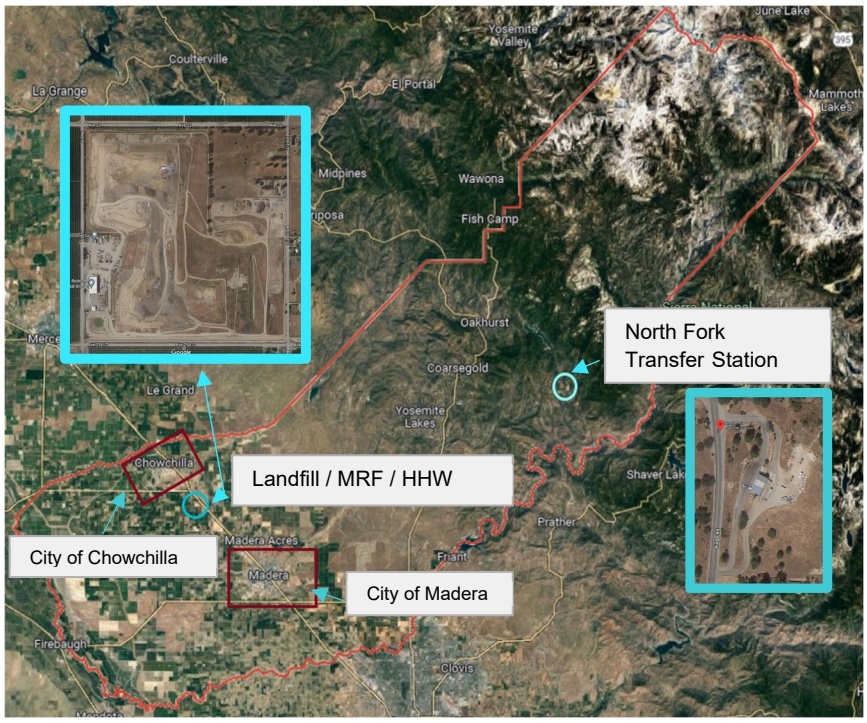
[1] https://www.maderacounty.com/business/reasons-to-do-business-in-madera-county

[2] US Census QuickFacts

Figure 1 below presents an overview of the location of the disposal facilities and the incorporated municipalities for reference.

Figure 1: County Disposal Facility Overview



Raftelis performed an on-site visit of the County's Fairmead Landfill and North Fork Transfer Station to assess the facilities contract operations. Section 4 of this report provides a more detailed accounting of our findings, however, nothing came to our attention that would suggest that the County's contractor is operating the facilities in an inefficient manner.

Solid waste management is a highly regulated industry within the United States and California. Section 2 of this report provides a detailed legal and regulatory review of solid waste management in the County. The focus of the review examined key laws and regulations for solid waste management in the County, including an examination of flow control and Senate Bill 1383 Short-Lived Climate Pollutant Reduction Strategy. The review also included an evaluation of solid waste flow control mechanisms used by local governments to control the flow of solid waste or tonnages within their jurisdictions. The County utilizes regulatory and contractual flow control to direct most of the voluntary solid waste generated in the unincorporated County, with limited exceptions, pursuant to County code 7.24.106 and 7.24.107. The exception relates to self-haul customers who use the County's disposal facilities for convenience and not due to contractual or regulatory flow control since the service is voluntary and residents could dispose of waste outside the County.

The Cities of Madera and Chowchilla manage solid waste within their respective jurisdiction. The County receives waste from the municipalities at the County's landfill through a negotiated contract with the City's franchise collection hauler. The County does <u>not</u> have regulatory flow control of the City's solid waste, meaning **the County cannot direct the Cities to bring waste to the County's landfill. Furthermore, and pursuant to discussions with the County's legal counsel,** it is our understanding **that unilateral imposition of flow control to the municipalities would infringe upon their own police powers to manage solid waste within their respective jurisdictions and is not advisable and could be vulnerable to legal challenge.** To induce the cities'

hauler(s) to bring waste to the County landfill and increase economies of scale, the County must offer a competitive disposal rate relative to disposal alternatives within the region. The nearest alternative landfill is the American Avenue Landfill in Fresno County, which is approximately 25 miles from the City of Madera and 41 miles from Chowchilla. **The current form of flow control with the County can be said to be a combination of contractual and economic flow controls to secure the Cities' waste.**

The California legislature adopted Assembly Bill 845 limiting the ability of municipalities to restrict the disposal of solid waste on the basis of the place of origin. The law specifically refers to limitations when a privately owned solid waste facility is located in a jurisdiction. The County does not currently have any private landfills or other disposal facilities located in the County besides a privately owned transfer station located in Oakhurst. It is unclear from our legal and regulatory review whether the County could impose regulatory flow due to this restriction and would advise the County to consult legal counsel to confirm.
The County also receives out-of-county waste for disposal at the Fairmead Landfill through a contractual arrangement based on a negotiated rate for disposal with the County's landfill operator. Table 1 below presents a summary of the typical annual inbound waste by fee type and customer.

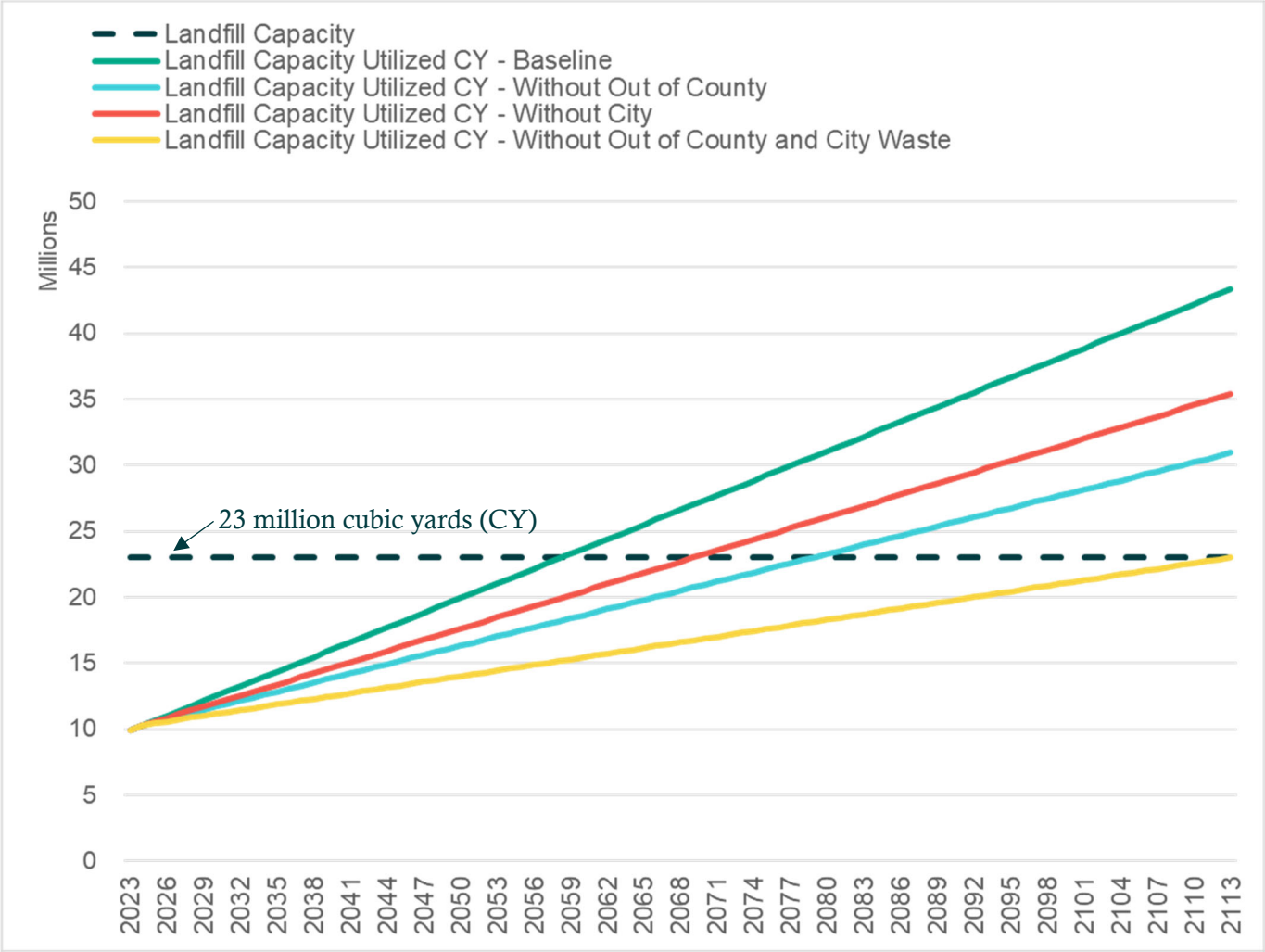
Table 1: Annual Tonnage Statistics

Category	Description	Estimated Annual Tons[1]	Tons per Day[2]
Gate Tip Fees	Non-contract/Self Hauler Disposal Fees paid at the gate of the Landfill and NFTS. The County can adjust these fees by Board action.	22,400 tons *(7,800 tons from NFTS)*	86 tpd
Unincorporated Tip Fees	Contract Franchise Hauler Disposal Fees charged to the franchise haulers serving the unincorporated collection subscription customers of the County. The County can adjust these fees by Board action.	65,800 tons	253 tpd
Other Contracted Tip Fees[3]	Contracted tip fees charged to franchise hauler servicing municipalities (Cities) located in the County and to landfill contract operator for out-of-county waste. The County can adjust these fees by contract amendment.	86,000 tons CARTS/ 55,000 tons Cities	542 tpd
Total		229,200 Tons	882 tpd

[1] Amounts shown were estimated based on estimates for the Fiscal Year 2023/24 based on historical landfill tonnage origins reporting and NFTS contract operation invoices.
[2] Amounts shown were calculated assuming annual tons divided by 5 day a week operation over 52 weeks.
[3] Tonnages shown as CARTS represents contracted waste brought in from out-of-county by Red Rock.

The County contracts out operations for solid waste collection, landfill operations, and NFTS operations. Pursuant to the landfill operations agreement, the County pays the contractor a sliding scale ($/ton) for the landfill operations. As the average daily tonnage (calculated once per month) increases, the operations cost per ton decreases. Therefore, while the County charges lower disposal rates under contracts for city and out-of-county waste, it also benefits from a lower disposal processing cost realized by the overall increased tonnage. The study examined the effects from the elimination of City and out-of-county waste to landfill capacity, the disposal rate impact to franchise and self-haulers, and considered options for the SWMS system. Figure 2 below presents the expected landfill closure based on tonnage projections at current waste generation levels. Section 7 of this report discusses long-term financial impacts from the continuation of receiving City and out-of-county waste.

Figure 2: Landfill Capacity in Cubic Yards (CY)



Under the baseline conditions the landfill would reach current capacity (23 million cubic yards) in 36 years or by 2059. Excluding either the City or out-of-county waste would result in the extension of an additional 11 years (2070) and 20 years (2079), respectively, of landfill life. Collectively, eliminating both the Cities and out-of-county waste is estimated to extend the life of the landfill by 54 years through the year 2113. **The key considerations from a policy perspective is whether: i) the current landfill capacity is considered a limited resource or if the County believes it can secure and permit additional landfill capacity at a reasonable cost; and ii) whether the County values preserving landfill capacity and at what cost.** A financial and customer impact of these options is presented later in this executive summary and in Section 7 of this report.

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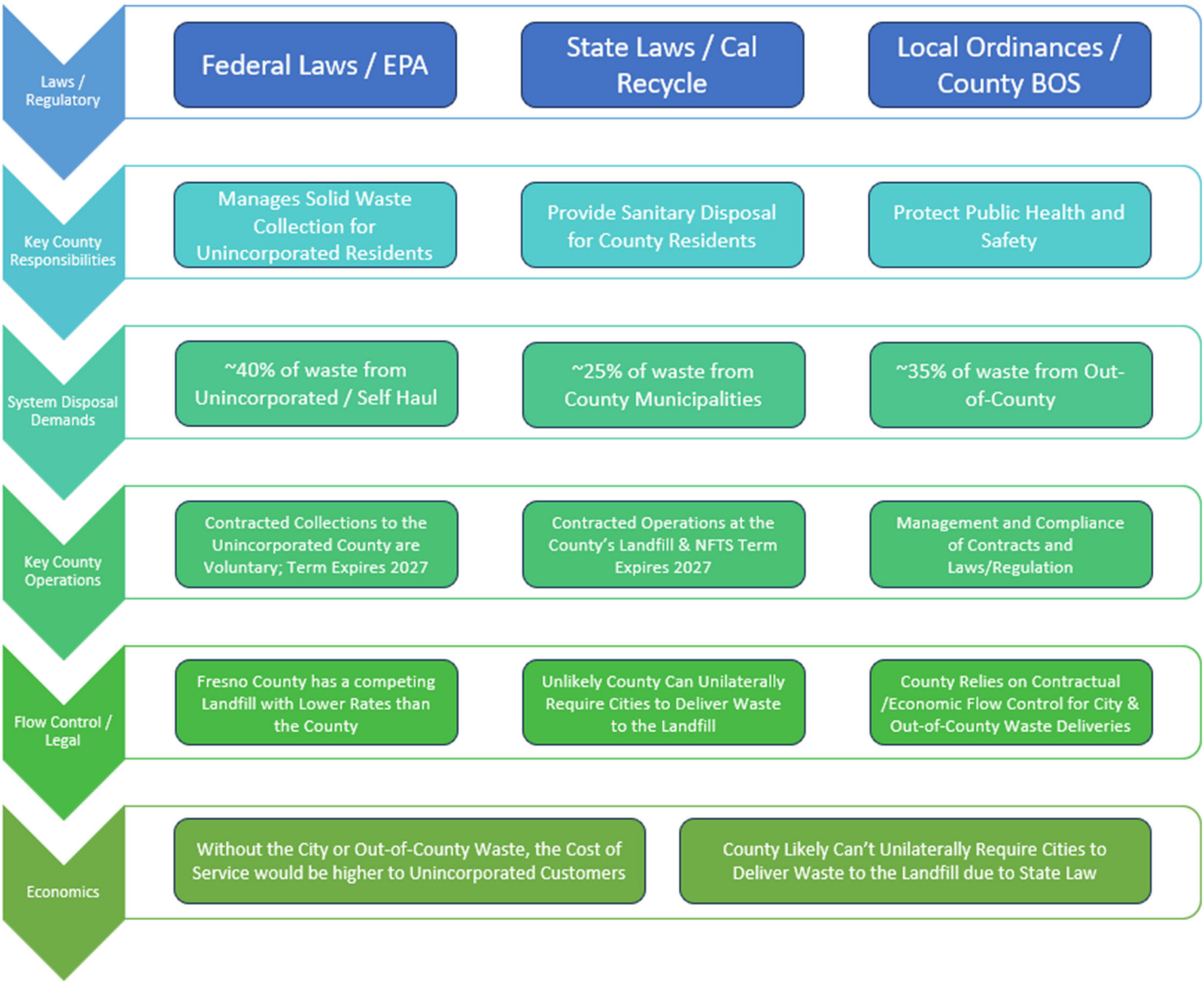
The following figure provides a summary of the County's current SWMS operations:

Figure 3: County SWMS Overview



1.2. Stakeholder Outreach and Engagement

The Study incorporated a comprehensive stakeholder communications and outreach initiative, including benchmarking comparison, to better inform the engagement. Section 3 of this report provides a detailed overview of the process along with interview findings in Appendix A and community survey findings in Appendix B. The following provides a summary of key takeaways from the interview and survey process:

1. Regulatory requirements associated with Senate Bill 1383 Short-Lived Climate Pollutant Reduction Strategy (SB1383) are generally understood but not supported by stakeholders.

a. A recent report prepared by the Little Hoover Commission[3] documents many of the associated issues with SB1383 for rural communities. A key issue for the County is cost and the lack of available organics processing facilities within the region. Although there was interest from stakeholders, we were not tasked and did not include a greenhouse gas (GHG) impact evaluation from implementation of curbside organics collection for the unincorporated portions of the County, which could be an item for further investigation. CalRecycle has reportedly evaluated the impacts of GHG from added collection services through the Environmental Impact Report (EIR) process in development of SB1383 regulations, however verification of a detailed analysis could not be confirmed.

b. The County has an adopted ordinance to address requirements of SB1383 pursuant to the County code 7.24.107 as noted in Section 2 of this report which offers 3 options for applicable census tracts within the County including voluntary subscription to curbside organics collection, self-hauling source separated organics to either the Fairmead Landfill or North Fork Transfer Station, or on-site disposal/management (i.e. animal feeding and composting).

c. This evaluation explored additional options to address SB1383 pursuant to stakeholder outreach and feedback. The following provides an overview of the alternative strategies evaluated:
    i. Stakeholders were generally interested in organics and recycling options if they were cost effective.
    ii. Pursuant to the town hall meeting event held on July 20th in Oakhurst we learned that residents within eastern Madera County had interest in the County exploring a community composting facility.
        1. Raftelis estimated the total amount of organic materials available for composting from unincorporated customers at 47% of total waste generation or 54,500 tons per year based on residential waste composition estimates as reported by CalRecycle[4]. We estimate approximately 38% or 21,000 tons of the organic material is generated in the eastern portion of the County based on US census data.
        2. It is difficult to determine program participation since it varies based on location and program attributes. The EPA reports approximately 4% of food waste is composted nationally[5], while organics programs such as that of the City of San Fransico have achieved a 75% diversion rate[6]. Those with higher participation rates offer or require collection service. Even for community lead composting programs, the majority often involve collection service[7] to facilitate a constant material stream.
        3. Given stakeholders were interested in a drop-off only site for purposes of our evaluation we assumed a 15% participation rate, which would require further validation if this option was pursued. This assumption results in an assumed

[3] https://lhc.ca.gov/sites/lhc.ca.gov/files/Reports/274/Report%20274.pdf

[4] https://www2.calrecycle.ca.gov/WasteCharacterization/ResidentialStreams?lg=1020&cy=20

[5] https://www.epa.gov/facts-and-figures-about-materials-waste-and-recycling/national-overview-facts-and-figures-materials

[6] https://www.wastedive.com/news/sb-1383-part-5-organics-san-francisco-oakland-alameda/626512/

[7] The Institute for Local Self-Reliance facilitates a national Community Composter Coalition and performs an annual survey of community composting programs. Approximately 90% of surveyed programs were private or non-profit of which 92% had some form of collection service to facilitate. https://ilsr.org/composting-2022-census/

amount of available organic material within the eastern portion of the County at 3,150 tons annually. Based on this we estimate that the County would require a flat piece of property in range of 2 acres at a cost to purchase land and construct at $570K. Section 7 presents an option exploring potential costs and associated rate adjustments to fund a single community composting program which we estimate would result in a 5% fee increase to the unincorporated franchised and self-haul tipping fees to offset such cost. However, the Community Composting for Green Spaces Grant Program administered by CalRecycle should be explored to help offset costs[8].

iii. As noted in Section 7 to this report, the Study also examined the fiscal and customer impacts from several voluntary organics diversion programs, which due to the reduction in diverted tonnages results in modest increases to the tipping fees. The evaluation did not factor the collection system costs to residents since such costs were not known at the time of this study.

iv. Lastly, although not specifically evaluated, as part of our research we did note that a common program local governments sometimes offer is a rebate program to residents for the purchase of composting bins[9]. Any program should be paired with educational resources at the local level. This could provide a cost effective method for residents to help reduce their organic waste disposed of at the landfill and meet requirements of SB1383. The typical cost for a home composting bin is estimated at $50-350 per unit and outreach could be performed by hiring an additional part-time or full-time equivalent employee.

2. Stakeholders within the unincorporated County are concerned about tipping fee disparities among customers and whether importation of solid waste is in the best interest of residents.
    a. The County has entered into agreements with the franchise hauler for the cities within the County and with the contract landfill operator to import out-of-county waste. The County is subject to market forces with the neighboring Fresno County owned American Avenue Landfill which presently charges approximately $27 per ton, which is materially less than the public self-hauler and franchise hauler tip fees the County charges to the unincorporated residents and franchise collection haulers. This has raised concerns of inequity by the unincorporated customers.

    b. This was a principal focus of this engagement and based on stakeholder input Raftelis was directed to develop a long-range financial plan to explore the effects to the expected landfill life and associated fiscal and rate impacts with and without waste deliveries from the cities within the County and/or out-of-county waste importation.

    c. We have found that the County's tipping fees would need to be raised to provide the estimated revenue needed to cover the estimated fixed and variable costs at the landfill if the County were

[8] https://calrecycle.ca.gov/climate/grantsloans/communitycomposting/

[9] https://calrecycle.ca.gov/organics/homecompost/

not to accept the Cities or out-of-county waste. Subsequent sections of this report including this executive summary and Section 7 present our findings in greater detail.

3. Affordable and accessible solid waste management options are a priority for most stakeholders.
    a. A potential concern raised by a stakeholder, which has not been independently verified, indicated that cost may be a contributing factor to on-site disposal through burning of trash. Additionally, we have heard discussions concerning fraud related to people offering to collect waste at a reduced rate by an unpermitted hauler illegally who in turn may be dumping the waste roadside or elsewhere such as in the national parks adjacent to the County.

    b. Pursuant to the benchmarking study performed as part of this engagement at least one rural county in California has employed the use of a property based solid waste parcel fee charged with the annual tax bill to fund landfill operations as authorized by Government Code section 25830. This method of funding could be a consideration for the County since the overhead cost of the solid waste program could be spread over a greater portion of the County. Calaveras County employs this method of funding and has entered into a Joint Power Agreement (JPA) with the City of Angels Camp within its jurisdiction to charge the parcel fee to all properties within the County. While we did not perform specific calculations related to employing a parcel fee, it is anticipated that the effect of adopting a parcel fee would act to lower the disposal tip fees for residents and encourage use of the County's landfill as a means of economic flow control. However, notwithstanding the authorization in Government Code section 25830 for billing and collecting such a fee on the annual tax bill, based on stakeholder input it is possible that charging a fee through the tax bill could be misconstrued as a tax and viewed unfavorably by residents. In general, such a policy would be expected to benefit the unincorporated customers of the County by resulting in a greater cost recovery from City residents.

4. Communities are not interested in mandatory programs.
    a. The County is not currently pursuing or has any intentions of implementing a mandatory collection program in any form to the unincorporated customers of the County.

    b. As part of our evaluation we discussed the potential of exploring rate impacts from mandatory programs since they are common within the industry and in California; however, we did not pursue this evaluation based on stakeholder input. The key benefits of a mandatory program are that it promotes participation in the curbside program and thereby lowers the cost per residential unit since the fixed costs of labor and equipment can be spread over more households (i.e. economies of scale) and may also result in a positive effect on illegal dumping or on-site trash burning.

5. Stakeholders raised concerns about the Franchise Fee, which is funded from the voluntary curbside collection customers of the County. Stakeholders indicated that they would like the County to use the funds more directly for solid waste programs of the County. The County has historically used the franchise fee collected from the two franchise haulers towards General Fund expenditures as legally authorized. The Fiscal Year 2023/2024 budget included use of approximately half or $500,000 in franchise fee revenues to offset the cost of solid waste operations. The franchise fee paid only by the two franchise haulers is not a tax, but rather is an authorized fee under exceptions in Proposition 26. Specifically, the franchise fee is a charge required to be paid by the franchise haulers for the specific

benefit conferred or privilege granted in the form of the rights granted exclusively to the haulers that is not provided to those not charged the franchise fee by the County. Additionally, the franchise fee does not exceed the reasonable costs to the County of conferring the benefit or granting the privilege, and bears a reasonable relationship to the benefit the franchise haulers receive. Because the franchise fee is related to the special benefit conferred, including the use of the County's right-of-way and roads, there is a nexus for the use of the franchise fees to remain within the public works fund or transferred to the County's designated road improvement fund. Due to recent litigation in California concerning franchise fees, including Zolly v. City of Oakland,[10] it is recommended that the County seek appropriate legal counsel regarding the use of franchise fees.

6. Some stakeholder groups expressed interest in more public participation in the solid waste management planning for the County including the potential formation of a Solid Waste Advisory Committee (SWAC). Additionally, stakeholders were interested in potential changes in governance which are also discussed in greater detail within Section 4 of this report.

1.3. Disposal System Review and Options

Based on the stakeholder engagement, benchmarking efforts, and operational reviews of the County's disposal facilities Raftelis identified the following disposal options or programmatic alternatives which were either evaluated on a stand-alone review or the use of the long-range financial planning model as discussed in greater detail within Sections 4 through 7 of this report.

1.3.1. Sale of the Landfill

Sections 4 and 5 and Appendix E present a detailed discussion describing the option to sell or close the landfill. As part of the analysis of options for the County's solid waste system, Raftelis also conducted a valuation of the Landfill for the County's consideration. The Valuation/Appraisal[11] of the landfill was prepared in accordance with the NACVA®'s Professional Standards, USPAP, and applicable state and local laws, municipal rules and regulations, or market regulations. Reference Appendix E for the full landfill valuation report. The valuation was calculated to be $18,500,000 as referenced in Appendix C. Further study is recommended if the County would be interested to pursue this option. Key considerations would relate to assurance of future disposal capacity, expected landfill disposal pricing after sale, and the amount of waste and vehicles coming into the County to dispose of solid waste.

1.3.2. Waste-to-Energy (WTE)

Section 4 elaborates on this option, however the cost to construct and operate waste-to-energy facilities generally range in the hundreds of millions of dollars in addition to the ongoing operational and administrative costs to comply with regulatory and permitting requirements. This option was considered but ultimately deemed economically and practically non-viable. The lack of processable waste materials generated in the County would mean that any such facility would lack economies of scale resulting in excessive unit costs relative to other traditional disposal or diversion options.

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[10] https://www.courts.ca.gov/opinions/archive/S262634.PDF

[11] Appraisal – the act or process of developing an opinion of value; an opinion of value. Valuation Services – a service pertaining to an aspect of property value. USPAP 2020-21.

1.3.3. Long-term Financial Modeled Scenarios

Detailed assumptions and findings concerning the options of this evaluation can be found in Section 7 to this report and included the following options under review:

Baseline: Status Quo – assumed a continuation of the County's current operations.

Option 1: Loss of City and Out-of-County Waste

Option 1a: Loss of City Waste - assumed that the County would no longer accept the waste from the incorporated cities; City of Madera and City of Chowchilla

Option 1b: Loss of Out of County Waste - assumed that the County would no longer accept the waste from out of county sources.

Option 1c: Loss of City and Out of County Waste - assumed that the County would no longer accept the waste from the Cities or out of county customers.

Option 2: Disposal Alternatives

Option 2a: Send all MSW out of county with exception of NFTS tonnage. In this scenario, the landfill would become a "trickle site" only accepting minimal amounts of waste to continue operations. NFTS tonnage would continue to be delivered to the Fairmead Landfill.

Option 2b: Mixed Waste Processing Program (One Bin Program). In this scenario, the County would adapt their current 2-cart (Grey/Blue) or 3-cart (Grey/Blue/Green) curbside collection to be under a "one bin" system where garbage, recyclables, and organics, would be disposed of in one cart.

Option 3: Organics Diversion Program

Option 3a: Full Organics Diversion Program - In this scenario, the County would adopt a full organics collection and diversion program in compliance with SB1383 through voluntary curbside collection.

Option 3b: Community Composting Program - In this scenario, the County would develop a community composting facility in Eastern Madera County.

Table 10 at the end of this Section 1.3.3 provides a summary comparison of the various options.

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1.3.3.1. Baseline: Status Quo

The baseline – status quo scenario assumed a continuation of the County's current operations and financial model. Table 2 below presents the necessary adjustments to facility disposal rates (Landfill and NFTS) and Unincorporated Franchise Hauler tipping fees and resultant impacts to collection customer rates based on disposal cost increases only. **It should be noted that the projection of collection rates does not factor any regular annual adjustments based on Consumer Price Index (CPI) associated with collection costs.**

Table 2: Bill Impacts: Baseline: Status Quo

	FY24	FY25	FY26	FY27	FY28	FY29
County Disposal Tip Fees						
Disposal Rate Adjustments [1]		85.00%	0.00%	0.00%	0.00%	0.00%
Gate Tip Fees (MSW)						
Fairmead	$67.97	$125.74	$125.74	$125.74	$125.74	$125.74
Change - $		$57.77	$0.00	$0.00	$0.00	$0.00
NFTS	$122.73	$227.05	$227.05	$227.05	$227.05	$227.05
Change - $		$104.32	$0.00	$0.00	$0.00	$0.00
Unincorporated Franchise Hauler Tip Fees	$67.51	$124.89	$124.89	$124.89	$124.89	$124.89
Change - $		$57.38	$0.00	$0.00	$0.00	$0.00
Flat Rate Fees (up to 500 lbs.)						
MSW- Fairmead / NFTS	$23.08	$42.70	$42.70	$42.70	$42.70	$42.70
Change - $		$19.62	$0.00	$0.00	$0.00	$0.00
3 Can or Less Fairmead / NFTS	$12.10	$22.39	$22.39	$22.39	$22.39	$22.39
Change - $		$10.29	$0.00	$0.00	$0.00	$0.00
Collection Customer Rate Impacts [2 3]						
Mountain Collection Area		12.75%	0.00%	0.00%	0.00%	0.00%
EMADCO	$47.47	$6.05	$0.00	$0.00	$0.00	$0.00
Red Rock		12.75%	0.00%	0.00%	0.00%	0.00%
Collection Rates Zone 1	$34.25	$4.37	$0.00	$0.00	$0.00	$0.00
Collection Rates Zone 2	$38.77	$4.94	$0.00	$0.00	$0.00	$0.00
Collection Rates Zone 3	$45.56	$5.81	$0.00	$0.00	$0.00	$0.00
PUD		12.75%	0.00%	0.00%	0.00%	0.00%
Collection Rates Zone 1	$45.19	$5.76	$0.00	$0.00	$0.00	$0.00
Collection Rates Zone 2	$51.14	$6.52	$0.00	$0.00	$0.00	$0.00
Collection Rates Zone 3	$60.12	$7.67	$0.00	$0.00	$0.00	$0.00

1 The disposal rate adjustment shown is intended to cover the cost of service through the Fiscal Year 2032, after which additional rate adjustments to keep pace with inflation have been identified.
2 The pass-through of the disposal rate adjustment to the monthly residential collection rate is calculated based on 15% percent of the identified disposal rate adjustment by contract.
3 For comparison purposes for this study collection rate increases shown are only those increases related to disposal cost increase and do not reflect allowances for annual cost increases for collection service as allowed by contract.

1.3.3.2. Option 1b: Loss of City Waste

Option 1b assumed that the County would no longer accept the waste from the incorporated cities of Madera and Chowchilla. Currently a portion of the waste from the two cities is delivered to the Fairmead Landfill under a contract with the franchise hauler for the cities. Table 3 below presents the necessary adjustments to facility disposal rates (Landfill and NFTS) and Unincorporated Franchise Hauler tipping fees to offset the loss of revenue from City waste and the resultant impacts to collection customer rates based on disposal cost increases only. **It should be noted that the projection of collection rates does not factor any regular annual adjustments based on Consumer Price Index (CPI) associated with collection costs.**

Table 3: Bill Impacts: Option 1a: Loss of City Waste

	FY24	FY25	FY26	FY27	FY28	FY29
County Disposal Tip Fees						
Disposal Rate Adjustments [1]		90.00%	0.00%	0.00%	0.00%	0.00%
Gate Tip Fees (MSW)						
Fairmead	$67.97	$129.14	$129.14	$129.14	$129.14	$129.14
Change - $		$61.17	$0.00	$0.00	$0.00	$0.00
NFTS	$122.73	$233.19	$233.19	$233.19	$233.19	$233.19
Change - $		$110.46	$0.00	$0.00	$0.00	$0.00
Unincorporated Franchise Hauler Tip Fees	$67.51	$128.27	$128.27	$128.27	$128.27	$128.27
Change - $		$60.76	$0.00	$0.00	$0.00	$0.00
Flat Rate Fees (up to 500 lbs.)						
MSW- Fairmead / NFTS	$23.08	$43.85	$43.85	$43.85	$43.85	$43.85
Change - $		$20.77	$0.00	$0.00	$0.00	$0.00
3 Can or Less Fairmead / NFTS	$12.10	$22.99	$22.99	$22.99	$22.99	$22.99
Change - $		$10.89	$0.00	$0.00	$0.00	$0.00
Collection Customer Rate Impacts [2 3]						
Mountain Collection Area		13.50%	0.00%	0.00%	0.00%	0.00%
EMADCO	$47.47	$6.41	$0.00	$0.00	$0.00	$0.00
Red Rock		13.50%	0.00%	0.00%	0.00%	0.00%
Collection Rates Zone 1	$34.25	$4.62	$0.00	$0.00	$0.00	$0.00
Collection Rates Zone 2	$38.77	$5.23	$0.00	$0.00	$0.00	$0.00
Collection Rates Zone 3	$45.56	$6.15	$0.00	$0.00	$0.00	$0.00
PUD		13.50%	0.00%	0.00%	0.00%	0.00%
Collection Rates Zone 1	$45.19	$6.10	$0.00	$0.00	$0.00	$0.00
Collection Rates Zone 2	$51.14	$6.90	$0.00	$0.00	$0.00	$0.00
Collection Rates Zone 3	$60.12	$8.12	$0.00	$0.00	$0.00	$0.00

1 The disposal rate adjustment shown is intended to cover the cost of service through the Fiscal Year 2032, after which additional rate adjustments to keep pace with inflation have been identified.
2 The pass-through of the disposal rate adjustment to the monthly residential collection rate is calculated based on 15% percent of the identified disposal rate adjustment by contract.
3 For comparison purposes for this study collection rate increases shown are only those increases related to disposal cost increase and do not reflect allowances for annual cost increases for collection service as allowed by contract.

1.3.3.3. Option 1b: Loss of Out-of-County Waste

This scenario assumed that the County would no longer accept the waste from out of county customers. As part of this scenario, it was assumed that the County would no longer receive tip fee revenues from the waste generated and delivered from out of county under contracts. Table 4 below presents the necessary adjustments to facility disposal rates (Landfill and NFTS) and Unincorporated Franchise Hauler tipping fees to offset the loss of revenue from out-of-county waste and the resultant impacts to collection customer rates based on disposal cost increases only. **It should be noted that the projection of collection rates does not factor any regular annual adjustments based on Consumer Price Index (CPI) associated with collection costs.**

Table 4: Bill Impacts: Option 1b: Loss of Out of County Waste

	FY24	FY25	FY26	FY27	FY28	FY29
County Disposal Tip Fees						
Disposal Rate Adjustments [1]		97.00%	0.00%	0.00%	0.00%	0.00%
Gate Tip Fees (MSW)						
Fairmead	$67.97	$133.90	$133.90	$133.90	$133.90	$133.90
Change - $		$65.93	$0.00	$0.00	$0.00	$0.00
NFTS	$122.73	$241.78	$241.78	$241.78	$241.78	$241.78
Change - $		$119.05	$0.00	$0.00	$0.00	$0.00
Unincorporated Tip Fees	$67.51	$132.99	$132.99	$132.99	$132.99	$132.99
Change - $		$65.48	$0.00	$0.00	$0.00	$0.00
Flat Rate Fees (up to 500 lbs.)						
MSW- Fairmead / NFTS	$23.08	$45.47	$45.47	$45.47	$45.47	$45.47
Change - $		$22.39	$0.00	$0.00	$0.00	$0.00
3 Can or Less Fairmead / NFTS	$12.10	$23.84	$23.84	$23.84	$23.84	$23.84
Change - $		$11.74	$0.00	$0.00	$0.00	$0.00
Collection Customer Rate Impacts [2 3]						
Mountain Collection Area		14.55%	0.00%	0.00%	0.00%	0.00%
EMADCO	$47.47	$6.91	$0.00	$0.00	$0.00	$0.00
Red Rock		14.55%	0.00%	0.00%	0.00%	0.00%
Collection Rates Zone 1	$34.25	$4.98	$0.00	$0.00	$0.00	$0.00
Collection Rates Zone 2	$38.77	$5.64	$0.00	$0.00	$0.00	$0.00
Collection Rates Zone 3	$45.56	$6.63	$0.00	$0.00	$0.00	$0.00
PUD		14.55%	0.00%	0.00%	0.00%	0.00%
Collection Rates Zone 1	$45.19	$6.58	$0.00	$0.00	$0.00	$0.00
Collection Rates Zone 2	$51.14	$7.44	$0.00	$0.00	$0.00	$0.00
Collection Rates Zone 3	$60.12	$8.75	$0.00	$0.00	$0.00	$0.00

1 The disposal rate adjustment shown is intended to cover the cost of service through the Fiscal Year 2032, after which additional rate adjustments to keep pace with inflation have been identified.
2 The pass-through of the disposal rate adjustment to the monthly residential collection rate is calculated based on 15% percent of the identified disposal rate adjustment by contract.
3 For comparison purposes for this study collection rate increases shown are only those increases related to disposal cost increase and do not reflect allowances for annual cost increases for collection service as allowed by contract.

1.3.3.4. Option 1c: Loss of Both City and Out-of-County Waste

As part of this scenario, it was assumed that the County would no longer waste from the waste generated from the Cities and from out of county contracts. Table 5 below presents the necessary adjustments to facility disposal rates (Landfill and NFTS) and Unincorporated Franchise Hauler tipping fees to offset the loss of revenue from both City and out-of-county waste and the resultant impacts to collection customer rates based on disposal cost increases only. **It should be noted that the projection of collection rates does not factor any regular annual adjustments based on Consumer Price Index (CPI) associated with collection costs.**

Table 5: Bill Impacts: Option 1c: Loss of City and Out of County Waste

	FY24	FY25	FY26	FY27	FY28	FY29
County Disposal Tip Fees						
Disposal Rate Adjustments [1]		98.00%	0.00%	0.00%	0.00%	0.00%
Gate Tip Fees (MSW)						
Fairmead	$67.97	$134.58	$134.58	$134.58	$134.58	$134.58
Change - $		$66.61	$0.00	$0.00	$0.00	$0.00
NFTS	$122.73	$243.01	$243.01	$243.01	$243.01	$243.01
Change - $		$120.28	$0.00	$0.00	$0.00	$0.00
Unincorporated Tip Fees	$67.51	$133.67	$133.67	$133.67	$133.67	$133.67
Change - $		$66.16	$0.00	$0.00	$0.00	$0.00
Flat Rate Fees (up to 500 lbs.)						
MSW- Fairmead / NFTS	$23.08	$45.70	$45.70	$45.70	$45.70	$45.70
Change - $		$22.62	$0.00	$0.00	$0.00	$0.00
3 Can or Less Fairmead / NFTS	$12.10	$23.96	$23.96	$23.96	$23.96	$23.96
Change - $		$11.86	$0.00	$0.00	$0.00	$0.00
Collection Customer Rate Impacts [2 3]						
Mountain Collection Area		14.70%	0.00%	0.00%	0.00%	0.00%
EMADCO	$47.47	$6.98	$0.00	$0.00	$0.00	$0.00
Red Rock		14.70%	0.00%	0.00%	0.00%	0.00%
Collection Rates Zone 1	$34.25	$5.03	$0.00	$0.00	$0.00	$0.00
Collection Rates Zone 2	$38.77	$5.70	$0.00	$0.00	$0.00	$0.00
Collection Rates Zone 3	$45.56	$6.70	$0.00	$0.00	$0.00	$0.00
PUD*		14.70%	0.00%	0.00%	0.00%	0.00%
Collection Rates Zone 1	$45.19	$6.64	$0.00	$0.00	$0.00	$0.00
Collection Rates Zone 2	$51.14	$7.52	$0.00	$0.00	$0.00	$0.00
Collection Rates Zone 3	$60.12	$8.84	$0.00	$0.00	$0.00	$0.00

1 The disposal rate adjustment shown is intended to cover the cost of service through the Fiscal Year 2032, after which additional rate adjustments to keep pace with inflation have been identified.
2 The pass-through of the disposal rate adjustment to the monthly residential collection rate is calculated based on 15% percent of the identified disposal rate adjustment by contract.
3 For comparison purposes for this study collection rate increases shown are only those increases related to disposal cost increase and do not reflect allowances for annual cost increases for collection service as allowed by contract.

1.3.3.5. Option 2a: Send all MSW out of County except NFTS

In this scenario, the landfill would become a "trickle site" only accepting minimal amounts of waste to continue operations. A majority of the waste collected in unincorporated Madera County would be sent to landfill(s) outside the County. Table 6 below presents the necessary adjustments to facility disposal rates (Landfill and NFTS) and Unincorporated Franchise Hauler tipping fees based on operating as a "trickle site" and exporting waste to landfill(s) out of the County and the resultant impacts to collection customer rates based on disposal cost increases only. **It should be noted that the projection of collection rates does not factor any regular annual adjustments based on Consumer Price Index (CPI) associated with collection costs.**

Table 6: Bill Impacts: Option 2a: Send all MSW out of County except NFTS

	FY24	FY25	FY26	FY27	FY28	FY29
County Disposal Tip Fees						
Disposal Rate Adjustments [1]		100.00%	0.00%	0.00%	0.00%	0.00%
Gate Tip Fees (MSW)						
Fairmead	$67.97	$135.94	$135.94	$135.94	$135.94	$135.94
Change - $		$67.97	$0.00	$0.00	$0.00	$0.00
NFTS	$122.73	$245.46	$245.46	$245.46	$245.46	$245.46
Change - $		$122.73	$0.00	$0.00	$0.00	$0.00
Unincorporated Tip Fees	$67.51	$135.02	$135.02	$135.02	$135.02	$135.02
Change - $		$67.51	$0.00	$0.00	$0.00	$0.00
Flat Rate Fees (up to 500 lbs.)						
MSW- Fairmead / NFTS	$23.08	$46.16	$46.16	$46.16	$46.16	$46.16
Change - $		$23.08	$0.00	$0.00	$0.00	$0.00
3 Can or Less Fairmead / NFTS	$12.10	$24.20	$24.20	$24.20	$24.20	$24.20
Change - $		$12.10	$0.00	$0.00	$0.00	$0.00
Collection Customer Rate Impacts [2 3]						
Mountain Collection Area		15.00%	0.00%	0.00%	0.00%	0.00%
EMADCO	$47.47	$7.12	$0.00	$0.00	$0.00	$0.00
Red Rock		15.00%	0.00%	0.00%	0.00%	0.00%
Collection Rates Zone 1	$34.25	$5.14	$0.00	$0.00	$0.00	$0.00
Collection Rates Zone 2	$38.77	$5.82	$0.00	$0.00	$0.00	$0.00
Collection Rates Zone 3	$45.56	$6.83	$0.00	$0.00	$0.00	$0.00
PUD		15.00%	0.00%	0.00%	0.00%	0.00%
Collection Rates Zone 1	$45.19	$6.78	$0.00	$0.00	$0.00	$0.00
Collection Rates Zone 2	$51.14	$7.67	$0.00	$0.00	$0.00	$0.00
Collection Rates Zone 3	$60.12	$9.02	$0.00	$0.00	$0.00	$0.00

1 The disposal rate adjustment shown is intended to cover the cost of service through the Fiscal Year 2032, after which additional rate adjustments to keep pace with inflation have been identified.
2 The pass-through of the disposal rate adjustment to the monthly residential collection rate is calculated based on 15% percent of the identified disposal rate adjustment by contract.
3 For comparison purposes for this study collection rate increases shown are only those increases related to disposal cost increase and do not reflect allowances for annual cost increases for collection service as allowed by contract.

1.3.3.6. Option 2b: Mixed Waste Processing Program

In this scenario, the County would adapt their current non-mandatory curbside collection service (2-cart or 3-cart) to be under a "one bin" system where garbage, recyclables, and organics, are disposed of in one cart. Table 7 below presents the necessary adjustments to facility disposal rates (Landfill and NFTS) and Unincorporated Franchise Hauler tipping fees based on operating and construction of a mixed waste processing facility and the resultant impacts to collection customer rates based on disposal cost increases only. **It should be noted that the projection of collection rates does not factor any regular annual adjustments based on Consumer Price Index (CPI) associated with collection costs.**

Table 7: Bill Impacts: Option 2b: Mixed Waste Processing Program

	FY24	FY25	FY26	FY27	FY28	FY29
County Disposal Tip Fees						
Disposal Rate Adjustments [1]		100.00%	0.00%	0.00%	85.50%	0.00%
Gate Tip Fees (MSW)						
Fairmead	$67.97	$135.94	$135.94	$135.94	$252.17	$252.17
Change - $		$67.97	$0.00	$0.00	$116.23	$0.00
NFTS	$122.73	$245.46	$245.46	$245.46	$455.33	$455.33
Change - $		$122.73	$0.00	$0.00	$209.87	$0.00
Unincorporated Tip Fees	$67.51	$135.02	$135.02	$135.02	$250.46	$250.46
Change - $		$67.51	$0.00	$0.00	$115.44	$0.00
Flat Rate Fees (up to 500 lbs.)						
MSW- Fairmead / NFTS	$23.08	$46.16	$46.16	$46.16	$85.63	$85.63
Change - $		$23.08	$0.00	$0.00	$39.47	$0.00
3 Can or Less Fairmead / NFTS	$12.10	$24.20	$24.20	$24.20	$44.89	$44.89
Change - $		$12.10	$0.00	$0.00	$20.69	$0.00
Collection Customer Rate Impacts [2 3]						
Mountain Collection Area		15.00%	0.00%	0.00%	12.83%	0.00%
EMADCO	$47.47	$7.12	$0.00	$0.00	$6.09	$0.00
Red Rock		15.00%	0.00%	0.00%	12.83%	0.00%
Collection Rates Zone 1	$34.25	$5.14	$0.00	$0.00	$4.39	$0.00
Collection Rates Zone 2	$38.77	$5.82	$0.00	$0.00	$4.97	$0.00
Collection Rates Zone 3	$45.56	$6.83	$0.00	$0.00	$5.84	$0.00
PUD		15.00%	0.00%	0.00%	12.83%	0.00%
Collection Rates Zone 1	$45.19	$6.78	$0.00	$0.00	$5.80	$0.00
Collection Rates Zone 2	$51.14	$7.67	$0.00	$0.00	$6.56	$0.00
Collection Rates Zone 3	$60.12	$9.02	$0.00	$0.00	$7.71	$0.00

1 The disposal rate adjustment shown is intended to cover the cost of service through the Fiscal Year 2032, after which additional rate adjustments to keep pace with inflation have been identified.
2 The pass-through of the disposal rate adjustment to the monthly residential collection rate is calculated based on 15% percent of the identified disposal rate adjustment by contract.
3 For comparison purposes for this study collection rate increases shown are only those increases related to disposal cost increase and do not reflect allowances for annual cost increases for collection service as allowed by contract.

1.3.3.7. Option 3a: Full Organics Diversion Program

In this scenario, the County would adopt a full organics collection and diversion program in compliance with SB1383 consistent with the CountyCounty adopted SB1383 ordinance and related sections of Madera County Code, including subscription curbside organics collection (Green cart). Table 8 below presents the necessary adjustments to facility disposal rates (Landfill and NFTS) and Unincorporated Franchise Hauler tipping fees based on the addition of a curbside organics diversion program. Since it is assumed that the franchise hauler would be responsible for the collection and disposal of organics, the effects to the solid waste system are limited to a simple reduction in the total amount of waste processed. Since the program is voluntary we assumed a 5% participation rate for purposes of the evaluation. A higher participation rate in the organics program would likely result in higher rate increases to the disposal system since there would be a reduction in the economies of scale to the current landfill operations. **It should be noted that the projection of collection rates does not factor any regular annual adjustments based on Consumer Price Index (CPI) associated with collection costs.**

Table 8: Bill Impacts: Option 3a: Full Organics Diversion Program

	FY24	FY25	FY26	FY27	FY28	FY29
County Disposal Tip Fees						
Disposal Rate Adjustments [1]		85.00%	0.00%	0.00%	0.00%	0.00%
Gate Tip Fees (MSW)						
Fairmead	$67.97	$125.74	$125.74	$125.74	$125.74	$125.74
Change - $		$57.77	$0.00	$0.00	$0.00	$0.00
NFTS	$122.73	$227.05	$227.05	$227.05	$227.05	$227.05
Change - $		$104.32	$0.00	$0.00	$0.00	$0.00
Unincorporated Tip Fees	$67.51	$124.89	$124.89	$124.89	$124.89	$124.89
Change - $		$57.38	$0.00	$0.00	$0.00	$0.00
Flat Rate Fees (up to 500 lbs.)						
MSW- Fairmead / NFTS	$23.08	$42.70	$42.70	$42.70	$42.70	$42.70
Change - $		$19.62	$0.00	$0.00	$0.00	$0.00
3 Can or Less Fairmead / NFTS	$12.10	$22.39	$22.39	$22.39	$22.39	$22.39
Change - $		$10.29	$0.00	$0.00	$0.00	$0.00
Collection Customer Rate Impacts [2 3]						
Mountain Collection Area		12.75%	0.00%	0.00%	0.00%	0.00%
EMADCO	$47.47	$6.05	$0.00	$0.00	$0.00	$0.00
Red Rock		12.75%	0.00%	0.00%	0.00%	0.00%
Collection Rates Zone 1	$34.25	$4.37	$0.00	$0.00	$0.00	$0.00
Collection Rates Zone 2	$38.77	$4.94	$0.00	$0.00	$0.00	$0.00
Collection Rates Zone 3	$45.56	$5.81	$0.00	$0.00	$0.00	$0.00
PUD		12.75%	0.00%	0.00%	0.00%	0.00%
Collection Rates Zone 1	$45.19	$5.76	$0.00	$0.00	$0.00	$0.00
Collection Rates Zone 2	$51.14	$6.52	$0.00	$0.00	$0.00	$0.00
Collection Rates Zone 3	$60.12	$7.67	$0.00	$0.00	$0.00	$0.00

1 The disposal rate adjustment shown is intended to cover the cost of service through the Fiscal Year 2032, after which additional rate adjustments to keep pace with inflation have been identified.
2 The pass-through of the disposal rate adjustment to the monthly residential collection rate is calculated based on 15% percent of the identified disposal rate adjustment by contract.
3 For comparison purposes for this study collection rate increases shown are only those increases related to disposal cost increase and do not reflect allowances for annual cost increases for collection service as allowed by contract.

1.3.3.8. Option 3b: Community Composting Program

In this scenario, the County would develop a community composting facility in Eastern Madera County.

Table 9: Bill Impacts: Option 3b: Community Composting Program

	FY24	FY25	FY26	FY27	FY28	FY29
County Disposal Tip Fees						
Disposal Rate Adjustments [1]		87.00%	0.00%	0.00%	0.00%	0.00%
Gate Tip Fees (MSW)						
Fairmead	$67.97	$127.10	$127.10	$127.10	$127.10	$127.10
Change - $		$59.13	$0.00	$0.00	$0.00	$0.00
NFTS	$122.73	$229.51	$229.51	$229.51	$229.51	$229.51
Change - $		$106.78	$0.00	$0.00	$0.00	$0.00
Unincorporated Tip Fees	$67.51	$126.24	$126.24	$126.24	$126.24	$126.24
Change - $		$58.73	$0.00	$0.00	$0.00	$0.00
Flat Rate Fees (up to 500 lbs.)						
MSW- Fairmead / NFTS	$23.08	$43.16	$43.16	$43.16	$43.16	$43.16
Change - $		$20.08	$0.00	$0.00	$0.00	$0.00
3 Can or Less Fairmead / NFTS	$12.10	$22.63	$22.63	$22.63	$22.63	$22.63
Change - $		$10.53	$0.00	$0.00	$0.00	$0.00
Collection Customer Rate Impacts [2 3]						
Mountain Collection Area		13.05%	0.00%	0.00%	0.00%	0.00%
EMADCO	$47.47	$6.19	$0.00	$0.00	$0.00	$0.00
Red Rock		13.05%	0.00%	0.00%	0.00%	0.00%
Collection Rates Zone 1	$34.25	$4.47	$0.00	$0.00	$0.00	$0.00
Collection Rates Zone 2	$38.77	$5.06	$0.00	$0.00	$0.00	$0.00
Collection Rates Zone 3	$45.56	$5.95	$0.00	$0.00	$0.00	$0.00
PUD		13.05%	0.00%	0.00%	0.00%	0.00%
Collection Rates Zone 1	$45.19	$5.90	$0.00	$0.00	$0.00	$0.00
Collection Rates Zone 2	$51.14	$6.67	$0.00	$0.00	$0.00	$0.00
Collection Rates Zone 3	$60.12	$7.85	$0.00	$0.00	$0.00	$0.00

1 The disposal rate adjustment shown is intended to cover the cost of service through the Fiscal Year 2032, after which additional rate adjustments to keep pace with inflation have been identified.

2 The pass-through of the disposal rate adjustment to the monthly residential collection rate is calculated based on 15% percent of the identified disposal rate adjustment by contract.

3 For comparison purposes for this study collection rate increases shown are only those increases related to disposal cost increase and do not reflect allowances for annual cost increases for collection service as allowed by contract.

Table 10 provides a summary of the various options. Following the table we have included our analysis and considerations.

Table 10: Disposal Options Summary

		OPTIONS COMPARISON							
	Current FY24	Status Quo / Baseline	Option 1a Loss of City	Option 1b Loss of Out of County	Opt.1c Loss of City + Out of County	Option 2a Trickle Site	Option 2b MWP	Option 3a Curbside Organics	Option 3b Community Composting
County Disposal Tip Fees Disposal Rate Adjustments [1]		**85.00%**	**90.00%**	**97.00%**	**98.00%**	**100.00%**	**271.00%**	**85.00%**	**87.00%**
Gate Tip Fees (MSW)									
Fairmead	$67.97	$125.74	$129.14	$133.90	$134.58	$135.94	$252.17	$125.74	$127.10
Change - $		$57.77	$61.17	$65.93	$66.61	$67.97	$184.20	$57.77	$59.13
NFTS	$122.73	$227.05	$233.19	$241.78	$243.01	$245.46	$455.33	$227.05	$229.51
Change - $		$104.32	$110.46	$119.05	$120.28	$122.73	$332.60	$104.32	$106.78
Unincorporated Tip Fees	$67.51	$124.89	$128.27	$132.99	$133.67	$135.02	$250.46	$124.89	$126.24
Change - $		$57.38	$60.76	$65.48	$66.16	$67.51	$182.95	$57.38	$58.73
Flat Rate Fees									
MSW- Fairmead / NFTS	$23.08	$42.70	$43.85	$45.47	$45.70	$46.16	$85.63	$42.70	$43.16
Change - $		$19.62	$20.77	$22.39	$22.62	$23.08	$62.55	$19.62	$20.08
3 Can or Less Fairmead / NFTS	$12.10	$22.39	$22.99	$23.84	$23.96	$24.20	$44.89	$22.39	$22.63
Change - $		$10.29	$10.89	$11.74	$11.86	$12.10	$32.79	$10.29	$10.53
				Collection Customer Rate Impacts [2 3]					
Mountain Collection Area		**12.75%**	**13.50%**	**14.55%**	**14.70%**	**15.00%**	**27.8%**	**12.75%**	**13.05%**
EMADCO	$47.47	$6.05	$6.41	$6.91	$6.98	$7.12	$13.21	$6.05	$6.19
Valley Collection Area									
Red Rock		**12.75%**	**13.50%**	**14.55%**	**14.70%**	**15.00%**	**27.8%**	**12.75%**	**13.05%**
Collection Rates Zone 1	$34.25	$4.37	$4.62	$4.98	$5.03	$5.14	$9.53	$4.37	$4.47
Collection Rates Zone 2	$38.77	$4.94	$5.23	$5.64	$5.70	$5.82	$10.79	$4.94	$5.06
Collection Rates Zone 3	$45.56	$5.81	$6.15	$6.63	$6.70	$6.83	$12.68	$5.81	$5.95
PUD		**12.75%**	**13.50%**	**14.55%**	**14.70%**	**15.00%**	**27.8%**	**12.75%**	**13.05%**
Collection Rates Zone 1	$45.19	$5.76	$6.10	$6.58	$6.64	$6.78	$12.57	$5.76	$5.90
Collection Rates Zone 2	$51.14	$6.52	$6.90	$7.44	$7.52	$7.67	$14.23	$6.52	$6.67
Collection Rates Zone 3	$60.12	$7.67	$8.12	$8.75	$8.84	$9.02	$16.73	$7.67	$7.85

1 The disposal rate adjustment shown is intended to cover the cost of service through the Fiscal Year 2032, after which additional rate adjustments to keep pace with inflation have been identified.

2 The pass-through of the disposal rate adjustment to the monthly residential collection rate is calculated based on 15% percent of the identified disposal rate adjustment by contract.

3 For comparison purposes for this study collection rate increases shown are only those increases related to disposal cost increase and do not reflect allowances for annual cost increases for collection service as allowed by contract.

1. **Status quo or baseline option:** provides the lowest cost disposal option.

2. **Option 1 Loss of City and Out-of-County**: results in a loss in revenues and an increase in unit processing costs due to reduced waste deliveries to the landfill thereby reducing the economies of scale for the operation.

3. **Option 2a Trickle Site:** Completely shutting down the landfill would require the County to incur significant landfill closure costs and begin the required post-closure care costs. As a result we evaluated an option to only send a minimal amount of waste to the landfill resulting in it becoming a "trickle site". This results in the County still incurring a portion of the fixed costs of the landfill operations in addition to the cost of transfer and disposal at the American Avenue Landfill resulting in a higher total overall cost.

4. **Option 2b Mixed Waste Processing:** This option is theoretical and assumes the cost to be comparable to Placer County, however it is unclear whether a MWP facility will meet compliance with SB1383 without substantially greater capital investments. Additionally, a key challenge the County is likely to face is a lack of scale and market for the recovered commodities.

5. **Option 3a Curbside Organics:** It is our understanding the County must offer voluntary curbside collection service to the non-rural tracks of the unincorporated County. We worked to assess the fiscal impacts of implementation of such a program. We determined that the effects to the disposal system would likely be minimal assuming low participation rates in the program. Higher participation rates could reduce economies of scale of the landfill and if so would require greater rate increases than what is identified herein.

6. **Option 3b Community Composting:** There has been substantial growth in the number of community composting programs across the Country. Most programs surveyed by the Institute for Local Self-Reliance report they are operated and administered by private organizations. Most of the programs incorporate a collection service as part of the program. Community participation and program funding are the two (2) most significant barriers to the expansion of community composting programs. For the purposes of our evaluation, we assumed a 15% participation in a community drop-off service. CalRecycle may offer grant funding opportunities for local communities to help with initial funding, however longer-term funding and maintenance would be required. Funding from the County's solid waste tip fees may not be the most appropriate funding mechanism and may produce a subsidy from those that don't use the facility to those that use the facility.

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1.4. Observations and Recommendations

The following provides a summary of key findings and recommendations pursuant to our evaluation. Recommendations within this section have been **bolded** for reference:

1) The County has limited ability to address the tipping fee differential among the unincorporated, incorporated, and out-of-county customers, without risking the loss of the City and out-of-county customers to the lower priced American Avenue Landfill in neighboring Fresno County. The following provides related findings and observations:
    a. The County can only attract out-of-county waste through economic means. Based on our evaluation the loss of out-of-county waste would have a negative financial effect to unincorporated customers due to the loss of revenues to help offset the fixed costs of operating the landfill.

    b. We sought the County's legal counsel opinion as to whether the County could implement regulatory flow control which would require the cities to bring their waste to the Fairmead Landfill. Pursuant to their review, it is unlikely that the County could unilaterally require the City to bring its waste to the County's landfill due to the City's "police powers" pursuant to state law. As a result, and similarly to out-of-county waste, the County must rely on contractual and economic means of flow control to encourage waste deliveries from the Cities. Under the County's current agreement with the Cities' franchise hauler, Mid Valley Disposal Inc., the County can terminate the agreement with a 90 day notice. **It is recommended that County staff reassess the cost to the Cities' franchise hauler to alternatively take waste from the Cities to the Fresno County landfill to determine if staff is able to negotiate a higher rate close to or equal to the avoided costs of the hauler for the benefit of the unincorporated customers.**

    c. Pursuant to our benchmarking evaluation we identified that certain rural counties, such as Calaveras County, recover the cost of landfill operations through a fixed Parcel Fee charged based on the type of property. While this represents a different form of cost recovery and one in which all residential parcels pay the same fee, which could help address the inequity of the disposal charges within the County, it would still require approval by the Cities within the County. In the case of Calaveras County, it has one (1) incorporated city, Angels Camp, which entered into a Joint Powers Agreement with Calaveras County to grant the county the ability to assess the Parcel Fee within the city. Furthermore, Calaveras County doesn't have a competing landfill within the region that would require the county to price the parcel fee according to its opportunity cost (i.e., cost of taking waste to a competing landfill).

2) The following provides a high-level accounting of why the loss of the Cities and out-of-county waste would negatively impact the unincorporated customers of the County:
    a. Accepting City and out-of-county waste generates an average approximately $10 per ton in net revenues for the County when taking the average revenue per ton less the direct cost of contracted disposal per ton;

    b. Due to the economies of scale the County's current landfill operating agreement has a declining fee structure per unit of waste processed. The loss of out-of-county and Cities waste would raise the direct unit cost of disposal to the unincorporated customers by approximately

$4 per ton. We quantified this benefit to be approximately $2 per ton of the Cities and out-of-county waste deliveries by taking the unincorporated County cost savings divided by the total Cities and out-of-county waste deliveries.

c. If we combine the $10 per ton of net revenues with the cost savings benefits at $2 per ton, we can estimate the average net revenue to the County of accepting waste from the Cities and out-of-county to be $12/ton;

d. The County incurs additional variable costs beyond the direct cost of the contractual operations of the landfill, including the replacement capital costs of the consumed airspace, the landfill closure, and Cal Recycle IWM fees. We estimate the combination of these costs at approximately $9.61 per ton comprised of $4.66 per ton to construct new airspace, $3.55 per ton to account for the cost of landfill closure, and $1.40 per ton to cover the cost of the CalRecycle IWM fee.

e. As a result, the County nets approximately $2.40 per ton by accepting the City and out-of-county waste under teh current status quo or baseline option.

3) As previously discussed within Section 1.3 of this report, we assessed several SWMS operational alternatives. The following provides a summary of our key findings and recommendations:
   a. **We would recommend that the County maintain its current disposal operations to prioritize minimizing costs to unincorporated residents of the County.** Sending waste out-of-county is not economically optimal since the County has an active landfill which incurs fixed operating costs regardless of the amount of waste deliveries. Alternatively, constructing a Mixed Waste Processing or other material processing facility is more capital intensive and costly than landfilling.

   b. Pursuant to stakeholder input we examined costing for a community composting facility. **While the cost of a single composting facility is not substantial relative to the total cost of solid waste operations there are several issues or concerns we have identified and would therefore recommend further study into community wide interest in such an investment should the County wish to pursue community composting.**

      i. A key concern is community participation and programmatic funding. With respect to funding for the program that any such charges to customers be limited to only those customers who directly benefit from such facilities. **Therefore, it is not recommended that the solid waste tipping fees be used as a funding mechanism but rather a fixed monthly charge or annual parcel fee applied to properties that geographically benefit from any community composting program. Furthermore, we would recommend that the County consider following a similar process for investing in community improvements such as has been done for installation of speed humps which requires a majority approval by community members within a community and identifies alternative funding sources.**

      ii. Alternatively, many community composting programs are often organized by private or non-profit organizations. **We would recommend that the County consider**

offering non-financial support to interested private or non-profit organizations by offering technical or staff support to aid in standing up such a program. Support could include grant application assistance, permitting assistance, and/or technical assistance.

iii. **Alternatively and recognizing the semi-rural nature of the community, we would recommend the County consider a rebate program to offer residents composting bins to aid in organics diversion, which could be done more cost effectively than a community composting site and avoids the necessary costs of collection and transport**.

iv. Lastly, it should be noted that the County is in process of developing a self-haul organics drop-off site(s) for eastern Madera County at the North Fork Transfer Station.

4) The County contracts out collection operations among two (2) franchise private providers, Emadco Disposal Service, Inc. serving the eastern portions of the unincorporated County and Caglia Environmental, LLC (also referred to as RedRock) serving the western portions of the unincorporated County. Both collection agreements were last amended in 2018 and were extended through November 2027. The agreements include two (2) five-year renewal options with the County able to potentially extend the agreements through November 2037. Based on our review of the SWMS and the current collection agreements with consideration of stakeholder input, we offer the following recommendations concerning the collection agreements for consideration:

a. Pursuant to compliance requirements of SB1383 and the County's current code (Section 7.24.107), the County must offer voluntary subscription to curbside organics collection service to applicable census tracts**. It is recommended the County consider extending the current agreement beyond the current expiration term in November 2027 to allow the contractors to amortize the capital cost of new equipment over the service life of the equipment for the benefit of the rate payer. Amortizing capital costs over longer contract periods should result in lower contract rates.**

b. Under the current franchise collection agreement for the unincorporated residents of the County all disposal fee increases are passed through to the collection customers at 15% of the total disposal increases. In principal the 15% pass-through represents the relative proportion of the disposal costs to the total collection fee. Since the collection rates vary by zone a disposal cost increases promulgated by the County results in slightly differing collection cost increases to customers within the unincorporated portions of the County. **Therefore, it is recommended when practical that the County consider revising the disposal cost pass-through provision such that all residential customers pay the same proportional disposal cost increases. Note this should consider any differentiation in waste generation by collection zone if measured.**

c. Pursuant to the franchise collection agreement, the County receives 6% of collection revenues from the franchise haulers. This amounts to revenue of approximately $1 million annually generated from those voluntarily participating in the County's curbside collection program. The

franchise fee is generally related to the special benefit from the use of the right-of-way and roads. The County currently retains half of the franchise fees within the Public Works Fund and the other half within the Solid Waste Fund. **It is recommended that the County review and consider an appropriate nexus for the use of the franchise fees to either remain within the public works fund or transferred to the County's designated road improvement fund.** Additionally, due to recent litigation in California concerning franchise fees, including Zolly v. City of Oakland,[12] it is recommended that the County seek appropriate legal counsel regarding the level and use of franchise fees as it may be considering contractual amendments to the franchise hauler agreements.

5) Raftelis performed on-site facility operational reviews as described in greater detail within Section 4 of this report. The evaluation included an on-site inspection of the County's Fairmead Landfill and North Fork Transfer Station to assess the facilities contract operations. Nothing came to our attention that would suggest that the County's contractor is operating the facilities in an inefficient manner.

6) Raftelis performed a valuation of the County's landfill. Based on the evaluation the Landfill is estimated to have a rough value of $18.5 million. The County could attempt to sell the landfill and recapture some of it's investment. However, demand for the landfill will likely be tied to a commitment by the County to bring waste to the landfill and selling the landfill would result in the loss of direction control of the County's only solid waste disposal site in the County. The County would no-longer have control over the amount of waste imported to the County or the rates charged to customers. **If the County values maintaining control over disposal capacity in the County we would not recommend selling the landfill.**

7) **To address stakeholder input we would recommend that the County consider exploring the establishment of a Solid Waste Advisory Committee (SWAC) to help improve the process of incorporating stakeholder input to decisions related to the solid waste system. Section 4 provides additional details concerning how SWACs can be structured and established. It can be structured to convene periodically or as needed to address key SWMS decisions. It is recommended that the committee be established comprising a diverse group of members including residents, business, and representatives from the key contractors to the County, along with a County staff representative to provide technical support.**

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[12] https://www.courts.ca.gov/opinions/archive/S262634.PDF

2. Background

2.1. Scope and Approach

The Madera County (County) Public Works Department (Department) contracted with Raftelis to perform a study of the County's Solid Waste Management System (SWMS). A key driver for the study related to a prior rate study finding which determined the need to significantly raise tipping fees to unincorporated residents over the next several years to cover the projected capital and operating needs of the disposal system. Due to the projected need to increase fees and concerns of rate payer equity among solid waste customers within the County, among other things, the Board of Supervisors (Board) directed staff to reassess the regulatory structure (e.g., flow controls), franchise collection, facility ownership, and disposal options of the County's Solid Waste Management System (SWMS). The key objectives of the study included:

1 Assisting the County in developing and implementing a robust stakeholder outreach and engagement process to inform the development of the study and communicate findings;

2 Performing an operational scan of the Fairmead Landfill and North Fork Transfer Station to assess the efficiency of operations and how changes in the amount of waste processed affects the unit cost of disposal per ton;

3 Benchmarking with other comparable counties in California to assess SWMS structures, terms for contracted services, levels of service, and cost or charges for service;

4 Performing an appraisal of the Fairmead Landfill to determine the potential market value of the landfill;

5 Developing a long-range planning model to study the effects from changes to the SWMS to the cost of service including the sale of the Fairmead Landfill, closure of the Fairmead Landfill and disposal to neighboring landfills, and potential changes to the collection and flow control of the SWMS; and

6 Preparing a report and develop a presentation summarizing the findings of the study for the Board's consideration (collectively the Study).

2.2. Regulatory and Legal Environmental Scan

The following section provides an overview of the legal and regulatory environment for solid waste management in the County. It is based on a review of relevant Federal and State laws and regulations. This review should not be considered exhaustive and therefore should not be relied upon for any other purpose than the purposes of this report to help provide relevant context and identify potential options for further study by the County. Furthermore, this section is not intended to represent or provide any legal opinions or interpretations. For specific questions and clarifications regarding the legal and regulatory environment we recommend consultation with the appropriate representatives of the relevant regulatory agencies mentioned herein or legal professionals that specialize in waste management and environmental law in California.

Solid waste management is a highly regulated industry within California and the United States. Applicable laws encompass a range of legally binding rules and principles through state statues, state agency regulations, and case law. Federal laws allow states to adopt their own laws regulating solid waste management provided they meet or exceed standards at the federal level. The following overview is organized by Federal, State, and Local government.

2.2.1. Federal Regulatory and Legal Environment:

The legislative branch of the United States government is responsible for the adoption of relevant laws and agencies governing solid waste management at the federal level. The following is a brief overview of key federal laws and agencies responsible for regulation of solid waste management:

- **Resource Conservation and Recovery Act (RCRA)[13]:** The RCRA is a comprehensive federal law that was enacted by the United States Congress in 1976. It was passed in response to growing concerns about environmental pollution and the improper disposal of hazardous waste in the United States. RCRA regulations are contained in title 40 of the Code of Federal Regulations (CFR) parts 239 through 282. The act sets minimum standards for the treatment, storage, and disposal of hazardous waste and the management of non-hazardous solid waste.

- **CFR Title 40[14] – Protection of the Environment**: Key elements of Title 40 as they relate to non-hazardous waste include guidelines for development of State Solid Waste Management Plans, Criteria for Municipal Solid Waste Landfills, Source Separation for Materials Recovery, Guidelines for Thermal Processing of Solid Waste, and Determination of State Permit Program Determination, and closure and post-closure care for landfills, among other things.

- **Environmental Protection Agency (EPA):** The EPA through its Office of Resource Conservation and Recovery (ORCR) is the principal federal agency responsible for enforcing the regulations of the RCRA. The EPA works collaboratively with the corresponding state agencies in the management and regulation of solid waste management.

- **Other Federal Agencies:** While the U.S. Environmental Protection Agency (EPA) is the primary federal agency responsible for the implementation and enforcement of the RCRA, other federal agencies have specific roles and responsibilities related to certain aspects of RCRA implementation especially as they relate to hazardous waste transportation and management.

- **Solid Waste Flow Control:** Flow control is an important consideration for this study and is a regulatory practice or policy that allows a government authority, such as a city or county, to direct and control the flow of solid waste generated within its jurisdiction to specific waste management facilities or disposal sites. The aim of flow control is to ensure that waste is managed in a way that aligns with local waste management goals, policies, and regulations. At the federal level, the legal environment for solid waste flow control is primarily influenced by the Commerce Clause of the United States Constitution and relevant Supreme Court decisions. Key Supreme Court cases include the *City of Philadelphia v. New Jersey (1978), C & A Carbone, Inc. v. Clarkstown (1993), and United Haulers Association, Inc. v. Oneida-Herkimer Solid Waste Management Authority (2007).* The legal principles that emerge from past case law establish that waste flow control ordinances should be carefully crafted to avoid unconstitutional discrimination against interstate commerce. If a flow control policy serves a legitimate public purpose, such as protecting public health or maintaining essential public services, it is more likely to withstand legal challenges.

[13] https://www.epa.gov/rcra/resource-conservation-and-recovery-act-rcra-regulations

[14] https://www.ecfr.gov/current/title-40

2.2.2. State Regulatory and Legal Environment:

The California State Legislature is responsible for the adoption of laws and establishment of agencies governing solid waste management at the state level. Such laws and regulations must meet or exceed minimum federal requirements. The following is a brief overview of key state laws and agencies responsible for regulation of solid waste management:

- **California Integrated Waste Management Act of 1989 (IWMA)**: The IWMA sets out the goals and requirements for solid waste management in California. It emphasizes waste reduction, recycling, and sustainable practices, including source reduction and composting. The laws related to this act are codified primarily in the California Public Resources Code Division 30 Waste Management and Division 31 Waste Management Facilities, and the California Code of Regulations Title 14 Natural Resources - Division 7 Recycling and Recovery.

- **California Public Resources Code (PRC):** The PRC is a collection of laws, such as the codification of the IWMA, that govern various aspects of natural resources, environmental conservation, land use, outdoor recreation, and related matters within the state of California. Key solid waste management laws listed in the PRC can be found in Division 30 Waste Management and Division 31 Waste Management Facilities. The codes address integrated waste management plans, source reduction and recycling elements, household hazardous waste, solid waste facilities minimum standards, solid waste handling and disposal, among other provisions.

- **PRC Division 30 Part 1 Integrated Waste Management[15]:**
    - **Chapter 1 PRC § 40000 - § 40063:** Identifies that the reduction, recycling, or reuse of solid waste will serve to conserve water, energy, and other natural resources, and protect the state's environment. Exercises the state's legal authority to ensure an effective and coordinate approach to the safe management of all solid waste generated within the state and shall oversee the design and implementation of local integrated waste management plans. Requires local agencies to provide adequate solid waste handling and services to implement the state policy. Requires that each county, city, district, or other local governmental agency which provides solid waste handling services shall provide for those services, including, but not limited to, source reduction, recycling, composting activities, and the collection, transfer, and disposal of solid waste within or without the territory subject to its solid waste handling jurisdiction.

    - **Chapter 1 PRC § 40002(b) and § 40059.3 (AB 845 State Flow Control Related Provisions):** The Legislature declares that restrictions on the disposal of solid waste that discriminate on the basis of the place of origin of the waste are an obstacle to, and conflict with, statewide and regional policies to ensure adequate and appropriate capacity for solid waste disposal. A city or county shall not restrict or limit the importation of solid waste into a privately owned facility in that city or county based on the place of origin. ~ !~

    - **Chapter 1 PRC § 40063:** At the request of a county with a population of less than 250,000, the board and the state water board may meet with the county to prioritize, through development and joint adoption of a five-year plan, state environmental concerns with regard to solid waste management in relation to the fiscal and staffing constraints on the county.

[15] https://leginfo.legislature.ca.gov/faces/codes_displayText.xhtml?lawCode=PRC&division=30.&title=&part=1.&chapter=1.&article=1.

- **PRC Division 30 Part 2 Integrated Waste Management Plans (IWMP)[16]:**
  - **Chapter 1 PRC § 40970 - § 40977 (Regional Agencies):** Authorizes cities and counties to form regional agencies to reduce the cost of reporting and tracking of disposal and diversion programs by individual cities and counties and to increase the diversion of solid waste from disposal facilities.

  - **Chapter 3 County Source Reduction and Recycling Elements § 41300 - § 41303 (IWMP):** Requires each county to prepare and adopt a source reduction and recycling element for unincorporated areas of the County and follow the waste hierarchy requirements of § 40051. The plan will include the following components: waste characterization, source reduction, recycling, composting, solid waste facility capacity, education and public information, funding, and special waste. Cities also have an equivalent requirement as codified in PRC § 41000 - § 41003.

  - **Chapter 6 Planning Requirements § 41780 - § 41794 (Diversion Goal):** Requires that each jurisdiction divert 50% of all solid waste as part of its source reduction and recycling element and establishes a statewide policy goal of 75% diversion rate measured on a per capita basis.

  - **Chapter 7 Approval of Local Planning § 41850 - § 41851 (Enforcement & Penalties):** Allows imposition of civil penalties of up to $10,000 per day if the jurisdiction is found to have failed to make a good faith effort to implement its source reduction and recycling element or its household hazardous waste element of the IWMP.

- **PRC Division 30 Part 3 State Programs Chapter 13.1 Short-Lived Climate Pollutants § 42652 - § 42655 (S.B. 1383 Organics Diversion)[17]:** Requires establishment of regulations to meet organic waste reduction goals for 2020 and 2025 as established in Section 39730.6 of the Health and Safety Code. The regulations:
  - May require local jurisdictions to impose requirements on generators or other relevant entities within their jurisdiction and may authorize local jurisdictions to impose penalties on generators for noncompliance.

  - Shall include requirements intended to meet the goal that not less than 20 percent of edible food that is currently disposed of is recovered for human consumption by 2025.

  - May include different levels of requirements for local jurisdictions and phased timelines based upon their progress in meeting the organic waste reduction goals for 2020 and 2025. The department shall base its determination of progress on relevant factors, including, but not limited to, reviews conducted pursuant to Section 41825, the amount of organic waste disposed compared to the 2014 level, per capita disposal rates, the review required by Section 42653, and other relevant information provided by a local jurisdiction.

  - May include penalties to be imposed by the department (CalRecycle) for noncompliance. If penalties are included, they shall not exceed the amount authorized pursuant to Section 41850 ($10,000 per day).

[16] https://leginfo.legislature.ca.gov/faces/codes_displayexpandedbranch.xhtml?tocCode=PRC&division=30.&title=&part=2.&chapter=&article=

[17] https://leginfo.legislature.ca.gov/faces/codes_displayText.xhtml?lawCode=PRC&division=30.&title=&part=3.&chapter=13.1.&article=

- Regulations shall take effect on or after January 1, 2022, except the imposition of penalties pursuant to paragraph (1) shall not take effect until two (2) years after the effective date of the regulations.

- Each jurisdiction shall procure a quantity of recovered organic waste products that meets or exceeds the following schedule for its recovered organic waste product procurement target on or after the following dates:
  - January 1, 2023 must achieve 30% organic waste procurement target;
  - January 1, 2024 must achieve 65% organic waste procurement target; and
  - January 1, 2025 must achieve 100% organic waste procurement target.

- Pursuant to Title 14 subdivision (c) of Section 18984 though 18984.14 of the California Code of Regulations, rural, elevation, and low-population jurisdictions that have small organic waste footprint face significant challenges to collecting organic material may apply for waivers.
  - Rural exemptions do not apply to the County.
    - PRC defines rural counties as having a population less than 70,000 or a certain population density. Jurisdictions in possession of a rural exemption are exempt from the procurement requirement of this subdivision until December 31, 2026.

  - The County has certain census tracks that meet the low population waiver and the County has identified exemptions for those areas. For all other areas it offers 3 options for compliance with this PRC code as later described in the section on local regulations.

- **PRC Recycling of Commercial Solid Waste § 42649 - § 42649.7 (AB 341):** Requires businesses that generates four cubic yards or more of commercial solid waste per week or is a multifamily residential dwelling of five units or more shall arrange for recycling services to the extent that these services are offered and reasonably available from a local service provider. Requires jurisdictions to implement a commercial solid waste recycling program. The commercial solid waste recycling program shall include education, outreach to, and monitoring of, businesses. A jurisdiction shall notify a business if the business is not in compliance. Allows for local agency to charge a fee from commercial waste generators to recover the costs incurred in complying with this requirement.

- **PRC Recycling of [Commercial] Organic Waste § 42649.8 - § 42649.87 (AB 504 and AB 1826):** Requires businesses that generates 4 cubic yards or more (2 cubic yards if statewide goals not met) of commercial solid waste per week to either: (1) Source separate organic waste from other waste and subscribe to a basic level of organic waste recycling service that includes collection and recycling of organic waste. (2) Recycle its organic waste onsite or self-haul its own organic waste for recycling. (3) Subscribe to an organic waste recycling service that may include mixed waste processing that specifically recycles organic waste. (4) Make other arrangements consistent with paragraph (3) of subdivision (b) of Section § 42649.84. If the statewide goal of 50% diversion of organic waste from 2014 levels is not achieved by January 1, 2020 then businesses that generates 2 cubic yards or more per week of commercial solid waste shall arrange for organic waste services unless the department (CalRecycle) determines that it will not result in a significant additional reductions of organics disposal. Allows exemptions for rural counties defined as having less than 70,000 persons. Allows for local agency to charge a fee from a commercial organic waste generator to recover the costs incurred in complying with this requirement.

- **PRC § 43501 Closure Plans & § 43600/43601 Financial Assurance:** Requires landfill owners and operators to submit a closure and post-closure plan and demonstrate financial assurance for the cost of landfill closure and post-closure care for a 15-year period. Financial assurance may be met by the use of any mechanisms set forth in Part 258 subpart G of Title 40 of the Code of Federal Regulations which include either a Trust Fund, Surety / Performance Bond, Letter of Credit, Insurance, Corporate Financial Test, Local Government Financial Test, Corporate Guarantee, or Local Government Guarantee[18].

- **PRC Division 30 Part 7 Other Provisions Chapter 2 Finances § 47901 - § 48028[19] (state trust fund):** Establishes a statewide solid waste post closure and corrective action trust fund and requires participating landfills to pay a quarterly fee to the State Board of Equalization based on the amount of waste disposed in the landfill at a rate not-to-exceed $1.40 per ton.

- **California Environmental Protection Agency (CalEPA):** The CalEPA oversees various environmental agencies including the California Department of Resources Recycling and Recovery (CalRecycle) which is the principal regulatory agency in the State for solid waste management. CalEPA also oversees two other departments related to solid waste management including: a) the California Department of Toxic Substances which regulates the handling and disposal of hazardous waste, including hazardous materials at solid waste facilities; and b) the California Air Resources Board (CARB) which enforces air quality standards related to solid waste management, including regulations on emissions from waste disposal facilities.

- **California Department of Resources Recycling and Recovery (CalRecycle):** CalRecycle is the principal regulatory agency responsible for recycling and waste management programs in the state. It administers recycling and waste reduction programs, issues permits, and provides guidance on waste management practices. It is the principal agency responsible for the promulgation of the California Code of Regulations (CCR) related to solid waste management.

- **California Code of Regulations:** The CCR is a compilation of administrative regulations and rules that are promulgated by state agencies and departments to implement and provide detailed guidance for the statutes outlined in the PRC and other California codes. The CCR contains detailed rules and regulations governing solid waste management in California. Relevant sections can be found in various titles of the CCR, particularly Title 14 Division 7 related to Natural Resources, which includes regulations related to waste management including planning guidelines and procedures for Countywide Integrated Waste Management Plan, short-lived climate pollutants and organics diversion, permitting enforcement and requirements, and minimum standards for solid waste handling and disposal among others. Some relevant regulations pursuant to the CCR related to adopted PRC law include:
    - Chapter 12 Short-lived Climate Pollutants Compliance: Requires a jurisdiction to adopt local ordinances that are consistent or more restrictive than the requirements of the CCR Chapter 12 regulations based on PRC § 42652 - § 42655. Prescribes compliance with the regulations as offering a 3-container system for msw (grey), recycling (blue), and organics (green and/or separate brown for food waste). A single or 2-bin system (gray and green container) is allowed where waste can be delivered to facilities that meet requirements for organics diversion and achieve minimum diversion rates such as a mixed waste processing facility. Includes monitoring and record keeping / reporting

[18] https://www.ecfr.gov/current/title-40/chapter-I/subchapter-I/part-258/subpart-G

[19] https://leginfo.legislature.ca.gov/faces/codes_displayexpandedbranch.xhtml?tocCode=PRC&division=30.&title=&part=7.&chapter=2.&article=

requirements by a local jurisdiction for compliance review by CalRecycle. Offers methods of compliance for contamination review of 3 bin systems by specifying minimum sampling for bin contamination twice a year (i.e., 25 samples for routes less than 1500 generators up to 40 samples for routes with 7,000 or more generators). Requires solid waste systems to meet container labeling and color requirements by January 1, 2036. Waivers to organics diversion requirements can be granted to business if: i) they can document organics production is less than 20 gallons per week; and ii) they do not have physical space to place an organics container.

- **Applicable California Air Resources Board (CARB) Regulations[20]:** CARB has a number of regulations related to landfill and vehicle emissions. The County has recently incurred substantial additional costs to install landfill gas flares to help mitigate methane releases. Additionally, the Advanced Clean Fleets (ACF) regulation as part of CARB's overall approach to accelerate a large-scale transition to zero-emission medium- and heavy-duty vehicles has impacted the solid waste industry. These requirements are pursuant to the Governor's executive order N-79-20.
    - Advanced Clean Fleets (ACF) regulation: applies to local government fleets with common ownership of more than 50 vehicles. Requires State and local government fleets, including city, county, special district, and State agency fleets, are required to ensure 50 percent of vehicle purchases are zero-emission beginning in 2024 and 100 percent of vehicle purchases are zero-emission by 2027. Small government fleets (those with 10 or fewer vehicles) and those in designated counties must start their ZEV purchases beginning in 2027. Alternately, State and local government fleet owners may elect to meet ZEV targets using the ZEV Milestones Option Table 1. State and local government fleets may purchase either ZEVs or near-ZEVs, or a combination of ZEVs and near-ZEVs, until 2035. Starting in 2035, only ZEVs will meet the requirements. Exemptions are available if a ZEV is unavailable. CARB maintains a record of vehicles available.

- **Proposition 218 and 26[21]:** In 1996, the voters of California adopted Proposition 218, which among other things, limits the ability of local agencies to impose certain property-related fees and assessments without prior property owner consent. In 2010, California voters passed Proposition 26, a further initiative that limits the ability of local agencies to impose fees, levies, charges, assessments, or other exactions without prior voter approval. These initiatives, among other things, amended Article XIII C and Article XIII D of the California Constitution. Proposition 218 is best understood as a response to the implementation of Proposition 13, which was intended to cut property taxes. It can be inferred that Proposition 218 includes limitations on the methods of local governments to exact revenue from taxpayers in order to limit circumvention of Proposition 13. Similar to how Proposition 218 was in response to Proposition 13, Proposition 26 was a response to the California Supreme Court decision in *Sinclair Paint Co. v. State Board of Equalization (1997) 15 Cal.4th 866* associated with state imposition of regulatory fees and whereby it was determined that a fee need not bear a special benefit to the property so long as the fee bears a reasonable relationship to the burden the fee payor imposes on society. Regulatory fees that require fee payors to mitigate the adverse impacts of their activities were the primary targets of Proposition 26. The "Findings and Declarations of Purpose" stated that the drafter's intent was to reclassify as "taxes" many fees that are imposed to mitigate the adverse health, environmental, and other societal effects of regulated

[20] https://ww2.arb.ca.gov/resources/fact-sheets/advanced-clean-fleets-regulation-summary

[21] https://www.calcities.org/docs/default-source/city-attorneys/propositions-26-and-218-implementation-guide.pdf?sfvrsn=23fe61f2_3

activities. The following guidance by the League of California Cities as it relates to the implementation of property based and user fees as includes:

- Fees are defined / include charges imposed for a specific government service or product provided directly to the payor that is not provided to those not charged, and which does not exceed the reasonable costs to the local government of providing the service or product.
- The local government bears the burden of proving by a preponderance of the evidence that a levy, charge, or other exaction is not a tax, that the amount is not more than necessary to cover the reasonable costs of governmental activity, and that the manner in which those costs are allocated to a payor bear a fair or reasonable relationship to the payor's burdens on, or benefits received from the governmental activity.
- General concepts of fee design include fees must be proportional among the cost and the benefit or service provided.
- Identifies general procedural requirements for fee imposition including the need to calculate the fee, notice the fee, hold a public hearing within 45 days of the notice, and if written protests against the fee are presented by a "majority of owners of the identified parcels," the fee cannot be imposed.

2.2.3. Local Regulatory and Legal Environment:

The County is responsible for the adoption of laws and establishment of regulations in compliance with Federal and State laws, such as implementation of Solid Waste Management Plan, Recycling Programs, and Organics Programs, among other things. These regulations must be at least equal to the minimum standards of federal and state laws. The following is a brief overview of key local laws related to solid waste management:

- **Title 7 Health and Sanitation: Chapter 7.24 Solid Waste:** The County has adopted municipal code related to solid waste management for the unincorporated areas of the County covering, but not limited to, provision of franchise rights, organic waste management requirements and exemptions based on rural exemptions for census track data, household hazardous waste, disposal, recycling, violations and penalties, and rates for service. **This section includes provisions related to regulatory flow control of solid waste within unincorporated portions of the County.**
  - **7.24.100 Findings:** Authorized services include solid waste handling services, including without limitation source reduction, recycling, composting, and the collection, transfer and disposal of solid waste within the unincorporated area of the county by any means authorized by PRC § 40058 and § 40059. Assembly Bill 1826, the State Organics Recycling Law, requires businesses and multi-family property owners that generate a specified threshold amount of solid waste, recycling, and organic waste per week to arrange for recycling services for that waste, and requires the county to implement a recycling program to divert organic waste from businesses subject to the law. Senate Bill 1383, the Short-lived Climate Pollutant Reduction Act of 2016, requires the county to adopt and enforce an ordinance or enforceable mechanism to implement relevant provisions of SB 1383 Regulations. Defines "SB 1383 Census Tracts" as all census tracts in the county for which a waiver has not been granted by CalRecycle pursuant to 14 CCR 18984.12(a)(2).

- **7.24.101 Definitions:** "Organic waste generator" means a person or entity that is responsible for the initial creation of organic waste, or as otherwise defined in 14 CCR Section 18982(a)(48).

  - **7.24.103 Franchise Required:** Except as authorized pursuant to Sections 7.24.106 and 7.24.107, no person shall collect, handle, transfer, store, process, transport or use discarded materials (including

recyclable materials and C&D debris) or franchise waste in the **unincorporated area of the county** without first receiving a franchise from the county to engage in such activity.

- **7.24.104 Franchise Services:** Provides specifications related to the exclusive franchise given for collection of waste including SB 1383 Census Tracts are subject to AB 341 and AB 1826 requirements.

- **7.24.105 Franchise Fee:** Any franchisee shall pay to the county a monthly franchise fee as agreed upon by the franchisee and the county in the franchise agreement for all services provided by the franchisee in the franchise area.

- **7.24.106 Exceptions to Exclusive Franchise:** Except as otherwise authorized in Section 7.24.107, all waste generated in the county and collected for disposal must be transported for disposal by a franchisee, any non-franchise hauler authorized to transport pursuant to this section, or self-hauled to the North Fork Transfer Station, Fairmead Landfill, or other designated disposal facility or designated recycling facility.

- **7.24.107 Organics Waste Requirements for SB1383 Census Tracts:** Requires all organic waste generators for SB1383 Census Tracts to either: 1. Subscribe to and comply with the requirements of the organic waste collection service provided by a county franchisee; 2. Self-hauling source separated organic waste in a manner that complies with the requirements of this chapter; 3. Managing organic waste on site at the generator's premises; or 4. Transporting source separated organic waste to a community composting site in accordance with this chapter.

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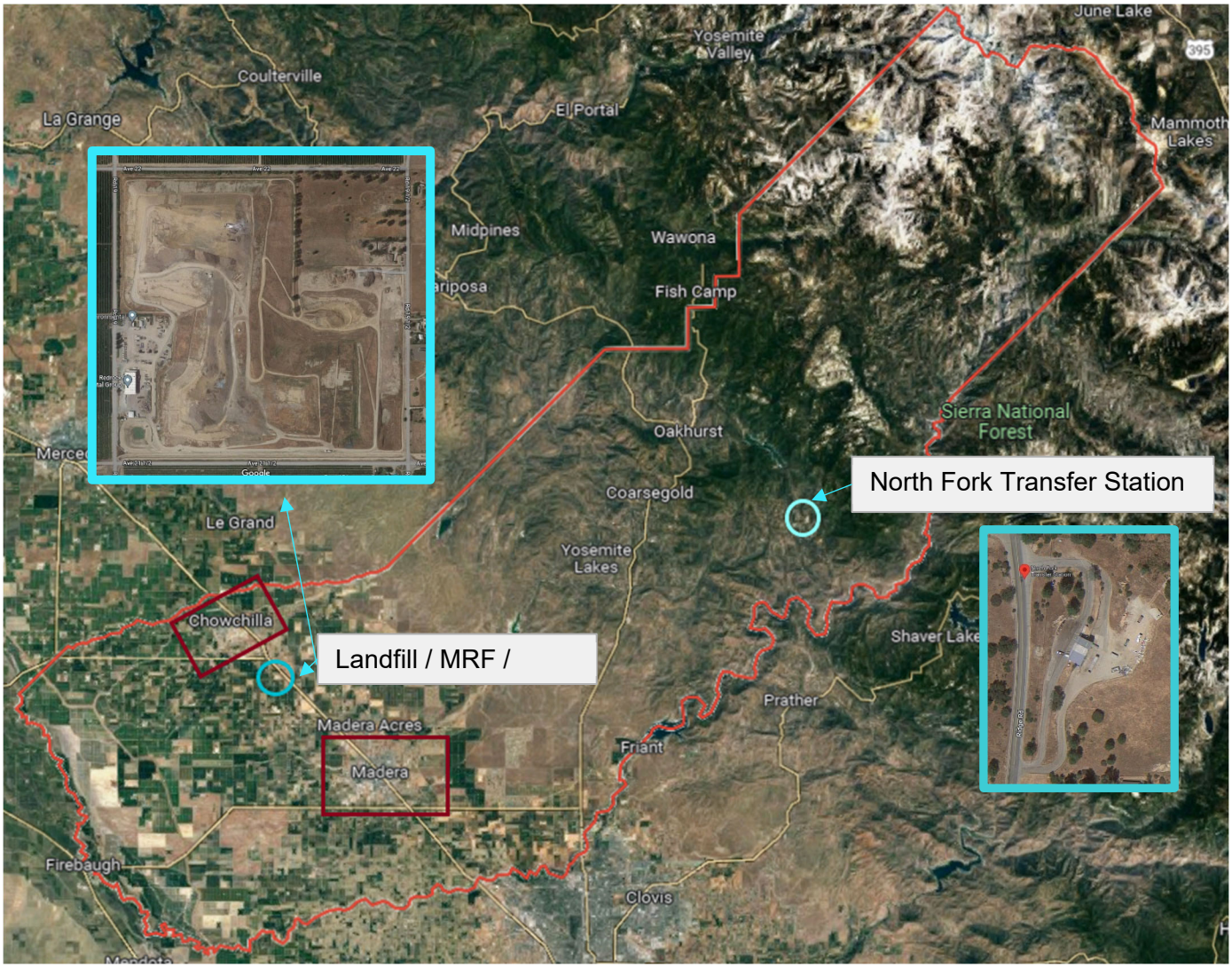
2.3. Solid Waste Management System Overview

The purpose of the SWMS is to protect the health, safety and well-being of the public and to preserve and improve the quality of the environment by assuring proper storage and disposal of solid waste. The County is primarily responsible for solid waste management within the unincorporated portions of the County and offers a voluntary franchised collection service with a self-haul option to either the County's Fairmead Landfill or North Fork Transfer Station (NFTS). The Fairmead Landfill was constructed in 1993 with a 146.9-acre footprint and over 23 million cubic yards capacity. It is located in the western side of the County in the valley region near the City of Chowchilla. The NFTS is located in the eastern portion of the County in the mountain region near the unincorporated communities of Oakhurst, Bass Lake and North Fork.. Figure 3 below presents an overview of the county and location of the disposal facilities and the incorporated municipalities.

Figure 4: County SWMS Facility Overview Map



The County has two (2) municipalities, City of Madera and City of Chowchilla, who govern their own solid waste collection and management systems. The County disposes of the waste from the municipalities at the County's landfill through negotiated arrangement with the City's franchise collection hauler. The County does not have regulatory flow control of the City's solid waste, which implies that the Cities, through their franchise

hauler, can take their waste out-of-county to the neighboring American Avenue Landfill in Fresno County. The American Avenue Landfill is approximately 25 miles from the City of Madera and 41 miles from Chowchilla.

The County receives and disposes of approximately 309,400 tons of waste annually. Of this amount approximately 78,200 tons represents clean asphalt, bricks, concrete, and cover that is not charged a fee and used for daily cover of the landfill as required by law. The County receives a small amount or approximately 2,000 tons per year of recycled material that is also not charged a fee. The remainder or approximately 229,200 tons is generated by unincorporated properties in the County, incorporated Cities of Madera and Chowchilla, and out-of-county wastes who are charged varying tipping fees, which are lower for the Cities and Out-of-County waste. Table 11 below categorizes the County's waste streams being charged a tip fee.

Table 11: County Wast Steams Charged a Tip Fee

Category	Description	Estimated Annual Tons[1]	Tons per Day[2]
Gate Tip Fees	Non-contract/Self Hauler Disposal Fees paid at the gate of the Landfill and NFTS. The County can adjust these fees by Board action.	22,400 tons *(7,800 tons fr NFTS)*	86 tpd
Unincorporated Tip Fees	Franchise Hauler and Contract Operator Disposal Fees charged to the franchise haulers serving the unincorporated customers of the County. The County can adjust these fees by Board action.	65,800 tons	253 tpd
Other Contracted Tip Fees[3]	Contracted tip fees charged to municipalities (Cities) located in the County and out-of-county waste. The County can adjust these fees by contract amendment.	86,000 tons CARTS/ 55,000 tons / City	542 tpd
Total		229,200 Tons	882 tpd

[1] Amounts shown were estimated based on estimates for the Fiscal Year 2023/24 based on historical landfill tonnage origins reporting and NFTS contract operation invoices.
[2] Amounts shown were calculated assuming annual tons divided by 5 day a week operation over 52 weeks.
[3] Tonnages shown as CARTS represents contracted waste brought in from out-of-county by Red Rock.

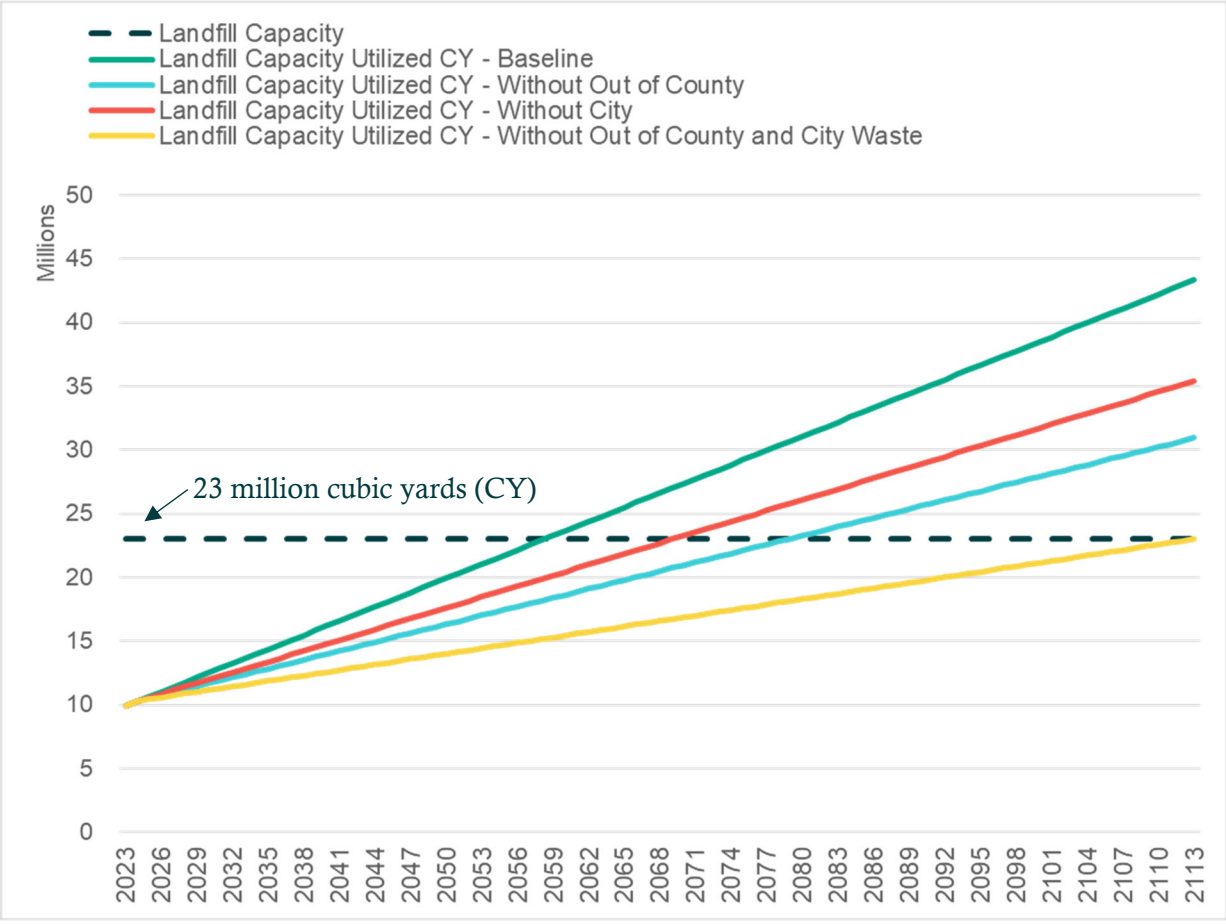
As discussed in greater detail within subsequent sections of this report, the County contracts out all operations for solid waste collection, landfill operations, and NFTS operations. Pursuant to the landfill operating agreement for service, the County pays a reduced fee as the amount of waste brought to the facility increases. Therefore, while the County charges lower disposal rates for out-of-county and municipality waste, it benefits from a lower contracted disposal cost. Based on our analysis as described in Section 7, unincorporated residents benefit from lower tipping fees due to the receipt of Cities and out-of-county waste.

Table 1213: Landfill Operating Agreement Contracted Disposal Fee Scale

	Fiscal Year 2024 Landfill Operating Agreement Cost (Tons per Day)								
Lower Daily Limit	0	181	301	401	501	601	701	801	901
Upper Daily Limit	180	300	400	500	600	700	800	900	1,000
Rate/Ton	$30.31	$24.78	$18.94	$18.48	$17.13	$16.10	$14.96	$14.61	$13.26

While the County benefits from reduced operating costs, it reduces the service life of the landfill and also results in a higher capital cost associated with constructing new lined capacity. However, as noted in subsequent sections of this report the County still benefits from a net lower cost per ton for unincorporated residents when the County continues to receive the Cities and out-of-county waste due to the reduced operating expenses and additional tipping fee revenues from such customers. Figure 4 below presents the expected landfill closure based on tonnage projections at current waste generation levels. Under baseline conditions the landfill would reach capacity in 36 years or by 2059, while excluding either the City or out-of-county waste would result in a life extension of the landfill by an additional 11 years (2070) or 20 years (2079), respectively. Collectively, eliminating tonnages from the Cities and out-of-county waste is estimated to result in a life extension to the landfill of 54 years to the year 2113. **The key considerations from a policy perspective are whether: i) the current landfill capacity is considered a scare resource or if the County believes it can secure and permit additional landfill capacity at a reasonable cost; and ii) whether the County values preserving landfill capacity and what cost.**

Figure 5: Landfill Capacity in CY



2.4. Contractual Agreements

The County contracts out most of the SWMS operations to private providers. The requested Fiscal Year 2024 operating budget totaled approximately $9 million of which approximately $7 million or 80% is to pay private providers for contracted and professional services. The County's primary contractor, Caglia Environmental LLC. D.B.A Red Rock (Red Rock), handles operations of the County's landfill, MRF, HHW, and NFTS. The County also contracts with Red Rock for franchise non-mandatory collection services in the Valley collection zone and with EMADCO Disposal Inc. for franchise non-mandatory collection service in the Mountain collection zone. Additionally, the County has a contract in place with Mid Valley Disposal (Cities' franchise collection contractor) for disposal of municipal waste from the two cities at the landfill. The County also contracts with Tetra Tech BAS for assistance with landfill engineering and regulatory permitting and compliance services.

- **Caglia Environmental LLC. D.B.A Red Rock (Red Rock)** – is the primary contractor that handles the operation of the County's Fairmead Landfill, North Fork Transfer Station (NFTS), and Mammoth Material Recovery Facility (MRF). Red Rock also provides collection service to the western portion of the unincorporated County below 1,000 feet in elevation (Valley franchise area) split into three zones. The services are governed through three (3) separate agreements with parallel contract duration terms. The County entered into the agreements with Red Rock in 2018 for services through 2027. The agreements have two optional renewal terms of five (5) additional years that would cover the periods from 2027 – 2032, and 2032 – 2037 under the same conditions as the original agreement terms.

  In Red Rock's operations of the landfill, NFTS, and MRF, the company is required to deliver to the Landfill, and (subject to any landfill permit restrictions) the County is obligated to accept an average of 200 tons per day of out-of-county acceptable waste at the landfill. The County is not obligated to accept more than 61,000 tons of out-of-county acceptable waste at the landfill in a contract year. The County establishes and collects fees / charges to customers of the solid waste facilities. With respect to the NFTS, fees must be approved by the County and are collected by the operator and processes transactions at the Fairmead landfill which are then are remitted to the County.

  Under Red Rock's collection obligations, their services include but are not limited to i) collecting, transporting, and disposing of solid waste at the designated disposal facility determined by the County, ii) collecting and transporting to market source separated recyclable materials and commercial fiber materials, iii) collecting and transporting yard waste to either the designated disposal or designated recycling facility, iv) marketing source separated recyclable materials and commercial fiber materials, v) providing containers to all commercial generators of solid waste, source separated commercial recyclable materials and commercial fiber materials, and vi) free environmental services and other services which the County has the right to implement (i.e. outreach, monitoring, and reporting services on the commercial recycling program to ensure the Couty can show compliance with the mandated commercial recycling program, provide up to 100 tons of illegal dumping area clean up services, development a mixed construction and demolition debris recycling ordinance, etc.).

  Standard collection service for residential and commercial customers includes weekly collection for a 96-gallon solid waste cart and biweekly collection for a 96-gallon recycling cart. Red Rock provides the 96-gallon carts to customers, but residential or commercial properties may request front load or roll-off service. Residential customers are defined as single-family dwellings and multi-family dwellings for up to four (4) residentials units per building. Commercial customers include commercial accounts and multi-family dwellings with greater than four (4) residential units per building.

Red Rock has County approved charges that the franchisee is permitted to charge for collection customers within the service area. Rates are adjusted and approved by the County annually pursuant to provisions of the franchise contract. Additionally, Red Rock must pay the County a monthly franchise fee equal to six (6) percent of the gross collections received for all services provided by the franchisee in the service area (not including revenues received by the franchisee for the sale of recyclable materials).

- **EMADCO Disposal Inc.** is a key contractor in the County providing exclusive franchise services to the unincorporated area of the County above 1,000 feet in elevation (Mountain franchise area). The County entered into the most recent agreement with Emadco in 2018 for services through 2027. The agreement has two optional renewal terms of five (5) additional years that would cover the periods of July 2027 – June 2032, and July 2032 – June 2037 . EMADCO's services include but are not limited to i) collecting, transporting, and disposing of solid waste at the designated disposal facility determined by the County, ii) collecting and transporting to market source separated recyclable materials and commercial fiber materials, iii) collecting and transporting yard waste to either the designated disposal or designated recycling facility, iv) marketing source separated recyclable materials and commercial fiber materials, v) providing containers to all commercial generators of solid waste, source separated commercial recyclable materials and commercial fiber materials, and vi) free environmental services and other services which the County has the right to implement (i.e. community recycling programs, end of season residential drop off, outreach, monitoring, and reporting services on the commercial recycling program to ensure the Couty can show compliance with the mandated commercial recycling program, provide up to 100 tons of illegal dumping area clean up services, etc.).

  Residential refuse collection service is provided to single-family dwellings and multi-family dwellings for up to four (4) residentials units per building. Residential refuse is collected once per week, while recycling is collected bi-weekly with residential solid waste containers provided by the private hauler if requested. Commercial refuse collection includes commercial accounts and multi-family dwellings with greater than four (4) residential units per building. Commercial waste is collected within a range of one to six times per week. Commercial recycling services includes commercial accounts and multi-family dwellings with greater than four (4) residential units per building and accommodates the mandated recycling regulations (AB 341 & AB 1826).

  EMADCO has County approved charges that the franchisee is permitted to charge for customers within the service area. Rates are adjusted and approved by the County annually pursuant to the provisions of the franchise contract. Additionally, EMADCO must pay the County a monthly franchise fee equal to six (6) percent of the gross collections received for all services provided by the franchisee in the service area (not including revenues received by the franchisee for the sale of recyclable materials).

- **Mid Valley Disposal Inc.** provides solid waste collection services through franchise agreements with the Cities of Madera and Chowchilla. The County has an agreement with Mid Valley Disposal to utilize the Fairmead landfill for the disposal of its collected municipal solid waste (MSW), green waste, and wood waste, from both cities. The disposal fees (tipping fees) under this contract are less than the public gate rates and tipping fees for the County's franchise haulers. Under the agreement, Mid Valley must deliver and dispose of a minimum of eighty (80) and maximum of two hundred twenty (220) tons of MSW per day Monday through Friday. There is no minimum or maximum requirement for the disposal of green waste or wood waste. The agreement includes annual increases to the tipping fees based on Consumer Price Index (CPI). The term of the agreement commenced on January 1, 2023 and continues through December 31, 2027, and can be cancelled with a 90-day notice.

- **Tetra Tech BAS** Provides professional services under contract for landfill regulator and permitting assistance as well as landfill gas monitoring and management and landfill design and engineering. There are a significant number of regulatory and permitting requirements that the County must comply with for operating the landfill and transfer station facilities. The landfill is also an ongoing "project" that requires engineering design and adjustments as filling progresses. Tetra Tech was contract by the County to assist with these aspects of the Solid Waste Management system. The costs for these services are included in the Liner Fund budget and factored into the disposal fee rates. The current contract with Tetra Tech continues through June 30, 2024.

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3. Stakeholder Outreach and Engagement

3.1. Reaching Out

Raftelis' Communications and Stakeholder Engagement Specialists were charged with developing a robust program to inform the Solid Waste Management Study (SWMS).

3.1.1. In-depth Interviews

Their first step was to host a series of in-depth phone/virtual interviews with key stakeholders. While confidentiality was promised, those interviewed represented at least one – and frequently more than one – of the following groups/categories:

- County elected officials
- Madera County Trash Advisory Group
- Chambers of Commerce
- Realtors
- Faith-based community
- Historically underrepresented communities
- Other personnel

While our complete findings are available in the summary memorandum we have included as Appendix A, the following summarizes what Raftelis learned through this effort:

- SB 1383 is generally understood. Stakeholders typically do not support it and are concerned with the County's response to it
- Affordable and accessible options are a priority to most stakeholders
- Communities are not interested in mandatory programs
- Community groups are concerned with how the landfill is operated, including the tipping fee disparity
- There's a general interest in organics and recycling if it's a low-cost option

3.1.2. SWMS Project Website

Next, the team built and launched a website to serve as a convenient repository for study information. The SWMS project site, www.madcosolidwastestudy.com:

- Told the story of the study's purpose and need
- Described the project timeline, including phases of outreach and specific milestones
- Invited stakeholders to participate in an online survey
- Answered a series of Frequently Asked Questions
- Provided information on additional feedback channels
- Shared engagement opportunities as they became available
- Linked to county social media

Screenshots of the study website are shown below; note the study team developed a version for those in the community who may not be native English speakers:

3.1.3. Social Media Posts

Over the course of the study, Raftelis worked closely with county staff to develop, design, and post information about the SWMS to various county social media channels. As of August 14:

- The county reached more than 24,000 people and earned more than 21,700 impressions and more than 1,000 engagements.

3.1.4. Press Releases and Newspaper Articles

Raftelis developed three press releases over the course of the study, which resulted in at least two articles in local newspapers; one is shown below from *Sierra News*.

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Sierra News ONLINE

HEADLINES · COMMUNITY · CALENDAR · MOUNTAIN LIVING · BY TOWN · THINGS TO DO · ABOUT SNO · SHOP LOCAL

Madera County Launches Solid Waste Management Study

Posted by: SNO Staff April 21, 2023 0 1,182 Views

MADERA COUNTY — Madera County has launched a comprehensive study of the County's solid waste management program. The study will be conducted by an independent consulting firm and informed by input from Madera County stakeholders and community members, which aims to provide an in-depth analysis of current solid waste practices and identify opportunities for improvement.

The study will also analyze the economic and environmental impacts of current practices and evaluate the feasibility of alternative waste management strategies. For more information about the solid waste study and how to provide input, please click here.

"We're committed to providing sustainable and compliant waste management solutions that support the communities of Madera County and benefit the environment," said Chairman David Rogers. "This study will provide us with valuable information to ensure the County complies with state regulations and manages waste in a cost-effective and environmentally responsible manner that protects the health, safety, and welfare of the community."

David Rogers.

The study is expected to take approximately six months to complete, and its success will hinge on

3.1.5. Newspaper Ads

After receiving feedback from stakeholders during the first in-person engagement event, World Cafés, county staff asked Raftelis to develop and place newspaper ads in the *Madera Tribune*. Three of these ads were placed ahead of the Open Houses to give time for the public to plan for the events.

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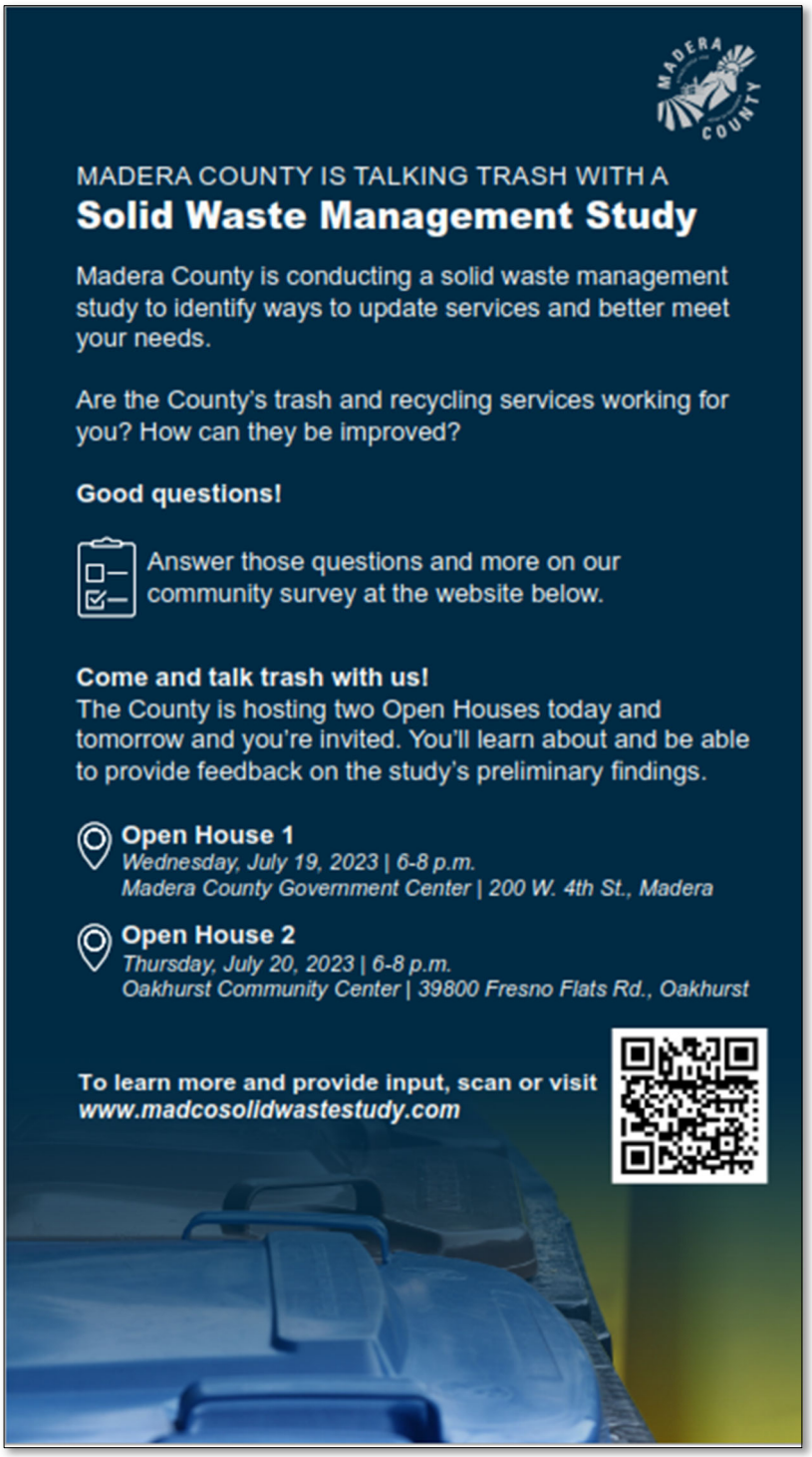


3.1.6. Newsletter Article

County staff published an article about the SWMS in the Water and Natural Resources Newsletter, which has a distribution of more than 850 people:

Water and Natural Resources Newsletter

Remember the paper coffee cup you recycled this morning, that tissue you discarded after using it, the spring cleaning items you threw away? Those became part of the solid waste management program Madera County handles daily to keep you, your family, and your community clean and healthy.

But how well is that program working? It's time to find out.

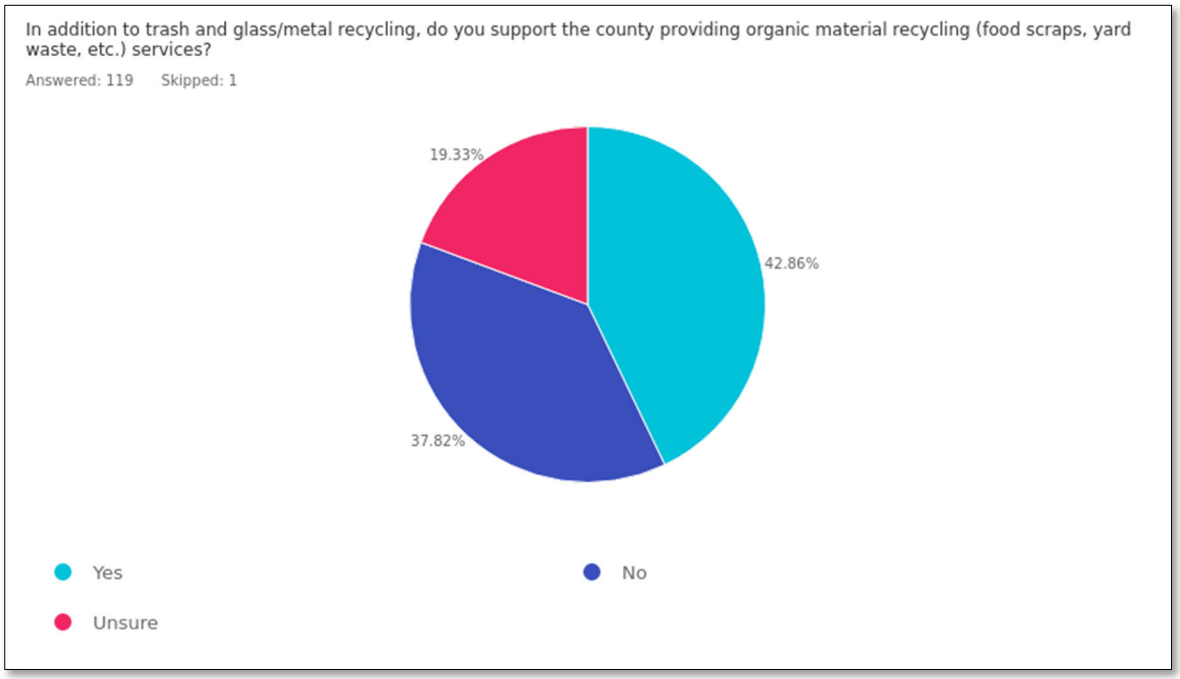
Madera County is conducting a solid waste management study to determine whether the current

3.2. Gathering Input

From the very beginning, County Supervisors and staff made it clear to Raftelis that gathering stakeholder input and being responsive to it was a key metric on which the study would be judged. The following feedback channels and strategies were put into place.

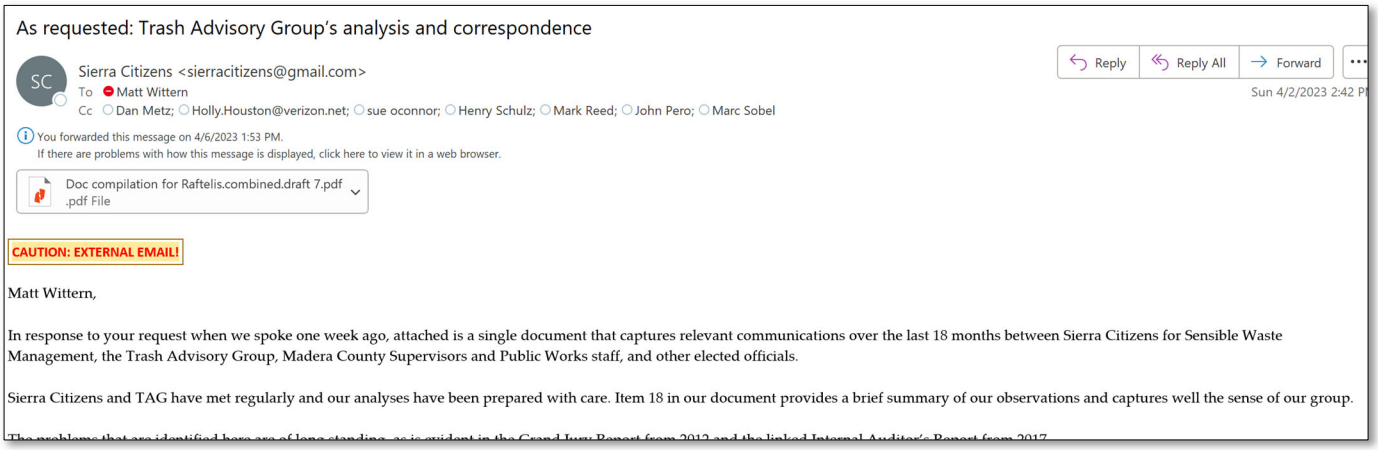
3.2.1. Stakeholder Survey

Using a market-leading online survey tool known as Zoho, Raftelis designed, published, and promoted a lengthy stakeholder survey. As of August 18, 2023, this survey collected 120 responses in the 130 days it has been online. While a complete analysis of survey results is available in Appendix B, an example of a typical question and responses provided is shown here:



3.2.2. Stakeholder Group-provided Documents

Two active stakeholder groups—The Madera County Trash Advisory Group (TAG) and Sierra Citizens for Sensible Waste Management—both with roots in the eastern part of the county, not only participated in our in-depth stakeholder interviews at the start of the study but were kind enough to share a 65-page file detailing their concerns and recommendations.



As requested: Trash Advisory Group's analysis and correspondence

Sierra Citizens <sierracitizens@gmail.com>
To Matt Wittern
Cc Dan Metz; Holly.Houston@verizon.net; sue oconnor; Henry Schulz; Mark Reed; John Pero; Marc Sobel

Reply | Reply All | Forward

Sun 4/2/2023 2:42 PM

You forwarded this message on 4/6/2023 1:53 PM.
If there are problems with how this message is displayed, click here to view it in a web browser.

Doc compilation for Raftelis.combined.draft 7.pdf
.pdf File

CAUTION: EXTERNAL EMAIL!

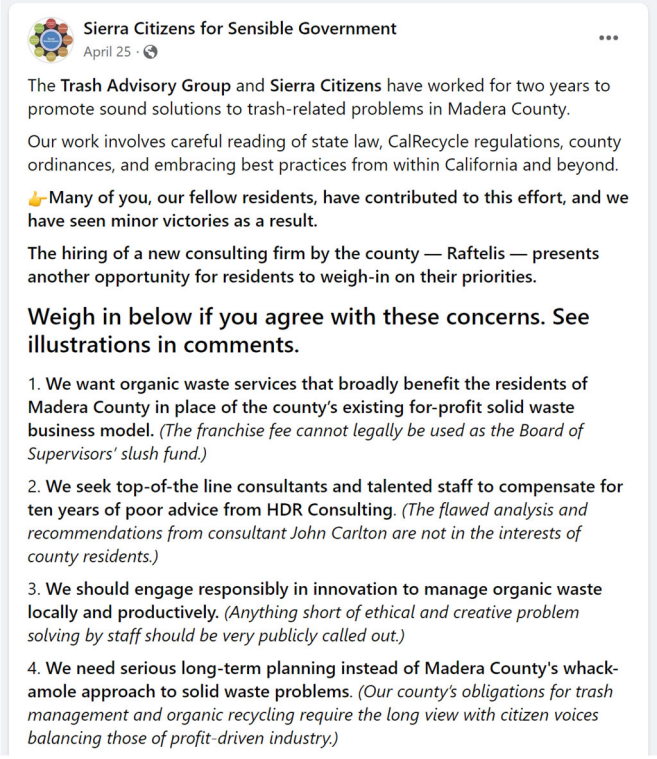
Matt Wittern,

In response to your request when we spoke one week ago, attached is a single document that captures relevant communications over the last 18 months between Sierra Citizens for Sensible Waste Management, the Trash Advisory Group, Madera County Supervisors and Public Works staff, and other elected officials.

Sierra Citizens and TAG have met regularly and our analyses have been prepared with care. Item 18 in our document provides a brief summary of our observations and captures well the sense of our group.

The problems that are identified here are of long standing, as is evident in the Grand Jury Report from 2012 and the linked Internal Auditor's Report from 2017

Beyond providing resources and documents, TAG independently hosted their own stakeholder survey on the group's Facebook page:



Sierra Citizens for Sensible Government
April 25 ·

The **Trash Advisory Group** and **Sierra Citizens** have worked for two years to promote sound solutions to trash-related problems in Madera County.

Our work involves careful reading of state law, CalRecycle regulations, county ordinances, and embracing best practices from within California and beyond.

👉**Many of you, our fellow residents, have contributed to this effort, and we have seen minor victories as a result.**

The hiring of a new consulting firm by the county — Raftelis — presents another opportunity for residents to weigh-in on their priorities.

Weigh in below if you agree with these concerns. See illustrations in comments.

1. **We want organic waste services that broadly benefit the residents of Madera County in place of the county's existing for-profit solid waste business model.** *(The franchise fee cannot legally be used as the Board of Supervisors' slush fund.)*

2. **We seek top-of-the line consultants and talented staff to compensate for ten years of poor advice from HDR Consulting.** *(The flawed analysis and recommendations from consultant John Carlton are not in the interests of county residents.)*

3. **We should engage responsibly in innovation to manage organic waste locally and productively.** *(Anything short of ethical and creative problem solving by staff should be very publicly called out.)*

4. **We need serious long-term planning instead of Madera County's whack-amole approach to solid waste problems.** *(Our county's obligations for trash management and organic recycling require the long view with citizen voices balancing those of profit-driven industry.)*

5. **We need to contribute to 'best practices in solid waste management' instead of approaching the challenges posed by AB 1826 and SB 1383 as a call for more-of-the-same hauling.** ***(Current hauling contracts result in illegal profits going into the county's general fund, and expanded hauling will nullify the purpose of SB 1383.)*** (Current hauling contracts result in illegal profits going into the county's general fund, and expanded hauling will nullify the purpose of SB 1383.)

6. **We believe there are lessons to learn from the management of solid waste in neighboring counties. See, for instance, MERCED COUNTY REGIONAL WASTE MANAGEMENT AUTHORITY, SB 1383 Action Plan .** *(We seek alternatives to our inward-looking, highly corrupt-able practices in Madera County.)*

7. **It's time to deliberate publicly about the lifespan of Fairmead Landfill, before it is filled with Fresno County trash.**

8. **Madera County residents subsidize out-of-county haulers, and as a result we were overcharged $2 million for 2021.** *(What would that add up to going back to 2014 when the illegal charging began?)*

9. **"Finally, the best use of our food scraps is to compost them as close to home as possible, and to use them as close to home as possible" rather than trucking them down to the valley.** *(See the following news article about the state of organic recycling around the country.)*

The short survey that follows allows residents to quickly register their views on the future of trash and organic recycling in Madera County.

Check each statement that you agree with below.

The short survey that follows allows residents to quickly register their views on the future of trash and organic recycling in Madera County.

Check each statement that you agree with below.

- ☐ 8. Madera County residents subsidize out-of-county haulers, and as a result we were overcharged $2 million for 2021 — 12% >
- ☐ 3. We should engage responsibly in innovation to manage organic waste locally and productively. — 13% >
- ☐ 7. It's time to deliberate publicly about the lifespan of Fairmead Landfill, before it is filled with Fresno County trash. — 13% >
- ☐ 5. We need to contribute to 'best practices in solid waste management' instead of more-of-the-same hauling. — 11% >
- ☐ 2. We seek top-of-the line consultants and talented staff to compensate for ten years of poor advice from HDR Consulting. — 8% >
- ☐ 6. We believe there are lessons to learn from the management of solid waste in neighboring counties, like Merced's SB1383 Action Plan. — 8% >
- ☐ 4. We need serious long-term planning instead of Madera County's whack-amole approach to solid waste problems. — 12% >
- ☐ 1. We want organic waste services that broadly benefit the residents of Madera County — 11% >
- ☐ 9. The best use of our food scraps is to compost them as close to home as possible, rather than trucking them down to the valley. — 12% >

3.2.3. Waste Hauler Bill Message

To market the open houses, Raftelis also included a short message at the bottom of Emadco's bills. These went out to the rural parts of Madera County and included some information about the open houses and pointed residents to the website.

Talk Trash with Madera County at the July 19th & 20th Solid Waste Open Houses!

For more information, visit *www.madcosolidwastestudy.com*

3.2.4. Outreach Events: World Cafés

In late-April 2023, Raftelis supported county staff in hosting two World Café outreach events.

World Café stakeholder engagement sessions are a structured conversation format that fosters collaborative dialogue among diverse participants to address complex issues and generate new ideas.

Participants were organized into small groups and asked to share their perspectives on a variety of topics related to waste management, including waste reduction, recycling, composting, and landfill operations.

These events were scheduled on consecutive weekday evenings, one in the City of Madera and another in the eastern end of the county in Oakhurst.

3.2.5. Outreach Events: Open Houses

In late-July 2023, as alternatives were starting to come into focus for Raftelis' SWMS subject matter experts, county staff hosted two Open House stakeholder engagement sessions – again in Madera and at the Oakhurst Community Center.

Open houses were designed as a forum for community members and the SWMS Team to exchange information in one-on-one conversations. County officials and subject matter experts were arranged at various information stations where participants could stop by and engage on the specific station's issue.

At the event in Oakhurst, participants asked for a more formal presentation, so Raftelis and county staff pivoted to accommodate the request.

Based on the feedback received, participants left with a better understanding of Raftelis' preliminary findings, and the consultant team left with significant stakeholder feedback to refine study recommendations.

3.3. What We Heard

Having reviewed input gathered throughout the study process, Raftelis distilled stakeholder feedback into the following categories and key questions that the study needed to address:

Category	Key Question(s)
Dollars and Common Sense	• What rates and fees must the County charge to ensure that they equitably recover the costs each user places on the system? • Are there successful programs elsewhere that give customers ways to reduce their solid waste service bills (i.e., credits for low-income, etc.)? • Is there a way to provide additional services without raising base rates? • What are neighboring areas doing to implement flow control and gain the benefits of that approach?
Organics and Community Composting	• How can the county comply with SB1383 while providing an optional paid service for those who want organics recycling services? • What types of community composting programs are functioning well elsewhere in the region, how do local county governments support these efforts, how are they funded, and what can participants expect to pay? • What is the feasibility of the county exploring implementation of anaerobic digestion?
Solid Waste Management Authorities and Task Forces	• What are the potential pros and cons of the county establishing a solid waste management authority? • What role does the current Waste Management Task Force have in creating a long-term vision and plan for these issues, and what costs/benefits would likely come from a long-term plan?

Category	Key Question(s)
Level of Service Improvements	• What improvements to current level of service should the county consider, and what additional costs should they expect to incur for providing these services? • What can the county do to enable county residents and haulers to use closer facilities – such as the Fresno dump? • What changes could the county consider to improve transfer station's resilience against animals and to reduce the incidence of illegal dumping (greater enforcement at station and elsewhere)? • What additional services are requested by residents and what should participants reasonably be expected to pay for these add-on services?
Landfill Lifespan and Expansion	• At current fill rates, what is the anticipated lifespan of the county dump, and are there plans in place to expand its footprint? • What are the pros and cons of prohibiting out-of-county waste from being sent to Fairmead landfill?
Public Information for Proper Disposal	• Beyond current requirements for haulers to provide education and outreach, what role should the county adopt to raise awareness in the community of things like services, sorting behavior, etc.? • What success are neighboring communities experiencing with their approach to managing illegal dumping?
Miscellaneous	• What can the county do to discourage single-use plastics? • What steps should the county take to propose improvements to SB1383 that would ease the burden on counties' compliance?

4. Operations Scan & Solid Waste Alternatives Analysis

4.1. Background

A second key element of the SWMS was to complete an operational scan of the current operations at the Fairmead Landfill and North Fork Transfer Station. The operational scan included two primary goals. The first goal was to review the daily operations of the landfill and transfer station and determine what, if any, efficiencies could be achieved to potentially mitigate rate increase needs. The second goal was to determine what, if any, alternatives to landfill/transfer station operations should be considered by the Madera County Board of Supervisors. Specifically, Raftelis was tasked with: 1) evaluating the advantages and disadvantages of closing and/or mothballing the Fairmead Landfill; 2) evaluating what alternatives that may exist to effectively comply with Senate Bill (SB) 1383. This review yielded several key findings.

This assessment process included several key elements. First, Raftelis staff reviewed contractual information and other associated data provided by the County regarding landfill and transfer station operations. This review provided a baseline of understanding and informed later field work and analysis. Second, Raftelis staff completed a series of one-on-one interviews with County personnel, elected officials, representatives from the landfill and transfer station operation, Red Rock Environmental, as well as regional waste haulers serving the incorporated and unincorporated areas of Madera County. These interviews supplemented the extensive feedback gathered through the public engagement process outlined in Section 3 of this report. Third, Raftelis completed a site inspection of the landfill and transfer station. During this inspection Raftelis staff observed daily operations and inspected facilities to determine if any opportunities existed, within the constraints of existing contractual agreements, to implement any industry best practices that could reduce the cost of operations. Lastly, the Raftelis project team opined upon questions and issues identified during the public engagement process.

4.2. Landfill and Transfer Station Operations Summary

Madera County spans 2,147 square miles and is the geographical center of California. Its population is approximately 156,000 people. The County was formed in 1893 and derives its name from the City of Madera, the county seat.

Madera County is largely rural, with agriculture as the number one industry, accounting for a gross value of agricultural commodities of more than $2 billion annually[22]. According to the Madera County Farm Bureau, the County's climate allows numerous fruits and nuts to grow. The largest commodities are almonds, milk, and various types of grapes used for wine, raisins, and table grapes intended for general consumption. The county is also a large producer of figs and pistachios. The farms throughout the county are mostly family-owned, with long, rich histories stretching back generations[23].

[22] https://www.maderacounty.com/business/reasons-to-do-business-in-madera-county

[23] County Agriculture Stats, Madera County Farm Bureau

The two largest cities in the county are the City of Madera, with a population of approximately 66,000, and Chowchilla, with a population of 19,000[24]. They are in the county's western portion, part of the San Joaquin Valley. The county's eastern portion rises into the Sierra Nevada Mountains and includes a portion of Yosemite National Park.

4.2.1. Current Landfill and Transfer Station Operations

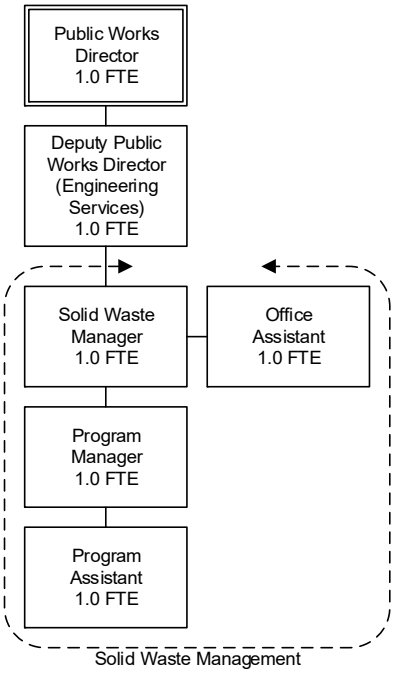
The Solid Waste Management Section of the Engineering Services Division within the Madera County Public Works Department oversees the County's Solid Waste program. The Solid Waste Program includes the various components of trash disposal, collection, and recycling services to ensure the public's health and welfare in Madera County's unincorporated areas. These components include, but are not limited to[25]:

- Waste Disposal Facilities
- Residential and Commercial refuse (trash) collection services
- Recycling services
- Special waste collection and clean-up events

Additionally, the Department ensures that the Solid Waste Program is administered in compliance with local, State, and Federal regulations.[26]

The organizational chart of the Solid Waste Management Section of the Engineering Services Division within the Madera County Public Works Department is shown in Figure 5 below.

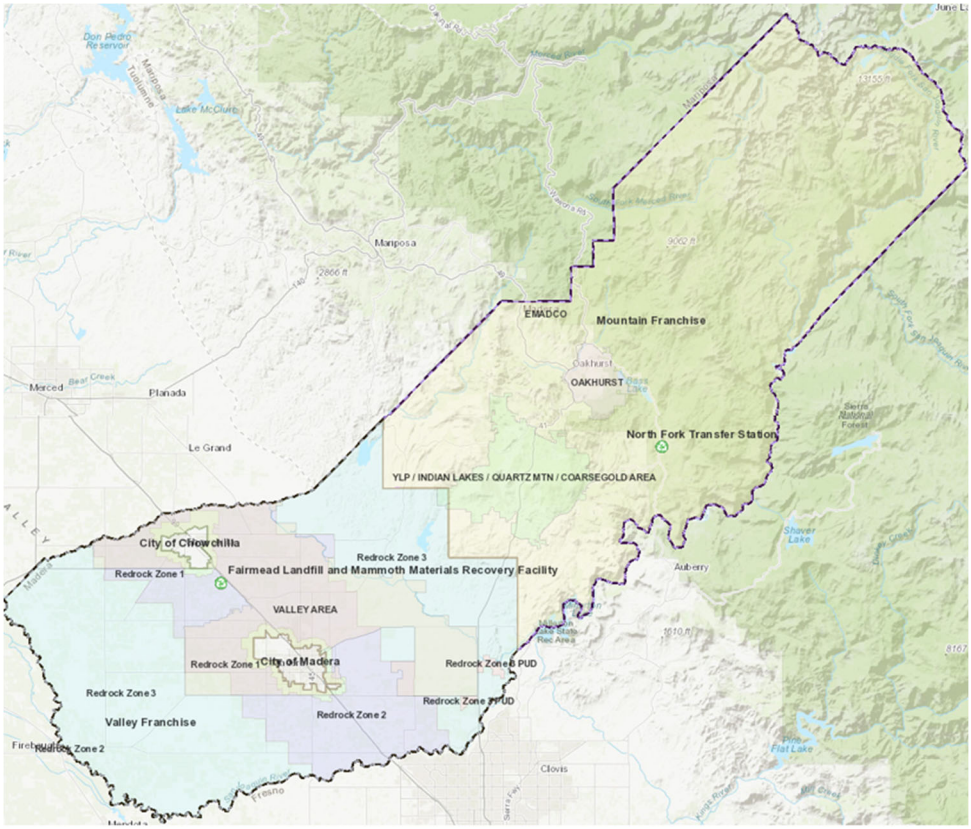
Figure 6: Solid Waste Management Section Organizational Chart



[24] US Census QuickFacts
[25] Solid Waste Management, Madera County Website
[26] Engineering Services, Madera County Website

The differences in terrain and geography throughout the County mean different operating environments and waste streams must be accounted for. To do so, the County has the Fairmead Solid Waste Disposal Site (Fairmead Landfill) and the North Fork Transfer Station. The facilities are located approximately 53 miles apart. The Fairmead Landfill is a 146.9-acre site with a total disposal footprint of 122.3 acres. The landfill is permitted to accept non-hazardous resources such as household, commercial and industrial waste resulting from construction, remodeling, repair and demolition operations. The landfill is designed to have a capacity of approximately 23 million cubic yards. The permitted maximum tonnage per day is 1,100. The landfill has a maximum elevation of 370 feet above mean sea level (MSL) and a maximum depth of 85 feet below ground surface (BGS)[27]. The North Fork Transfer Station is a garbage disposal facility that offers disposal services for the higher elevation communities in Madera County. The operation primarily caters to residents in the mountainous region who self-haul their solid waste and deposit it at the North Fork Transfer Station. Waste is accumulated at the transfer station and hauled via tractor-trailer to the Fairmead Landfill for final disposal. Madera County contracts with Redrock Environmental Group/Caglia Environmental (Redrock) to operate the Fairmead Landfill and North Fork Transfer Station. Figure 6 below shows the location of the County's disposal facilities and franchised collection zones.

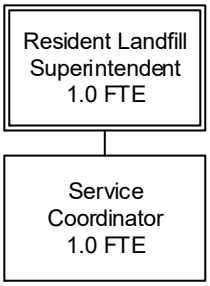
Figure 7: Franchise Collection Map



[27] Solid Waste Permit 20-AA-0002

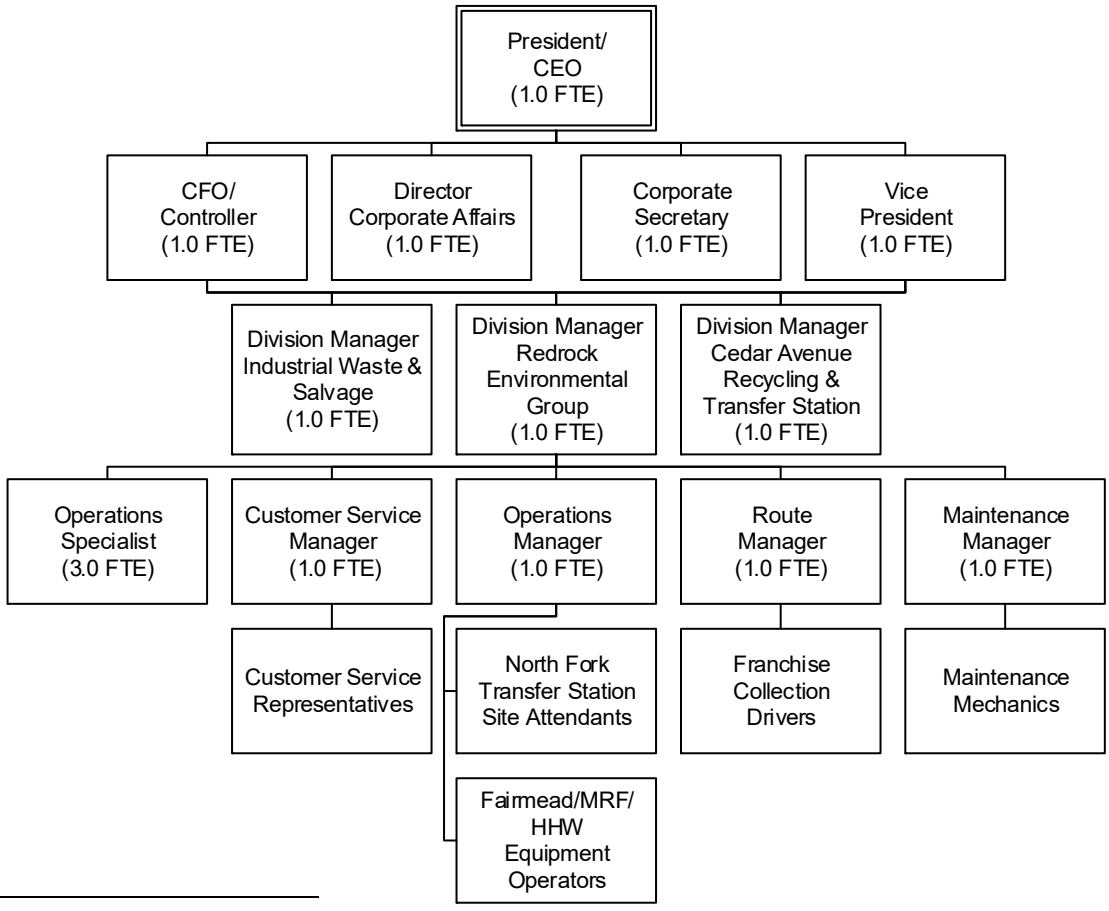
To account for the different waste streams, Madera County utilizes two waste haulers, Red Rock goes directly to the Fairmead Landfill and provides transfers from self-hauls to the North Fork Transfer Station, while EMADCO transfers waste to their transfer station in Oakhurst before sending waste to the Fairmead Landfill. Redrock handles the hauling of waste collected from areas below the 1,000 ft elevation (Valley franchise area), and Emadco Disposal hauls waste collected from areas above the 1,000 ft elevation (Mountain farnchsie area). Redrock then transfers solid waste from the North Fork Transfer Station to the Fairmead Landfill. To run operations at the Fairmead Landfill, Redrock maintains an office staffed with a full-time Service Coordinator and a full-time Resident Landfill Superintendent as shown below.

Figure 8: Landfill Operations Staffing



In addition to the positions above, the contract details a staffing plan for Redrock as follows:

Figure 9: Redrock Environmental Group/Caglia Environmental Staffing Plan[28]

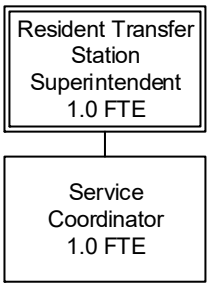


[28] Restated and Amended Solid Waste Management Services Contract between County of Madera, California and Caglia Environmental, LLC dated December 18, 2018

Under the contract terms, Redrock agreed to meet or exceed the requirements in Regulations Title 27, California Code of Regulations (27 CCR), Chapter 3: Criteria for All Waste Management Units, Facilities, and Disposal Sites. Their responsibilities include inspecting, handling, spreading, and compacting solid waste. They also maintain all perimeter fencing and stormwater basins, provide security, perform landscaping, and apply, monitor, and maintain landfill cover. Additionally, Redrock excavates, and screens soil for cover from County approved borrow areas as needed, assists the County in obtaining environmental permits, licenses, and approvals, supplies and maintains all equipment, and operates the ancillary landfill diversion activities such as household hazardous materials, mixed recycling materials, road materials, mixed construction materials, yard waste, scrap metal, electronics, and more. To properly handle intercepted household hazardous materials, a Household Hazardous Waste (HHW) facility was constructed by the County and placed into operation to divert HHW from being deposited into the landfill. The HHW facility is also operated by Red Rock as part of the Landfill contract.

Redrock maintains an office with two full-time employees, a Resident Transfer Station Superintendent, and a Service Coordinator to run North Fork Transfer Station operations.

Figure 10: Transfer Station Operations Staffing



Under the terms of the North Fork Transfer Station contract, Redrock is responsible for all the area maintenance, fencing, equipment, and handling responsibilities, as well as keeping all logs and records, performing scale maintenance and certification, and providing a recycling drop-off area for County residents and small businesses for yard waste, mixed construction, and demolition materials, wood, and cardboard[29].

4.3. Landfill and Transfer Station Operations Scan and Service Alternatives

As an element of this assessment, Raftelis was tasked with completing an operations scan of the existing landfill and transfer station operation. The purpose of an operations scan is to review the fundamentals of daily service and operating at the landfill and NFTS and determine if there are clear opportunities to generate efficiencies that would translate into reduced cost to the system user.

The primary drivers of cost at the landfill and transfer station relate to staffing costs and equipment costs. The staffing plan for the landfill and transfer station is defined in the respective agreements between Redrock and Madera County and is summarized above. The contract specifies management level staff but does not specify the staffing level of site attendants, equipment operators, mechanics, and other line level positions that are

[29] Restated and Amended Transfer Station Operation Services Contract between County of Madera, California and Caglia Environmental, LLC dated December 18, 2018

responsible for daily operations. Rather, Redrock has the flexibility to staff those areas of operation in any manner deemed fit so long as safety regulations and contractual service delivery parameters are met.

Raftelis completed a site review of the operating environment to determine if there were areas where staffing or equipment adjustments could be made to generate substantial savings for the County.
The first staffed area for the landfill operation is the scale house. The scale house is staffed with two County employees who are tasked with handling financial transactions, invoicing customers, managing tare weights for commercial vehicles, and making determinations of waste disposal type and waste generation volume. Scale house operation are being managed within the framework of standard industry practice. Staffing levels in the scale house are sufficient to support operating hours from 5:30 am to 5:00 pm and ensure employees have access to normal breaks during the workday. There is no capacity to reduce staffing at the scale house to generate cost savings without reducing the hours of operation for the landfill.

Beyond the scale house at Fairmead landfill is the MRF floor/building. The floor/building is approximately 100 ft by 200 ft and serves two primary purposes. The site is utilized as a temporary storage for recyclable materials before they are transferred to a sorting facility for further management. The structure is also utilized as the service location for Redrock's site mechanic. Redrock also utilizes uncovered areas adjacent to the MRF for public materials unloading/transfer and for end of day clean-out for commercial collectors. Redrock employs two spotters at the MRF floor who inspect loads and assist customers to ensure loads are dumped in the appropriate materials locations. This provides sufficient staffing to ensure that customer support and load monitoring/inspection occur regardless of peak operating periods while ensuring adequate safety protocols. The onsite mechanic provides support not just for the Fairmead operation but for Redrock's local refuse collection fleet. The proximity of the mechanic to landfill operations can help ensure that equipment maintenance and repair needs relevant to landfill operations are quickly addressed. This is an advantage and ultimately drives down the number of spare heavy equipment pieces that need to be on hand to support daily operations.

Raftelis staff also observed staffing levels and processes on the working face of the landfill. During the observation period, four equipment operators were on staff to manage the waste disposal process on the working face of the landfill. As previously mentioned, the current contract allows Redrock to determine the appropriate staffing plan for daily operations; however, the fill process and safety parameters in place were consistent with industry practice and there were no discernable operating issues that warrant attention.

Raftelis also completed a site visit of the North Fork Transfer station. The transfer station was staffed with two full-time positions during the site visit which appeared sufficient to provide customer service and monitor/inspect disposal. The primary challenges at the transfer station relate to its utilization and the physical constraints of the site. According to staff interviews, the transfer station was designed to serve as a resource for eastern Madera County residents to use for disposal of large and unusual items periodically; however, the site's function has evolved so that many residents utilize the transfer station as the sole means of disposal because it is either more cost effective than curbside collection or their property does not allow for curbside collection. This often means that there are long lines at the transfer station and the site, being on a relatively small property in mountainous terrain, does not accommodate peak periods well. However, this does not relate to staffing levels or equipment investment needs.

In summary there are no clear opportunities, within the constraints of the current service delivery model, to generate substantial savings by adjusting the operating model at Fairmead landfill or the North Fork Transfer

Station. The following summarizes alternative considerations for landfill operations and governance structure for further consideration.

4.3.1. Landfill Closure Alternatives

One of the common suggestions identified through the community engagement process as a presumed means to reduce the cost to the consumer was to prematurely close the Fairmead landfill in favor of waste haulers being permitting to haul refuse and recycling to another landfill that commands a lower tipping fee. The primary alternative available to meet this need is the American Avenue Landfill located in Fresno County approximately 36 miles south of the Fairmead Landfill. The current municipal solid waste tipping fee at the American Avenue Landfill is $27.41 per ton, which is materially less than the corresponding self-haul and County franchise hauler tipping fee at the Fairmead Landfill. There are a number of considerations that inform whether this is a cost affective option for the County.

Landfill closure is the process by which a landfill or disposal site no longer receives waste and has followed, or is actively following, an approved plan and construction schedule to prepare the site for post closure maintenance activities. The process of closing a landfill and/or disposal site must be done in accordance with applicable state, local, and federal statutes, regulations, and ordinance and Title 27 of the California Code of Regulations, which outlines an extensive regulatory framework.

Title 27 requires all operators of municipal solid waste landfill facilities to prepare and file a Closure Plan and Post closure Maintenance Plan. These plans ensure that landfill closure and post closure maintenance and the eventual reuse of disposal sites will conform to state performance standards and minimum substantive requirements. The purpose and elements of each plan is detailed in Table 14 below:

Table 14: Summary of Closure Plan and Post Closure Maintenance Plan Requirements

Documentation	*Purpose*	*Elements to Include*
Closure Plan	*Provide an accurate and detailed (itemized) estimate of closure costs, and a detailed plan and schedule for implementing closure and third-party closure certification*	• *Performance standards and minimum substantive requirements to ensure the landfill is properly closed and maintained to protect public health, safety and the environment*
		• Cost estimates certified for accuracy by a registered civil engineer or a certified engineering geologist, which enables CalRecycle to assess the reasonableness of the cost estimates
		• Documentation that adequate funding is available for the disposal site's respective closure and post closure maintenance period
		• Detailed description of the steps necessary to perform closure pursuant to §21790
		• Detailed description of the sequence of closure stages with tentative implementation dates
		• Detailed schedule for disbursement of funds for closure activities from a trust fund, or enterprise fund if applicable, for advance payment or reimbursement of costs for closure activities in accordance with the plan
Post closure Maintenance Plan	Provide an accurate detailed annualized cost estimate for the inspection, maintenance, and monitoring of the landfill during post closure	• Performance standards and minimum substantive requirements to ensure the landfill is properly closed and maintained to protect public health, safety and the environment
		• Cost estimates certified for accuracy by a registered civil engineer or a certified engineering geologist, which enables CalRecycle to assess the reasonableness of the cost estimates
		• Documentation that adequate funding is available for the disposal site's respective closure and post closure maintenance period

Documentation	*Purpose*	*Elements to Include*
		• Emergency response plan pursuant to §21130
		• Contact information for the parties responsible for post closure maintenance
		• Description of the planned uses of the property during the post closure period pursuant to §21190
		• As-built descriptions of the landfill's monitoring and control systems that will be in use and any modifications or changes that are proposed during the post closure period
		• Detailed description of the methods, procedures, and processes that will be used to maintain, monitor and inspect the landfill pursuant to §21180
		• Operations and maintenance plan for the gas control system
		• Summary of the requirements for reporting the results of monitoring and collection pursuant to §21180

State law requires that a registered civil engineer or a certified engineering geologist must certify the accuracy of the cost estimates for each plan, which enables the regional water quality control board and CalRecycle to assess the reasonableness of the cost estimates. Approved closure and post closure maintenance plans are a prerequisite of a facility's operating permit.

Madera County is the designated operator and permit holder for the Fairmead Landfill. The county contracts with TetraTech as its engineer of record for landfill design, permitting and regulatory compliance. TeraTech developed the most recent landfill closure estimates in 2012 and post-closure maintenance plan in 2020. The Raftelis project team reviewed those cost estimates and maintenance plans to validate the assumptions and found them to be reasonable and consistent with best practices. The cost summary tables for closure and post-closure maintenance are included in Appendix C. According to these cost estimates, the total estimated closure cost for the Fairmead landfill is approximately $6.4 million.. The total annual cost associated with post-closure maintenance is approximately $710,000 per year or $21.3 million over the 30-year post closure period.

The Fairmead Landfill has an estimated lifecycle of 36 years; the landfill has many years left before disposal capacity is reached. Given the extensive period before landfill closure needs to be considered on the basis of capacity, the County has not accrued sufficient funds to finance landfill closure costs and post-closure maintenance expense at this time. As a result, these costs would need to be identified to support the premature closure of the landfill. These costs would need to be funded through adjustments to existing collection/franchise agreements or through the County's general fund, which is primarily tax supported.

In addition, as previously discussed, if Fairmead landfill is prematurely closed or mothballed, haulers would still be obligated to dispose of solid waste at a permitted landfill. The closest alternative is the American Avenue Landfill in Fresno County, which has a lower tipping fee than the Fairmead Landfill. This will drive additional transport costs related to fuel, maintenance, and vehicle capital costs. These costs will need to be accounted for in the collection haulers fee structure and will inevitably result in higher costs to the customer. These cost impacts could only be reliably determined through franchise fee negotiations with the private haulers. The premature closure costs of the landfill are expected to outweigh any potential savings disposal costs from transferring waste to the American Avenue Landfill in Fresno County. Additionally, this assumes that the County would be charged the same gate fees as customers located in Fresno County and that the landfill has adequate capacity to take the annual waste from the County, which would still recur verification with Fresno County.

In addition to the additional travel cost associated with the increased hauling distance, there are also environmental impacts. While this level of analysis was not included in the scope of study, it is inherently clear that closing Fairmead Landfill would increase solid waste transportation fuel consumption and fossil fuel emissions.

Should Madera County ultimately choose to close the landfill, there are additional considerations regarding site use that could impact revenue, expense, and community utilization. Many communities, once a landfill is closed, will opt to repurpose the land for other uses. Common uses include golf courses, parks, dog parks, amphitheaters, and helipads. Each of the alternatives is available to the County for consideration. Some, such as helipads and golf courses, do have the potential to provide modest revenue that may help offset operating costs.

4.3.2. Compositing and Organics Alternatives

One of the important elements of the solid waste system in Madera County is organics waste management. Organic waste is any material that is biodegradable and comes from either a plant or an animal. It can be broken into carbon dioxide, methane or simple organic molecules. Examples of organic waste include green waste, food waste, food-soiled paper, non-hazardous wood waste, green waste, and landscape and pruning waste.

In September 2016, Senate Bill (SB) 1383 was adopted in a statewide effort to reduce emissions of short-lived climate pollutants (SLCP). The primary goal of this bill was to affect a 75% statewide reduction in the amount methane-producing organic waste being disposed of in landfills by 2025. Since SB 1383 adoption, cities and counties who operate landfills and solid waste collection systems have been assessing and implementing actions to assist the state with achieving these goals. There are several challenges associated with implementation, especially in semi-rural communities like Madera County. As noted in the Little Hoover Commission report[30] key issues relate to the lack of state funding, lack of organics processing facilities, and minimal or short term exemptions for rural and semi-rural communities that face greater operating and environmental costs per capita to comply with SB 1383.

The County is required to implement a program to remove/reduce organics from the landfill. SB 1383 outlines three primary collection system options to consider for organics diversion implementation:

1) **Unsegregated single-container waste collection system**: This collection system uses a single grey collection container for trash, recyclables, and organic waste.
2) **Two-bin waste collection system:** This collection system can include a green organic waste bin and a grey non-organic waste bin or blue non-organic recyclables bin and a grey bin for solid waste and co-collected organic waste.
3) **Three-bin waste collection system**: This collection system includes three separate bins including a green bin for organic waste, a blue-bin for recyclables, and grey bin for non-recyclable mixed solid waste.

One of the primary challenges regarding SB1383 implementation in Madera County relates to the eastern, mountainous portions of the county. Implementation of a bin-based collection system would require systemic changes. Many of the residents within these communities are price sensitive and would not elect to pay the voluntary fee and, in many cases, residents currently self-haul to the North Fork Transfer Station due to access limitations. There are also many reported instances of residents in this area and the agricultural regions of the

[30] https://lhc.ca.gov/report/reducing-california%E2%80%99s-landfill-methane-emissions-sb-1383-implementation

County employing home composting as an alternative, negating the need for a new collection method. Though the frequency and impact of these practices is difficult to verify, residents in this part of the County have expressed a strong desire to maintain the flexibility of the current voluntary nature of the collection system.

The second primary challenge to SB1383 relates to the availability of composting facilities. The County does not currently own or operate a composting facility of any size. Implementation of the collection systems summarized above requires that the County generate access to a suitable facility, either by constructing one or partnering with a neighboring jurisdiction or private partner. Based on discussions with County staff there does not appear to be any commercial interest in constructing a commercial organics processing facility; likely due to the lack of organic feedstock to support the cost of such a facility, as discussed below.

Given these considerations, Madera County staff has engaged with CalRecycle to acquire the necessary waivers to allow for a more flexible approach to organic recycling, especially in the rural and mountainous parts of the County. The County has developed a multi-faceted plan to implement voluntary subscription- based organics collection and self-haul drop-off sites at the North Fork Transfer Station and the Fairmead Landfill, where source separated organics will be collected and transferred out of County to a suitable organics processing facility.

Under the proposed program, Emadco, the primary waste hauler for the eastern parts of the county, would provide a 64-gallon green organics cart to customers who choose to subscribe to this service . These will be collected according to the standard collection cycle and disposed of at a private organics processing facility located in Kerman, California. Emadco will also provide organics hauling from the North Fork Transfer Station drop-off site to the same facility in Kerman. Redrock, the contacted operator of the North Fork Transfer Station, would build a bear-proof container for organics processing at the transfer station and manage the program, for a modest expense reimbursable by the County.

Similarly, at the Fairmead Landfill, Red Rock has proposed to provide four (4), 64-gallon carts (including collection, transportation and disposition) serviced weekly for organics that would be charged as a standard customer rate to the County. Source separated organics collected at the Fairmead drop-off site by Red Rock will be hauled to their selected organics processing facility in southern Fresno County. In addition, Red Rock will offer subscription green cart service to community members in the valley, allowing for curbside pickup of organics.

This approach provides a flexible alternative that does not apply a one-size fits all model to the County's organics collection program. It also honors the community's strong request to avoid mandatory collection systems and processes for these more rural areas. However, there may come a time when additional organics processing alternatives must be considered. There are three alternatives that have been suggested by the community and County staff for consideration, including the implementation of community composting programs, the development of mixed-waste organics processing facilities, and the development of waste-conversion facilities that could convert waste streams to revenue-producing energy. The advantages, disadvantages, and, where possible to estimate, costs associated with those alternatives are summarized below.

4.3.2.1. Community-Based Recycling

A common theme expressed during the public engagement process was a desire for the County to explore community-based composting ("community composting") programs. Community composting is a neighborhood or community-centric approach to implementing organics composting programs. The goal of

community composting is to keep the process as local as possible while engaging the community through partnership and education.

The scale of community composting can vary greatly, ranging from incentivized composting in backyards, to 3-bin systems at urban farms, to municipally managed composting operations. The distinguishing characteristic is that these systems are closed resource loops that begin and end at the "family table" and serve a specific community or community sub-set.

One of the common perceptions expressed during the public engagement process was that implementing a community composting program would be a no-cost alternative to more expensive system-wide measures to comply with SB1383. However, that is not the case. There are also broader programmatic considerations that must be considered outside of cost.

There are several implementation requirements to consider. First, a community-composting program must be managed and staffed on a consistent basis. To function effectively the program must have a program manager who manages overall operations, marketing, public education, and permitting requirements. Two to three site managers must be available to monitor compost temperatures, lead community workdays, determine composting pile needs, and manage incoming feedstocks and outgoing compost. One to two data and communications managers are needed to coordinate and educate community members and partners, communicate site needs to decision-makers, organize volunteer dates, and manage data. [31]

There is also a need to identify and, potentially, purchase a suitable site and invest capital to ensure the site is effectively designed to control animal and pest access and meet regulatory site condition requirements at the site. As the size of the operation increases, and allowable material composition expands, the regulatory, permitting and inspection regime becomes more onerous and will require dedicated attention from County staff. A summary matrix of the regulatory and permitting tiers for composting facilities in California is included in Appendix D.

The broad notion that composting is a "set it and forget it" operation is misplaced. Significant attention is required to effectively manage the program. Though some of these staffing requirements can be offset by community volunteerism, there is a need to create consistent program management and oversight at the local government level to develop and manage a community-composting program operating at the scale required to materially impact SB1383 compliance.

For the purposes of this analysis, the study examined the option to develop a community composting facility in the eastern portion of the County. It was assumed that the County would purchase two (2) acres of land for the operation and build the facility. The evaluation followed CalRecycle's waste composition reports, assuming 67.3% of the total waste generated in the County was organic, equating to approximately 54,500 tons annually available to be diverted County wide. However, with the facility located in the eastern portion of the County an analysis was conducted of the relationship of the unincorporated eastern population as a portion of unincorporated eastern and western county population based on zip code data, resulting in a 38.6% relationship. This resulted in an estimation of 21,000 organic tons would be available on average to a facility in the eastern County, but assuming a participation rate of 15%, resulted in approximately 3,150 tons to be processed by the

[31] "Community Composting Done Right – A Guide to Best Management Practices"; Institute for Local Seld Reliance

facility. Section 7 presents this option in more detail exploring potential costs and associated rate adjustments to fund the program.

4.3.2.1.1. Compostable Material Handling Facility/Operation

Another option available to the County to comply with SB1383 is to develop a large-scale organics handling facility to service the entirety of the County. This would be an operation or facility that processes, transfers, or stores compostable materials resulting in controlled biological decomposition. Large-scale facilities also provide for not just composting but other services such as:

- Agricultural material composting operations
- Green material composting operations and facilities
- Vegetative food material composting facilities
- Research composting operations
- Chipping and grinding operations and facilities
- Biosolids composting operations at publicly owned treatment works

These facilities operate at scales much larger than community composting operations and are typically system-wide solutions to organics collection and disposal. These operations would require full solid waste permitting from the state and would be capable of housing greater than 12,500 cubic yards of compostable materials at a given time.

All compostable material handling facilities and operations are required to comply with the state minimum standards set forth in California statute regulating compostable material handling facilities and operations sitting on landfills. They are required to meet post closure planning and land use requirements, similar to landfill operations. They must control odor and vector issues, minimize hazards of human contact with pathogens, and prevent unauthorized access. They must also staff the operation to manage the site and inspect loads to limit contamination. An attendant is required to be on duty during business hours, and measurements may need to be conducted in the presence of an enforcement agency.

Madera County does not currently own or operate an organics processing facility. To develop this service, the County would need to secure suitable land, construct the facility, and staff the operation, through County staff or through a contracted provider.

The most logical and costs effective options available to the County, should it choose this course, would be to develop a composting operation on the site of the existing landfill. It would limit disruption to hauling operations and provide a mechanism to capitalize on economies of scale. The County could expand the scope of the landfill operating agreement to include organics processing. This may allow the County to efficiently utilize existing contract positions to serve a dual role. However, land acquisition would still be required under this scenario. A review of site conditions and anticipated fill capacity at Fairmead landfill indicates that additional adjoining property would need to purchased to accommodate this alternative.

These would represent significant additional expenses that would need to be recovered through solid waste user fees or subsidized by the County's General Fund.

4.3.2.2. Waste to Energy Facilities

The final option for consideration relating to both landfill operations and organic processing is to develop a waste to energy processing facility. During the community and stakeholder engagement, some expressed a belief that the cost

of landfill and collection operations could be substantially mitigated, with savings falling to the end-user, by developing a municipal waste-to-energy facility.

There are multiple types of waste to energy facilities. However, in general these facilities process municipal solid waste through one of three methods: 1) Mass burn; 2) Refuse-derived fuel; or 3) Gasification using an anerobic or semi-aerobic processing environment. The following summarizes the specifics and considerations of each method, as detailed by the California Energy Commission.

Table 1516: Summary of Waste to Energy Processing Technologies [32]

Waste-to-Energy Facility Type	Waste-to-Energy Facility Process Description
Mass Burn	Mass burn technology involves the combustion of unprocessed or minimally processed refuse. The major components of a mass burn facility include: • Refuse receiving, handling, and storage systems • The combustion and steam generation system (a boiler) • A flue gas cleaning system • The power generation equipment (steam turbine and generator) • A condenser cooling water system • A residue hauling and storage system Incoming trucks deposit the refuse into pits, where cranes then mix the refuse and remove any bulky or large non-combustible items (such as large appliances). The refuse storage area is maintained under pressure less than atmospheric in order to prevent odors from escaping. The cranes move the refuse to the combustor charging hopper to feed the boiler. Heat from the combustion process is used to turn water into steam, with the steam then routed to a steam turbine-generator for power generation. The steam is then condensed via traditional methods (such as wet cooling towers or once-through cooling) and routed back to the boiler. Residues produced include bottom ash (which falls to the bottom of the combustion chamber), fly ash (which exits the combustion chamber with the flue gas [hot combustion products]), and residue (including fly ash) from the flue gas cleaning system. The combined ash and air pollution control residue typically ranges from 20 percent to 25 percent by weight of the incoming refuse processed. This ash residue may or may not be considered a hazardous material, depending on the makeup of the municipal waste.
Refuse-derived Fuel	Refuse-derived fuel (RDF) typically consists of pelletized or fluff MSW that is the by-product of a resource recovery operation. Processing removes ferrous materials, glass, grit, and other materials that are not combustible. The remaining material is then sold as RDF. Both the RDF processing facility and the RDF combustion facility are typically located near each other, if not on the same site.
Pyrolysis/Thermal Gasification	Pyrolysis and thermal gasification are related technologies. Pyrolysis is the thermal decomposition of organic material at elevated temperatures in the absence of gases such as air or oxygen. The process, which requires heat,

[32] https://www.energy.ca.gov/data-reports/california-power-generation-and-power-sources/biomass/municipal-solid-waste-power

Waste-to-Energy Facility Type	Waste-to-Energy Facility Process Description
	produces a mixture of combustible gases (primarily methane, complex hydrocarbons, hydrogen and carbon monoxide), liquids and solid residues. Thermal gasification of MSW is different from pyrolysis in that the thermal decomposition takes place in the presence of a limited amount of oxygen or air. The producer gas which is generated can then be used in either boilers or cleaned up and used in combustion turbine/generators. The primary area of research for this technology is the scrubbing of the producer gas of tars and particulates at high temperatures in order to protect combustion equipment downstream of the gasifier and still maintain high thermal efficiency.

There are no waste to energy facilities located in or near Madera County. While it is the case that development of a waste to energy facility would have the potential to generate revenue for the County; it is also true that the cost to develop such facilities is significant.

4.3.3. Solid Waste Governance Alternatives

The Solid Waste Management Section of Madera County's Public Works Department's Engineering Services Division manages and oversees the Solid Waste Program. The Solid Waste Program encompasses the county's waste disposal facilities, trash collection services, recycling services, and special waste collection/clean-up. Staff are responsible for administering the program in compliance with all applicable laws and regulations[33]. The Solid Waste Program being a part of the Public Works Department means the Madera County Board of Supervisors sets the strategic policy direction for the program and approves the budget, contractual agreements, and service rates.

The Sierra Citizens for Sensible Waste Management/Trash Advisory Group (TAG) is a community-based advocacy group created in 2021. TAG's primary focus is to monitor legislation and regulations relevant to the County's solid waste management program, drive public engagement, and propose solutions to perceived program management challenges.

The solid waste management study has included several opportunities for TAG and other community members to engage with the process and provide feedback. A summary of these efforts is in Section 3 of this report. One of the common themes expressed during the engagement process was a desire to create greater opportunity for community engagement in the solid waste policy-making process to include consideration of alternative governance models. The Raftelis project team has evaluated the advantages and disadvantages associated with alternative approaches. There are three primary alternatives available, including: 1) creating an autonomous special district responsible for solid wase management authority; 2) partnering with other regional partners to create a solid waste operating authority, and; 3) creating a Solid Waste Advisory Committee.

4.3.3.1. Community Service District

Special districts are local government agencies created to provide public infrastructure or essential services, including but not limited to solid waste, fire protection, and water. Service areas can range from single communities to large regions. Funding sources can differ depending on the type of district and the services provided. For example, fire protection may be funded through property taxes, whereas solid waste services may be funded through service fees.

[33] Solid Waste Management, Madera County Website

Special Districts can be dependent or independent. Dependent districts are tied to another local government unit, such as a city or county. The Board of Directors typically consists of elected officials or appointees who control the district's budget, operations, and management. The board's composition means policy decisions are subject to the interests, influence, and authority of the associated government unit[34]. Government employees may also perform administrative responsibilities, such as accounting, budgeting, contracting, purchasing, etc.

Independent special districts are autonomous or self-governing. Board members are directly elected by voters or appointed by another legislative body to fixed terms. Independent special districts can hire employees, enter contracts, acquire property, issue bonds, impose special taxes, levy benefit assessments, and charge service fees. They must file annual financial reports and independent audits and comply with open meeting requirements, the Public Records Act, and Fair Political Practices Commission Regulations.

A Community Service District (CSD) is a type of independent special district formed through CA Government Code §61000 et seq. A CSD can provide up to 32 services, including solid waste program management. Governing boards consist of five directors elected by resident voters to four-year terms. For example, the Big Bear City CSD provides trash/recycling pickup, sewer, and water services to an 11.4-square-mile service area. The locally elected five-member Board of Directors establishes policy, provides oversight, and sets the direction of the District to provide quality services to approximately 11,000 residents.[35] The CSD collects approximately 6,800 tons of trash and over 80 tons of household recyclables[36].

Creating a CSD gives residents a more direct say in how solid waste services are provided and managed. With a locally elected board, CSDs are held accountable by the community, and programs and services can be customized to align with priorities. However, once formed, CSDs must develop fees, taxes, and/or assessments to the residents and businesses of the CSD to fully and independently fund the cost of annual administrative and overhead costs, including staffing, legal fees, rent, utilities, insurance, professional development, and more. These costs can be a burden to efficient program management. Compliance with applicable laws and regulations also requires a high level of expertise CSDs may struggle to provide with limited resources. Having multiple communities participating would be more effective in generating cost-saving opportunities, as single-community CSDs cannot take advantage of economies of scale to lower costs.

4.3.3.1.1. Solid Waste Authority

A solid waste authority is a joint powers agency (JPA) formed by two or more local governments to provide waste disposal and resource recovery services to its members. They are created through a Joint Powers Agreement with the following provisions:[37]

- List of member jurisdictions
- Description of the regional authority, including name and address
- Description of the governing structure
- Description of how any civil penalties will be allocated among the members

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[34] Learn About Districts, California Special Districts Association
[35] "Elected Board," Big Bear City Community Services District
[36] "About Us," Solid Waste, Big Bear City Community Services District
[37] Regional Agencies, CalRecycle

- Description of a contingency plan showing how each member jurisdiction will comply with the planning and waste diversion requirements if the agreement is terminated
- Description of the duties and responsibilities of each member jurisdiction, demonstrating how each will comply with planning and waste diversion requirements
- Description of source reduction, recycling, and composting programs to be implemented

The Merced County Solid Waste Authority is an example of this governance format. This authority was formed through a joint powers agreement between Merced County and each of the six cities of the County, including Atwater, Dos Palos, Gustine, Livingston, Los Banos and Merced. The authority is governed by an 11-member board consisting of each of the five Merced County Supervisors and one elected legislative member from each of the participating municipalities. The Authority is responsible for post collection management, while each of the member agencies are responsible for management of their own collection services.

The are several advantages associated with developing a solid waste authority. They can enhance opportunities to develop economies of scale through collaborative waste diversion programs across multiple jurisdictions. Having one agency manage solid waste contracts and projects for multiple jurisdictions can lead to cost savings. The authority can take ownership of each member's solid waste facilities and assets and assume responsibility for managing services. This eliminates the need for individual jurisdictions to use general funds for solid waste services, publish annual reports, and produce waste management plan elements. Authorities can employ waste management professionals to provide expertise to assist with regulatory compliance and environmental issues. Finally, having a solid waste authority can increase disposal report accuracy by limiting the disposal misallocation to individual jurisdictions.[38]

While efficiency and cost savings can be associated with creating a solid waste authority, risks and disadvantages exist. Communities seeking to establish a solid waste authority must identify willing jurisdictions to create a JPA. Each participating community risks losing autonomy and unilateral control to drive policy decisions regarding solid waste services. While each occupies a seat on the Board, as seen with the Merced County, decisions are made to benefit the service area and not for one community or another. Challenges to collaboration could arise from competing priorities, leading to conflict regarding service levels, resource allocation, etc. Finally, without unilateral policy-making authority, solid waste authorities can be inflexible or slow to adapt to new waste management practices or changing technology.

4.3.3.1.2. Solid Waste Advisory Committee

A solid waste advisory committee (SWAC) provides informed advice to a jurisdiction regarding the planning and operations of a solid waste program. Appointed committee members are responsible for reviewing matters to be considered by an administrative board, encouraging input from the community and stakeholders, and developing recommendation to the Board of Supervisors for consideration. The Board of Supervisors would continue to have final decision making authority. Specifically, the role of a committee involves:

- Reviewing current solid waste management programs for efficiency and effectiveness
- Providing input and expertise related to solid waste planning
- Gathering input from the community regarding issues related to solid waste services
- Making recommendations to a legislative body regarding solid waste programs

[38] Regional Agencies, CalRecycle

Kern County, California, utilizes a SWAC to identify countywide solid waste management issues, determine the need for new systems/facilities, and guide the development of the countywide waste management plan. The committee features nine members with three alternates consisting of: [39]

- One metropolitan Bakersfield hauler
- One non-metropolitan Bakersfield hauler
- One recycler
- One member from the public sector within a universal/mandatory collection area
- One member from the public sector not within a universal/mandatory collection area, One member of the Bakersfield City Council
- One member of the Board of Supervisors representing the Intergovernmental Relations Committee
- One member of the Board of Supervisors who is not a member of the Intergovernmental Relations Committee
- One member from the Association of Cities, Alternate Members-- (a) Board of Supervisors member; (b) Association of Cities representative; and (c) Bakersfield City Council member.

Creating a SWAC promotes engagement and transparency by giving the public an additional avenue to share input and shape policy. Another benefit is expertise. SWACs offer the opportunity to bring together a collection of individuals who have diverse backgrounds and expertise. Kern County, for example, staffs its committee with city and county officials, a recycler, waste haulers, and more. These individual perspectives can fuel productive discussions and promote informed decision-making by the policy-making authority.

Creating a SWAC is the most viable option for Madera County to create an alternative structure to provide additional oversight of the solid waste program. It preserves the Board of Supervisors' ability to control policy decisions unilaterally while promoting additional community engagement and informed decision-making. This approach would provide a formal mechanism for intentional and consistent policy evaluation and feedback but would not exclude the need for circumstantial public and community engagement efforts to inform policy and process changes. To ensure the committee's effectiveness, the County needs to develop a detailed committee charter with:

- A mission and values statement;
- A defined set of goals;
- A purpose and guiding principles;
- Board membership criteria, including roles and responsibilities;
- Governance structure;
- Operational details such as meeting frequency.

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[39] "Committees," Kern County Public Works

5. Landfill Valuation

As part of the analysis of options for the County's solid waste system, Raftelis also conducted a valuation of the Landfill for the County's consideration. The evaluation was specifically requested by the Board of Supervisors. The Valuation/Appraisal[40] of the landfill was be prepared in accordance with the NACVA®'s Professional Standards, USPAP, and applicable state and local laws, municipal rules and regulations, or market regulations. Reference Appendix E for the full landfill valuation report. The valuation was calculated to be $18,500,000 referenced in Appendix C.

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[40] Appraisal – the act or process of developing an opinion of value; an opinion of value. Valuation Services – a service pertaining to an aspect of property value. USPAP 2020-21.

6. SWMS Benchmarking with Other Communities

As part of the analysis, Raftelis prepared a comparative analysis of the County's current solid waste management system with 12 counties within the region. The analysis included the following:

1. Evaluation of requirements for automatic enrollment of collection and flow control
2. Assessment of whether the comparable entities accept contracted or out-of-county waste.
3. Identification of charges for service as well as identified factors that may impact market rates (e.g., location, level of service, number of customers, private contractor performing collection etc.).

Table 16 below breaks down the comparable entities by population, disposal facilities available in the County, and whether they operate as an enterprise fund, cost recovery mechanisms, and flow control.

Table 1718: Summary of Disposal Facilities for Comparable Entities

		Disposal Facilities								
Comparable Entities	**Pop.**	**Landfill**	**Transfer Station**	**MRF**	**Compost**	**Other**	**Enterprise Fund**	**Cost Recovery**	**Flow Control**	**SB. 1383**
Madera County	156,304	x	x	x	n/a	HHW	Yes	Tip Fees	Contractual	Low Pop. Exempt
Mariposa County	17,225	x	x	n/a	n/a	n/a	Yes	Tip Fees	Contractual	Rural Exempt
Calaveras County	45,349	x	x	n/a	n/a	n/a	No	Parcel Fee	Economic	Rural Exempt
Tuolumne County	55,243	n/a	x	n/a	n/a	n/a	Yes	Tip Fees	n/a	Rural Exempt
Kings County	151,887	x	n/a	x	x	HHW	Yes	Tip Fees	Contractual	Low Pop. Exempt
Shasta County	181,935	x	x	n/a	n/a	n/a	Yes	Tip Fees	n/a	Low Pop. Exempt
El Dorado County	190,568	n/a	x	x	n/a	C&D	n/a	Tip Fees	n/a	Low Pop. Exempt
Yolo County	216,703	x	x	n/a	x	AD	Yes	Tip Fees	Contractual	Required
Merced County	2,279,150	x	x	n/a	x	n/a	Yes	Tip Fees	Contractual	Required
Placer County	400,330	x	x	x	n/a	n/a	Yes	Tip Fees	Contractual	Low Pop. Exempt
Tulare County	470,999	x	x	x	x	Biogas	Yes	Tip Fees	Contractual	Required
Stanislaus County	550,842	x	x	n/a	x	WTE	Yes	Tip Fees	n/a	Low Pop. Exempt
Fresno County	1,001,000	x	x	n/a	x	C&D	Yes	Tip Fees	n/a	Low Pop. Exempt

Almost all the comparable counties had at least one landfill and transfer station with the exception of Kings County, El Dorado County, and Tuolumne County. Madera County is comparable in its disposal offerings, having a landfill, transfer station, MRF, and HHW facilities. Half of the comparable counties have composting facilities, with only a quarter owning and operating MRF sites. It was also determined that ten (10) of the twelve (12) counties operate their solid waste management as enterprise funds, meaning that they are self-supporting

funds where the cost of service must be recovered through the charges for service. As mentioned in the previous sections, flow control is an important consideration to the study and was researched through the comparable entities. It was found that eight (8) counties employ a form of flow control with contractual flow control through agreements with collection haulers being the most common. Calaveras County utilizes a form of economic flow control through a parcel fee that is implemented through the tax bill and acts to lower tip fees for residents economically incentivizing the residents to use the County's facility.

7. Solid Waste Management Options Assessment and Analysis

7.1. Overview

Another key element of the Study was to develop a long-range financial planning model. The review period encompassed Fiscal Years 2023 through 2128 (the "Forecast Period"). The purpose of the analysis was to provide the effects of alternative disposal options and findings from prior tasks to the SWMS cost of service. The following scenarios were evaluated through the long-range planning model.

- Baseline – Status Quo
- Option 1a: Loss of City Waste
- Option 1b: Loss of Out of County Waste
- Option 1c: Loss of City and Out of County Waste
- Option 2: Disposal Alternatives
    - 2a: Send all MSW out of county with exception of NFTS tonnage. In this scenario, the landfill would become a "trickle site" only accepting minimal amounts of waste to continue operations.
    - 2b: Mixed Waste Processing Program (One Bin Program). In this scenario, the County would adapt their current curbside collection to be under a "one bin" system where garbage, recyclables, and organics, would be disposed of in one cart.
- Option 3: Organics Diversion Program
    - 3a: Full Organics Diversion Program
    - 3b: Community Composting Program

7.2. Approach and Methodology

In order to evaluate the financial effects of the scenarios, Raftelis extended the previously developed solid waste cost of service model to encompass the Forecast Period. The base model was the same model that was used in support of the 2023 Landfill Cost of Service Study. The extended model was then updated for: 1) growth and waste generation assumptions with engineering design planning estimates; and ii) the additional capital funding requirements and changes to operations associated with the Options. The financial projections for each of the Options were compared and presented on both a nominal and net present value ("NPV") basis for comparison.

7.3. General Assumptions

The general assumptions applicable to all scenarios relied upon in development of the financial projections and corresponding evaluation were as follows:

1. **General:** The financial projections assumed the continuation of interlocal and contractual services agreements and regulations unless otherwise noted or due to contemplated changes in operations pursuant to the alternatives and scenarios.

2. **Population and Tonnage:** While the County has seen growth in their waste generation per capita in recent years, the California Department of Finance projects the County to have low levels of population growth averaging approximately 0.2% in the next twenty years then it is projected to begin decline in the year 2043. The baseline scenario adopts the California Department of Finance's forecast, assuming the County may be approaching or at a peak in economic activity and therefore assumes a minimal growth rate of approximately 0.5% per year during the initial period of the forecast then assumes growth is flat through subsequent periods in the forecast.

3. **Revenues:** The projected revenues of the SWMS can be categorized as either user charge revenues or other operating revenues. The majority or over 95% of revenues are derived from the charges for service. The following assumptions concerning the forecast of revenues was made:
    a. The user charge revenues were escalated based on the changes in the customer base, tonnages and application of any assumed user charge revenue adjustments. The principal charges are tipping fees, however the County does charge minimum or flat fees for non-contracted self-haul waste deliveries.
    b. Other operating revenues were assumed to be held constant throughout the forecast period.
    c. Investment income was projected based on the product of the average of the beginning and ending fund balances and an assumed 0.4% investment rate.

4. **Fund Balance:** The County accounts for solid waste operations with three (3) funds including Fund 109 and 110 related to landfill closure, as well as, Liner Fund 111 accounting for the principal solid waste operations. The beginning cash balances for all funds were identified from the County's trial balance.

5. **Expenses:** The solid waste operating expenses were developed based on a review of three (3) years of historical trial balances, financial reporting detail concerning contracted operations by vendor, vendor invoices, landfill and NFTS operating agreements, and the operating budget for the Fiscal Year 2023 and Fiscal Year 2024, respectively. Trends in historical expenses were evaluated to gauge variances with budgeted amounts to assess changes in budgeted costs and assess the reasonableness of the current budget. Generally, the only budget adjustments recognized within the cost of service were to contracted services, regulatory payments to Cal Recycle, and landfill closure. The primary contracted expenses for landfill and NFTS operations were separately modeled to create a one- year evaluation of such costs and validate budgeted amounts.

6. **Capital:** The capital funding requirements were based on the combination of the County's existing ten-year capital improvement plan provided by the County's contracted engineers, plus the incremental capital requirements associated with each option. In addition, based on discussions with County staff and their contracted engineers, an allowance for existing System renewals and replacements of approximately $1.7 million was assumed beginning with the Fiscal Year 2033. Additional allowances were made for facilities specific to each option. All capital improvements were assumed to be funded from existing cash reserves within the solid waste Fund 111 or from future revenues and no debt financing was assumed. Assuming debt financing over the service life of the corresponding capital improvement could reduce the near-term costs, but will result in a greater overall cost due to interest payments to service the debt. For additional information concerning the timing of capital spending for each of the scenarios please reference the results summary tables presented in the subsequent section of this report.

7. **Debt:** To maintain consistency among the scenarios, no additional debt was assumed in the Forecast Period, but may be an option to the SWMS should the County want to pursue a capital-intensive scenario.

8. **Financial Targets:** The forecast assumed a 120-day Operating Expense Target.

7.4. Comparison of Assumptions, Observations, and Findings

The following section provides a discussion and comparison of the projected SWMS funding requirements, revenues, and identified rate revenue adjustments required to meet the minimum financial targets of the County. At the end of this section is a summary of the principal findings.

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7.4.1. Baseline – Status Quo

The baseline – status quo scenario assumed a continuation of the County's current operations. As indicated in Table 17 below, the operating expenses continue to grow on average by 3.3% per year. Based on the current tonnage projections, the current landfill would reach capacity in 2059.

Table 1920: Results Summary – Baseline

Fiscal Year	Revenues + Increases	Operating Expenses	Capital	Net Cashflows	Liner Fund 111 Reserves	Gate / Franchise Tip Fee Adj. %	Landfill Capacity %
2023	$9,319,754	$8,011,577	$3,312,500	($2,004,323)	$1,937,483	15.8%	43.25%
2024	$10,276,552	$8,816,762	$3,792,000	($2,332,210)	($2,066,635)	6.0%	44.83%
2025	$15,780,130	$9,497,750	$5,056,600	$1,225,780	($2,508,972)	85.0%	46.40%
2026	$15,880,866	$9,406,269	$5,100,000	$1,374,597	($2,867,396)	0.0%	47.99%
2027	$15,983,248	$9,518,455	$300,000	$6,164,793	$1,496,718	0.0%	49.58%
2028	$16,164,966	$9,753,298	$950,000	$5,461,667	$5,087,065	0.0%	51.17%
2029	$16,338,224	$10,074,072	$4,832,500	$1,431,651	$4,573,547	0.0%	52.77%
2030	$16,501,150	$10,944,505	$4,621,000	$935,645	$3,486,946	0.0%	54.37%
2031	$16,677,522	$10,911,402	$341,000	$5,425,121	$6,809,092	0.0%	55.98%
2032	$16,858,735	$11,345,711	$341,000	$5,172,023	$9,794,037	0.0%	57.58%
2033	$17,409,840	$11,666,708	$1,689,105	$4,054,026	$11,815,399	3.1%	59.19%
2034	$17,953,894	$12,046,856	$10,567,324	($4,660,286)	$5,060,492	3.1%	60.80%
2035	$18,517,780	$12,389,335	$1,809,412	$4,319,034	$7,220,701	3.1%	62.41%
2036	$19,117,576	$12,743,495	$1,872,741	$4,501,340	$9,496,801	3.1%	64.02%
2037	$19,734,957	$13,109,195	$1,938,287	$4,687,475	$11,890,397	3.1%	65.63%
2038	$20,363,321	$13,538,716	$2,006,127	$4,818,478	$14,344,388	3.1%	67.25%
2039	$20,986,341	$13,924,036	$12,103,113	($5,040,807)	$6,866,301	3.1%	68.86%
2040	$21,629,546	$14,322,563	$2,149,014	$5,157,970	$9,511,719	3.1%	70.48%
2041	$22,314,355	$14,735,063	$2,224,229	$5,355,063	$12,276,370	3.1%	72.09%
2042	$23,020,846	$15,222,221	$2,302,077	$5,496,548	$15,101,994	3.1%	73.70%
2043	$23,749,948	$15,663,865	$2,382,650	$5,703,434	$18,051,246	3.1%	75.32%
2044	$24,479,660	$16,120,918	$13,865,860	($5,507,118)	$9,703,854	3.1%	76.93%
2045	$25,233,480	$16,593,931	$2,552,354	$6,087,195	$12,861,758	3.1%	78.55%
2046	$26,034,889	$17,149,906	$2,641,687	$6,243,297	$16,083,730	3.1%	80.16%
2047	$26,861,928	$17,656,573	$2,734,146	$6,471,209	$19,438,466	3.1%	81.77%
2048	$27,690,232	$18,180,977	$15,462,283	($5,953,029)	$10,270,602	3.1%	83.39%
2049	$28,545,860	$18,723,753	$2,928,885	$6,893,221	$13,847,312	3.1%	85.00%
2050	$29,454,852	$19,358,635	$3,031,396	$7,064,821	$17,490,523	0.0%	86.62%
2051	$30,392,894	$19,940,158	$3,137,495	$7,315,241	$21,275,529	0.0%	88.23%
2052	$31,361,060	$20,542,104	$3,247,307	$7,571,648	$25,204,675	0.0%	89.85%
2053	$32,331,524	$21,165,208	$17,723,268	($6,556,952)	$14,889,198	0.0%	91.46%
2054	$33,333,781	$21,890,612	$3,478,597	$7,964,572	$18,975,347	0.0%	93.07%
2055	$34,397,631	$22,558,343	$3,600,348	$8,238,940	$23,211,969	3.1%	94.69%
2056	$35,495,620	$23,249,601	$3,726,360	$8,519,660	$27,601,293	3.1%	96.30%
2057	$36,628,833	$23,965,234	$3,856,782	$8,806,817	$32,145,504	3.1%	97.92%
2058	$37,765,490	$24,794,541	$20,320,821	($7,349,872)	$20,396,369	3.1%	99.53%
2059	$38,939,336	$25,561,595	$4,131,482	$9,246,259	$25,102,182	3.1%	101.14%
2060	$40,184,465	$26,355,762	$4,276,084	$9,552,620	$29,968,508	3.1%	102.76%
2061	$41,469,513	$27,178,021	$4,425,746	$9,865,746	$34,997,298	3.1%	104.37%
2062	$42,795,556	$28,126,652	$4,580,648	$10,088,256	$40,092,973	3.1%	105.99%
2063	$44,119,255	$29,008,185	$27,019,114	($11,908,044)	$23,031,603	3.1%	107.60%
Total	1,042,095,411	685,762,563	216,431,341	139,901,506	583,966,386	187.4%	
NPV	592,032,372	390,301,556	121,130,842	82,604,297	300,699,086	147.3%	

7.4.2. Option 1a: Loss of City Waste

Option 1a: Loss of City Waste assumed that the County would no longer accept the waste from the incorporated cities; City of Madera and City of Chowchilla. As a result of no longer accepting the waste, a corresponding decrease was reflected in the tip fee revenues. As indicated in Table 18 below, the operating expenses continue to grow on average by 3.1% per year. With the reduction in tonnages, the timeline for the need for additional capital expansions was extended. Based on the current tonnage projections, the current landfill would reach capacity in 2070.

Table 21: Results Summary – Option 1a: Loss of City Waste

Fiscal Year	Revenues + Increases	Operating Expenses	Capital	Net Cashflows	Liner Fund 111 Reserves	Gate / Franchise Tip Fee Adj. %	Landfill Capacity %
2023	$9,319,754	$8,011,577	$3,312,500	($2,004,323)	$1,937,483	15.8%	43.25%
2024	$10,276,552	$8,816,762	$3,792,000	($2,332,210)	($2,066,635)	6.0%	44.83%
2025	$14,607,485	$8,681,669	$5,056,600	$869,216	($2,736,078)	90.0%	46.03%
2026	$14,657,242	$8,557,465	$5,100,000	$999,777	($3,329,776)	0.0%	47.23%
2027	$14,707,382	$8,864,018	$300,000	$5,543,364	$563,013	0.0%	48.44%
2028	$14,835,291	$9,074,102	$950,000	$4,811,189	$3,664,059	0.0%	49.65%
2029	$14,953,361	$9,369,282	$4,832,500	$751,579	$2,643,281	0.0%	50.86%
2030	$15,059,953	$10,213,386	$4,621,000	$225,567	$1,031,614	0.0%	52.08%
2031	$15,178,146	$10,152,855	$341,000	$4,684,291	$3,810,793	0.0%	53.30%
2032	$15,300,292	$10,559,097	$341,000	$4,400,195	$6,235,207	0.0%	54.52%
2033	$15,798,381	$10,853,368	$1,689,105	$3,255,908	$7,669,834	3.1%	55.74%
2034	$16,305,926	$11,206,064	$1,748,224	$3,351,638	$9,148,928	3.1%	56.96%
2035	$16,831,485	$11,519,995	$1,809,412	$3,502,078	$10,725,384	3.1%	58.19%
2036	$17,373,659	$11,844,599	$1,872,741	$3,656,318	$12,401,209	3.1%	59.41%
2037	$17,912,728	$12,179,768	$11,463,318	($5,730,359)	$4,633,685	3.1%	60.64%
2038	$18,461,817	$12,578,133	$2,006,127	$3,877,557	$6,415,791	3.1%	61.86%
2039	$19,043,384	$12,931,459	$2,076,342	$4,035,583	$8,295,857	3.1%	63.09%
2040	$19,643,354	$13,296,855	$2,149,014	$4,197,485	$10,275,755	3.1%	64.32%
2041	$20,262,925	$13,675,009	$2,224,229	$4,363,686	$12,357,690	3.1%	65.54%
2042	$20,902,176	$14,126,587	$2,302,077	$4,473,511	$14,483,142	3.1%	66.77%
2043	$21,539,684	$14,531,359	$13,493,583	($6,485,258)	$5,581,300	3.1%	68.00%
2044	$22,198,406	$14,950,202	$2,466,043	$4,782,161	$7,876,062	3.1%	69.22%
2045	$22,901,287	$15,383,618	$2,552,354	$4,965,315	$10,280,801	3.1%	70.45%
2046	$23,626,718	$15,898,560	$2,641,687	$5,086,472	$12,731,087	3.1%	71.68%
2047	$24,375,423	$16,362,703	$2,734,146	$5,278,575	$15,295,351	3.1%	72.90%
2048	$25,148,281	$16,843,039	$2,829,841	$5,475,401	$17,975,725	3.1%	74.13%
2049	$25,946,062	$17,340,148	$2,928,885	$5,677,029	$20,774,340	3.1%	75.36%
2050	$26,742,766	$17,927,705	$16,329,265	($7,514,204)	$10,295,576	3.1%	76.58%
2051	$27,565,757	$18,460,185	$3,137,495	$5,968,077	$13,210,105	3.1%	77.81%
2052	$28,442,674	$19,011,308	$3,247,307	$6,184,059	$16,248,696	3.1%	79.04%
2053	$29,347,851	$19,581,744	$3,360,963	$6,405,144	$19,413,435	3.1%	80.26%
2054	$30,282,074	$20,252,568	$3,478,597	$6,550,909	$22,626,274	3.1%	81.49%
2055	$31,247,031	$20,863,738	$3,600,348	$6,782,945	$25,983,993	3.1%	82.72%
2056	$32,212,783	$21,496,382	$19,238,304	($8,521,903)	$14,173,205	3.1%	83.94%
2057	$33,211,048	$22,151,273	$3,856,782	$7,202,993	$18,001,278	3.1%	85.17%
2058	$34,273,753	$22,917,633	$3,991,770	$7,364,350	$22,128,646	3.1%	86.40%
2059	$35,370,530	$23,619,456	$4,131,482	$7,619,592	$26,413,413	3.1%	87.62%
2060	$36,502,646	$24,346,023	$4,276,084	$7,880,539	$30,857,370	3.1%	88.85%
2061	$37,671,226	$25,098,228	$4,425,746	$8,147,251	$35,462,124	3.1%	90.08%
2062	$38,840,944	$25,974,263	$22,675,306	($9,808,625)	$22,000,759	3.1%	91.30%
2063	$40,048,010	$26,780,563	$4,740,970	$8,526,476	$26,744,579	3.1%	92.53%
Total	948,926,245	636,302,751	188,124,146	124,499,348	502,234,354	207.9%	
NPV	540,208,967	362,812,472	106,326,235	73,074,583	254,638,352	159.5%	

7.4.3. Option 1b: Loss of Out of County

Option 1b: Loss of Out of County Waste assumed that the County would no longer accept the waste from out of county customers. As part of this scenario, it was assumed that the County would no longer receive tip fee revenues from the waste generated from out of county contracts. Operating expenses were to continue as in the Baseline scenario, and as indicated in Table 19 below, the operating expenses continue to grow on average by 3.1% per year. With the reduction in tonnages, the timeline for the need for additional capital expansions was extended. Based on the current tonnage projections, the current landfill would reach capacity in 2079.

Table 2223: Results Summary – Option 1b: Loss of Out of County Waste

Fiscal Year	Revenues + Increases	Operating Expenses	Capital	Net Cashflows	Liner Fund 111 Reserves	Gate / Franchise Tip Fee Adj. %	Landfill Capacity %
2023	$9,319,754	$8,011,577	$3,312,500	($2,004,323)	$1,937,483	15.8%	43.25%
2024	$10,276,552	$8,816,762	$3,792,000	($2,332,210)	($2,066,635)	6.0%	44.83%
2025	$14,660,364	$8,612,780	$5,056,600	$990,984	($2,541,383)	97.0%	45.81%
2026	$14,755,462	$8,533,626	$5,100,000	$1,121,835	($2,934,410)	0.0%	46.80%
2027	$14,852,576	$8,887,374	$300,000	$5,665,202	$1,164,775	0.0%	47.80%
2028	$14,952,907	$9,100,232	$950,000	$4,902,675	$4,448,104	0.0%	48.79%
2029	$15,041,511	$9,398,300	$4,832,500	$810,712	$3,583,811	0.0%	49.79%
2030	$15,116,682	$10,245,404	$4,621,000	$250,278	$2,101,079	0.0%	50.79%
2031	$15,201,420	$10,188,001	$341,000	$4,672,419	$4,979,850	0.0%	51.79%
2032	$15,288,022	$10,597,481	$341,000	$4,349,541	$7,472,641	0.0%	52.79%
2033	$15,772,958	$10,894,824	$1,689,105	$3,189,028	$8,959,469	3.1%	53.80%
2034	$16,266,431	$11,250,695	$1,748,224	$3,267,513	$10,479,542	3.1%	54.80%
2035	$16,776,915	$11,567,924	$1,809,412	$3,399,579	$12,084,870	3.1%	55.81%
2036	$17,302,976	$11,895,950	$1,872,741	$3,534,285	$13,776,538	3.1%	56.82%
2037	$17,843,942	$12,234,662	$1,938,287	$3,670,993	$15,554,981	3.1%	57.82%
2038	$18,393,950	$12,636,671	$2,006,127	$3,751,152	$17,362,239	3.1%	58.83%
2039	$18,956,299	$12,993,757	$2,076,342	$3,886,200	$19,251,651	3.1%	59.84%
2040	$19,515,209	$13,363,049	$12,436,481	($6,284,320)	$10,915,908	3.1%	60.85%
2041	$20,092,340	$13,745,240	$2,224,229	$4,122,871	$12,930,908	3.1%	61.86%
2042	$20,708,332	$14,201,001	$2,302,077	$4,205,253	$14,969,986	3.1%	62.87%
2043	$21,343,422	$14,610,108	$2,382,650	$4,350,664	$17,094,247	3.1%	63.87%
2044	$21,998,322	$15,033,443	$2,466,043	$4,498,836	$19,304,472	3.1%	64.88%
2045	$22,673,638	$15,471,515	$2,552,354	$4,649,769	$21,601,378	3.1%	65.89%
2046	$23,369,862	$15,991,280	$2,641,687	$4,736,896	$23,919,050	3.1%	66.90%
2047	$24,087,639	$16,460,423	$2,734,146	$4,893,071	$26,324,364	3.1%	67.91%
2048	$24,802,450	$16,945,940	$15,462,283	($7,605,774)	$16,160,058	3.1%	68.91%
2049	$25,540,192	$17,448,418	$2,928,885	$5,162,889	$18,691,330	3.1%	69.92%
2050	$26,326,740	$18,041,539	$3,031,396	$5,253,805	$21,238,048	3.1%	70.93%
2051	$27,137,605	$18,579,784	$3,137,495	$5,420,325	$23,873,362	3.1%	71.94%
2052	$27,973,681	$19,136,882	$3,247,307	$5,589,492	$26,597,384	3.1%	72.95%
2053	$28,835,740	$19,713,510	$3,360,963	$5,761,267	$29,410,104	3.1%	73.96%
2054	$29,724,400	$20,390,751	$3,478,597	$5,855,052	$32,230,477	3.1%	74.96%
2055	$30,609,922	$21,008,571	$18,719,201	($9,117,851)	$19,976,871	3.1%	75.97%
2056	$31,523,502	$21,648,106	$3,726,360	$6,149,037	$22,691,760	3.1%	76.98%
2057	$32,496,572	$22,310,138	$3,856,782	$6,329,652	$25,486,774	3.1%	77.99%
2058	$33,499,740	$23,083,899	$3,991,770	$6,424,072	$28,274,833	3.1%	79.00%
2059	$34,533,999	$23,793,390	$4,131,482	$6,609,127	$31,175,158	3.1%	80.01%
2060	$35,600,485	$24,527,905	$4,276,084	$6,796,497	$34,188,590	3.1%	81.01%
2061	$36,700,187	$25,288,347	$4,425,746	$6,986,094	$37,315,849	3.1%	82.02%
2062	$37,833,926	$26,172,916	$4,580,648	$7,080,362	$40,460,006	3.1%	83.03%
2063	$38,965,491	$26,988,061	$23,306,090	($11,328,660)	$25,115,099	3.1%	84.04%
Total	936,672,117	639,820,235	177,187,593	119,664,289	695,560,622	214.9%	
NPV	534,850,413	364,574,682	99,600,126	72,679,929	360,186,398	166.1%	

7.4.4. Option 1c: Loss of City and Out of County

Option 1c: Loss of City and Out of County Waste assumed that the County would no longer accept the waste from the city or out of county customers. As part of this scenario, it was assumed that the County would no longer receive tip fee revenues from the waste generated from the Cities and out of county contracts. Operating expenses were to continue as in the Baseline scenario, and as indicated in Table 20 below, the operating expenses continue to grow on average by 2.7% per year. With the reduction in tonnages, the timeline for the need for additional capital expansions was extended. Based on the current tonnage projections, the current landfill would reach capacity in 2113.

Table 2425: Results Summary – Option 1c: Loss of City and Out of County Waste

Fiscal Year	Revenues + Increases	Operating Expenses	Capital	Net Cashflows	Liner Fund 111 Reserves	Gate / Franchise Tip Fee Adj. %	Landfill Capacity %
2023	$9,319,754	$8,011,577	$3,312,500	($2,004,323)	$1,937,483	15.8%	43.25%
2024	$10,276,552	$8,816,762	$3,792,000	($2,332,210)	($2,066,635)	6.0%	44.83%
2025	$13,232,242	$7,675,392	$5,056,600	$500,250	($2,902,659)	98.0%	45.43%
2026	$13,275,004	$7,558,184	$5,100,000	$616,820	($3,661,155)	0.0%	46.04%
2027	$13,319,154	$7,872,970	$300,000	$5,146,183	$69,115	0.0%	46.65%
2028	$13,365,554	$8,045,713	$950,000	$4,369,841	$2,980,786	0.0%	47.27%
2029	$13,398,976	$8,302,296	$4,832,500	$264,181	$1,742,776	0.0%	47.88%
2030	$13,417,987	$9,106,698	$4,621,000	($309,711)	($114,935)	0.0%	48.50%
2031	$13,444,785	$9,004,808	$341,000	$4,098,977	$2,388,258	0.0%	49.11%
2032	$13,472,772	$9,368,727	$341,000	$3,763,044	$4,505,850	0.0%	49.73%
2033	$13,897,131	$9,622,701	$1,689,105	$2,585,325	$5,600,358	3.1%	50.35%
2034	$14,328,708	$9,934,003	$1,748,224	$2,646,480	$6,721,476	3.1%	50.97%
2035	$14,775,152	$10,204,889	$1,809,412	$2,760,852	$7,921,278	3.1%	51.59%
2036	$15,235,257	$10,484,929	$1,872,741	$2,877,587	$9,200,995	3.1%	52.21%
2037	$15,689,363	$10,774,065	$11,463,318	($6,548,019)	$1,017,139	3.1%	52.83%
2038	$16,151,438	$11,125,454	$2,006,127	$3,019,857	$2,362,139	3.1%	53.45%
2039	$16,643,412	$11,430,545	$2,076,342	$3,136,526	$3,783,640	3.1%	54.07%
2040	$17,150,455	$11,745,991	$2,149,014	$3,255,450	$5,282,631	3.1%	54.69%
2041	$17,673,544	$12,072,363	$2,224,229	$3,376,951	$6,860,372	3.1%	55.31%
2042	$18,212,692	$12,470,298	$2,302,077	$3,440,316	$8,457,378	3.1%	55.93%
2043	$18,768,575	$12,819,481	$2,382,650	$3,566,444	$10,135,017	3.1%	56.55%
2044	$19,341,830	$13,180,716	$2,466,043	$3,695,071	$11,894,351	3.1%	57.17%
2045	$19,932,989	$13,554,433	$2,552,354	$3,826,202	$13,736,405	3.1%	57.79%
2046	$20,542,470	$14,007,509	$2,641,687	$3,893,274	$15,595,593	3.1%	58.41%
2047	$21,170,836	$14,407,541	$2,734,146	$4,029,150	$17,539,149	3.1%	59.04%
2048	$21,818,804	$14,821,438	$2,829,841	$4,167,526	$19,567,952	3.1%	59.66%
2049	$22,461,001	$15,249,696	$15,889,771	($8,678,467)	$8,695,965	3.1%	60.28%
2050	$23,123,768	$15,765,904	$3,031,396	$4,326,468	$10,772,397	3.1%	60.90%
2051	$23,833,717	$16,224,444	$3,137,495	$4,471,778	$12,935,851	3.1%	61.52%
2052	$24,565,779	$16,698,943	$3,247,307	$4,619,529	$15,186,945	3.1%	62.14%
2053	$25,320,635	$17,189,973	$3,360,963	$4,769,699	$17,526,229	3.1%	62.76%
2054	$26,098,883	$17,778,510	$3,478,597	$4,841,776	$19,874,307	3.1%	63.38%
2055	$26,902,284	$18,304,406	$3,600,348	$4,997,531	$22,334,834	3.1%	64.00%
2056	$27,731,709	$18,848,679	$3,726,360	$5,156,670	$25,268,916	3.1%	64.62%
2057	$28,586,908	$19,411,992	$3,856,782	$5,318,134	$28,296,746	3.1%	65.24%
2058	$29,468,490	$20,083,450	$3,991,770	$5,393,270	$31,328,909	3.1%	65.86%
2059	$30,377,264	$20,686,925	$4,131,482	$5,558,857	$34,452,753	3.1%	66.48%
2060	$31,314,241	$21,311,575	$4,276,084	$5,726,582	$37,667,260	3.1%	67.11%
2061	$32,280,279	$21,958,164	$4,425,746	$5,896,369	$40,971,152	3.1%	67.73%
2062	$33,239,809	$22,724,747	$22,675,306	($12,160,245)	$26,134,778	3.1%	68.35%
2063	$34,229,867	$23,417,624	$4,740,970	$6,071,273	$29,443,763	3.1%	68.97%
Total	827,390,072	562,074,515	161,164,286	104,151,272	511,445,563	215.9%	
NPV	473,936,289	321,738,436	92,863,786	61,338,390	245,683,817	167.1%	

7.4.5. Option 2a: Send all MSW out of County except NFTS

Option 2a: In this scenario, the landfill would become a "trickle site" only accepting minimal amounts of waste to continue operations. For the County to send the waste to another landfill facility, the SWMS would incur additional incremental operating costs associated with the transfer and disposal of the waste. The analysis assumed a disposal rate of $27.41 per ton based on neighboring counties tipping fees with an additional fee estimated for transportation rates at $8 per ton. The transport rate was calculated on the basis of mileage and time of disposal. The analysis also assumed a reduction in revenue based on the loss of MSW other than the NFTS. With the reduction in waste, this scenario also assumes a reduction in capital costs, and an 18% reduction made in the costs of the landfill professional services. Table 21 below provides a detailed summary of the result of the scenario.

Table 2627: Results Summary – Option 2a: Send all MSW out of County except NFTS

Fiscal Year	Revenues + Increases	Operating Expenses	Capital	Net Cashflows	Liner Fund 111 Reserves	Gate / Franchise Tip Fee Adj. %	Landfill Capacity %
2023	$9,319,754	$8,011,577	$3,312,500	($2,004,323)	$1,937,483	15.8%	43.25%
2024	$10,276,552	$8,816,762	$3,792,000	($2,332,210)	($2,066,635)	6.0%	44.83%
2025	$16,739,079	$9,497,750	$5,056,600	$2,184,729	($1,550,023)	100.0%	46.40%
2026	$16,846,769	$9,406,269	$5,100,000	$2,340,500	($942,544)	0.0%	47.99%
2027	$16,955,534	$9,518,455	$300,000	$7,137,079	$4,393,857	0.0%	49.58%
2028	$13,513,708	$9,231,964	$950,000	$3,331,744	$6,431,036	0.0%	49.65%
2029	$13,543,151	$9,521,634	$4,832,500	($810,983)	$4,295,668	0.0%	49.72%
2030	$13,558,178	$10,261,681	$4,621,000	($1,324,502)	$1,615,883	0.0%	49.79%
2031	$13,580,905	$10,260,774	$341,000	$2,979,131	$3,207,707	0.0%	49.86%
2032	$13,604,494	$10,642,596	$341,000	$2,620,899	$4,408,126	0.0%	49.93%
2033	$14,028,364	$10,936,800	$1,689,105	$1,402,458	$4,560,783	3.1%	50.01%
2034	$14,459,400	$11,279,592	$1,748,224	$1,431,584	$4,721,648	3.1%	50.08%
2035	$14,905,303	$11,591,862	$1,809,412	$1,504,029	$4,933,473	3.1%	50.15%
2036	$15,364,828	$11,913,955	$1,872,741	$1,578,132	$5,197,337	3.1%	50.22%
2037	$15,837,399	$12,245,680	$1,938,287	$1,653,432	$5,513,848	3.1%	50.29%
2038	$16,317,940	$12,629,580	$2,006,127	$1,682,233	$5,835,913	3.1%	50.36%
2039	$16,809,322	$12,977,219	$2,076,342	$1,755,761	$6,207,645	3.1%	50.43%
2040	$17,315,744	$13,335,870	$2,149,014	$1,830,860	$6,629,974	3.1%	50.51%
2041	$17,838,193	$13,706,171	$2,224,229	$1,907,792	$7,104,074	3.1%	50.58%
2042	$18,376,701	$14,137,843	$2,302,077	$1,936,781	$7,581,325	3.1%	50.65%
2043	$18,931,947	$14,532,330	$2,382,650	$2,016,967	$8,112,229	3.1%	50.72%
2044	$19,504,550	$14,939,568	$2,466,043	$2,098,940	$8,697,860	3.1%	50.79%
2045	$20,095,045	$15,359,981	$2,552,354	$2,182,709	$9,339,282	3.1%	50.86%
2046	$20,703,873	$15,848,485	$2,641,687	$2,213,702	$9,982,967	3.1%	50.93%
2047	$21,331,604	$16,296,587	$2,734,146	$2,300,872	$10,684,319	3.1%	51.01%
2048	$21,978,932	$16,759,232	$2,829,841	$2,389,859	$11,444,364	3.1%	51.08%
2049	$22,646,460	$17,236,910	$2,928,885	$2,480,665	$12,264,106	3.1%	51.15%
2050	$23,334,692	$17,790,045	$3,031,396	$2,513,251	$13,084,489	3.1%	51.22%
2051	$24,044,268	$18,299,319	$3,137,495	$2,607,454	$13,966,273	3.1%	51.29%
2052	$24,775,969	$18,825,193	$3,247,307	$2,703,469	$14,910,388	3.1%	51.36%
2053	$25,530,470	$19,368,227	$3,360,963	$2,801,280	$15,917,681	3.1%	51.43%
2054	$26,308,127	$19,994,913	$3,478,597	$2,834,618	$16,920,356	3.1%	51.51%
2055	$27,106,087	$20,574,023	$3,600,348	$2,931,716	$17,898,606	3.1%	51.58%
2056	$27,925,335	$21,172,093	$3,726,360	$3,026,883	$17,501,965	3.1%	51.65%
2057	$28,770,041	$21,789,762	$3,856,782	$3,123,496	$17,146,373	3.1%	51.72%
2058	$29,647,394	$22,500,202	$3,991,770	$3,155,422	$16,692,810	3.1%	51.79%
2059	$30,558,464	$23,159,089	$4,131,482	$3,267,893	$18,946,897	3.1%	51.86%
2060	$31,497,685	$23,839,642	$4,276,084	$3,381,959	$21,288,248	3.1%	51.93%
2061	$32,466,080	$24,542,597	$4,425,746	$3,497,736	$23,623,594	3.1%	52.01%
2062	$33,464,550	$25,348,473	$4,580,648	$3,535,430	$26,043,060	3.1%	52.08%
2063	$34,493,879	$26,098,548	$4,740,970	$3,654,361	$28,538,970	3.1%	52.15%
Total	844,306,772	634,199,254	120,583,711	89,523,808	413,021,417	217.9%	
NPV	487,236,581	363,486,545	72,671,386	53,082,973	209,094,003	169.0%	

7.4.6. Option 2b: Mixed Waste Processing

Option 2b: Mixed Waste Processing Program (One Bin Program). In this scenario, the County would adapt their current curbside collection to be under a "one bin" system where garbage, recyclables, and organics, are disposed of in one cart. The scenario assumed a recycling diversion rate of 45% with 61,400 tons being sent to the mixed waste processing facility, with the remaining tons sent to the landfill. The incremental costs associated with this scenario are driven by the disposal costs of the mixed waste tons and the costs to send the additional waste to the landfill. To aid in the evaluation of the feasibility of this option, Raftelis and the County had an interview with Placer County staff and it served as a reference facility for purposes of cost estimation. The disposal rate for the mixed waste processing facility was assumed at $103.75 per ton, representing both operating and capital costs, as was benchmarked from the Placer County mixed waste processing facility. A transport rate of $8.00 per ton was also assumed to be added to the disposal rate calculated on the basis of mileage and time of disposal of the diverted tonnages.

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Table 2829: Results Summary – Option 2b: Mixed Waste Processing Program

Fiscal Year	Revenues + Increases	Operating Expenses	Capital	Net Cashflows	Liner Fund 111 Reserves	Gate / Franchise Tip Fee Adj. %	Landfill Capacity %
2023	$9,319,754	$8,011,577	$3,312,500	($2,004,323)	$1,937,483	15.8%	43.25%
2024	$10,276,552	$8,816,762	$3,792,000	($2,332,210)	($2,066,635)	6.0%	44.83%
2025	$16,739,079	$9,497,750	$5,056,600	$2,184,729	($1,550,023)	100.0%	46.40%
2026	$16,846,769	$9,406,269	$5,100,000	$2,340,500	($942,544)	0.0%	47.99%
2027	$16,955,534	$9,518,455	$300,000	$7,137,079	$4,393,857	0.0%	49.58%
2028	$24,513,408	$19,444,859	$950,000	$4,118,549	$7,227,047	85.5%	49.63%
2029	$24,566,611	$20,054,874	$4,832,500	($320,764)	$5,591,806	0.0%	49.67%
2030	$24,599,614	$21,217,688	$4,621,000	($1,239,074)	$3,008,094	0.0%	49.72%
2031	$24,639,062	$21,484,858	$341,000	$2,813,204	$4,445,413	0.0%	49.77%
2032	$24,672,164	$22,220,565	$341,000	$2,110,600	$5,147,767	0.0%	49.81%
2033	$25,449,684	$22,867,123	$1,689,105	$893,456	$4,803,917	3.1%	49.86%
2034	$26,242,490	$23,578,339	$1,748,224	$915,927	$4,462,274	3.1%	49.91%
2035	$27,062,632	$24,262,202	$1,809,412	$991,018	$4,174,920	3.1%	49.95%
2036	$27,907,756	$24,966,608	$1,872,741	$1,068,407	$3,943,599	3.1%	50.00%
2037	$28,776,792	$25,690,683	$1,938,287	$1,147,821	$3,769,773	3.1%	50.05%
2038	$29,660,411	$26,481,761	$2,006,127	$1,172,523	$3,598,158	3.1%	50.09%
2039	$30,563,937	$27,234,441	$2,076,342	$1,253,155	$3,484,094	3.1%	50.14%
2040	$31,495,084	$28,009,899	$2,149,014	$1,336,171	$3,429,355	3.1%	50.19%
2041	$32,455,673	$28,809,647	$2,224,229	$1,421,797	$3,435,922	3.1%	50.23%
2042	$33,445,824	$29,694,290	$2,302,077	$1,449,458	$3,445,183	3.1%	50.28%
2043	$34,466,794	$30,544,093	$2,382,650	$1,540,051	$3,519,412	3.1%	50.33%
2044	$35,519,661	$31,420,254	$2,466,043	$1,633,364	$3,660,646	3.1%	50.37%
2045	$36,605,413	$32,323,606	$2,552,354	$1,729,452	$3,870,965	3.1%	50.42%
2046	$37,724,937	$33,321,440	$2,641,687	$1,761,811	$4,085,922	3.1%	50.47%
2047	$38,879,282	$34,281,778	$2,734,146	$1,863,358	$4,373,972	3.1%	50.51%
2048	$40,069,664	$35,271,969	$2,829,841	$1,967,854	$4,737,309	3.1%	50.56%
2049	$41,297,199	$36,292,957	$2,928,885	$2,075,357	$5,178,167	3.1%	50.61%
2050	$42,562,892	$37,418,793	$3,031,396	$2,112,703	$5,625,594	3.1%	50.65%
2051	$43,867,928	$38,504,334	$3,137,495	$2,226,099	$6,154,825	3.1%	50.70%
2052	$45,213,677	$39,623,697	$3,247,307	$2,342,673	$6,768,200	3.1%	50.75%
2053	$46,601,398	$40,777,953	$3,360,963	$2,462,482	$7,468,097	3.1%	50.80%
2054	$48,032,231	$42,048,594	$3,478,597	$2,505,041	$8,176,383	3.1%	50.84%
2055	$49,507,515	$43,276,000	$3,600,348	$2,631,167	$8,975,720	3.1%	50.89%
2056	$51,028,788	$44,541,736	$3,726,360	$2,760,692	$9,868,552	3.1%	50.94%
2057	$52,597,375	$45,847,021	$3,856,782	$2,893,571	$10,855,854	3.1%	50.98%
2058	$54,212,937	$47,281,536	$3,991,770	$2,939,632	$11,801,315	3.1%	51.03%
2059	$55,877,769	$48,669,742	$4,131,482	$3,076,546	$12,020,947	3.1%	51.08%
2060	$57,596,131	$50,101,402	$4,276,084	$3,218,645	$12,685,814	3.1%	51.12%
2061	$59,369,525	$51,577,905	$4,425,746	$3,365,874	$13,903,667	3.1%	51.17%
2062	$61,199,253	$53,197,944	$4,580,648	$3,420,661	$15,421,827	3.1%	51.22%
2063	$63,086,442	$54,768,476	$4,740,970	$3,576,996	$17,416,216	3.1%	51.26%
Total	1,481,505,641	1,282,359,880	120,583,711	78,562,050	242,308,865	303.4%	
NPV	833,762,063	716,388,100	72,671,386	46,706,899	128,359,335	241.7%	

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7.4.7. Option 3a: Full Organics Diversion Program

Option 3a: Full Organics Diversion Program. In this scenario, the County would adopt a full organics collection and diversion program in compliance with SB1383 by through voluntary curbside collection. The scenario assumed the County's waste composition to be 67.3% organic per CalRecycle reporting with 54,500 tons available for diversion. The program would be assumed to be voluntary and for the initial start, the collection rate was assumed to be 5%, diverting approximately 2,875 tons annually over the next 20 years.

Table 3031: Results Summary – Option 3a: Full Organics Diversion Program

Fiscal Year	Revenues + Increases	Operating Expenses	Capital	Net Cashflows	Liner Fund 111 Reserves	Gate / Franchise Tip Fee Adj. %	Landfill Capacity %
2023	$9,319,754	$8,011,577	$3,312,500	($2,004,323)	$1,937,483	15.8%	43.25%
2024	$10,276,552	$8,816,762	$3,792,000	($2,332,210)	($2,066,635)	6.0%	44.83%
2025	$15,780,130	$9,497,750	$5,056,600	$1,225,780	($2,508,972)	85.0%	46.40%
2026	$15,880,866	$9,406,269	$5,100,000	$1,374,597	($2,867,396)	0.0%	47.99%
2027	$15,983,248	$9,518,455	$300,000	$6,164,793	$1,496,718	0.0%	49.58%
2028	$16,164,595	$9,938,027	$950,000	$5,276,568	$4,909,075	0.0%	51.16%
2029	$16,337,096	$10,266,778	$4,832,500	$1,237,817	$4,209,374	0.0%	52.73%
2030	$16,499,228	$11,145,432	$4,621,000	$732,797	$2,928,146	0.0%	54.32%
2031	$16,674,771	$11,120,894	$341,000	$5,212,877	$6,046,869	0.0%	55.90%
2032	$16,855,115	$11,563,989	$341,000	$4,950,126	$8,819,365	0.0%	57.49%
2033	$17,405,314	$11,893,345	$1,689,105	$3,822,864	$10,619,214	3.1%	59.08%
2034	$17,949,017	$11,986,580	$10,567,324	($4,604,887)	$3,929,861	3.1%	60.67%
2035	$18,513,129	$12,326,946	$1,809,412	$4,376,771	$6,158,490	3.1%	62.26%
2036	$19,113,161	$12,678,920	$1,872,741	$4,561,500	$8,505,978	3.1%	63.85%
2037	$19,730,787	$13,042,360	$1,938,287	$4,750,140	$10,974,034	3.1%	65.44%
2038	$20,359,406	$13,469,574	$2,006,127	$4,883,705	$13,505,631	3.1%	67.04%
2039	$20,982,693	$13,852,525	$12,103,113	($4,972,944)	$6,108,389	3.1%	68.63%
2040	$21,626,175	$14,248,599	$2,149,014	$5,228,563	$8,838,008	3.1%	70.23%
2041	$22,311,272	$14,658,555	$2,224,229	$5,428,488	$11,690,341	3.1%	71.82%
2042	$23,018,063	$15,143,078	$2,302,077	$5,572,908	$14,607,256	3.1%	73.42%
2043	$23,747,477	$15,581,991	$2,382,650	$5,782,835	$17,651,540	3.1%	75.01%
2044	$24,477,512	$16,036,214	$13,865,860	($5,424,563)	$9,403,059	3.1%	76.61%
2045	$25,231,669	$16,506,295	$2,552,354	$6,173,019	$12,663,896	3.1%	78.21%
2046	$26,033,428	$17,059,232	$2,641,687	$6,332,510	$15,992,969	3.1%	79.80%
2047	$26,860,831	$17,562,750	$2,734,146	$6,563,936	$19,459,129	3.1%	81.40%
2048	$27,714,828	$18,083,890	$2,829,841	$6,801,098	$23,064,928	3.1%	82.99%
2049	$28,570,293	$18,623,284	$15,889,771	($5,942,763)	$13,826,059	3.1%	84.59%
2050	$29,453,819	$19,254,662	$3,031,396	$7,167,761	$17,593,520	3.1%	86.18%
2051	$30,392,281	$19,832,552	$3,137,495	$7,422,234	$21,507,760	3.1%	87.78%
2052	$31,360,883	$20,430,734	$3,247,307	$7,682,841	$25,571,310	3.1%	89.37%
2053	$32,360,586	$21,049,938	$3,360,963	$7,949,686	$29,786,718	3.1%	90.97%
2054	$33,362,811	$21,771,300	$18,214,322	($6,622,811)	$19,312,533	3.1%	92.56%
2055	$34,400,021	$22,434,842	$3,600,348	$8,364,831	$23,764,026	3.1%	94.16%
2056	$35,502,847	$23,121,759	$3,726,360	$8,654,728	$29,394,814	3.1%	95.75%
2057	$36,640,665	$23,832,894	$3,856,782	$8,950,989	$35,191,415	3.1%	97.35%
2058	$37,777,112	$24,657,540	$20,320,821	($7,201,248)	$24,605,013	3.1%	98.94%
2059	$38,945,290	$25,419,763	$4,131,482	$9,394,045	$28,805,415	3.1%	100.54%
2060	$40,182,933	$26,208,923	$4,276,084	$9,697,926	$32,769,145	3.1%	102.13%
2061	$41,458,620	$27,025,995	$4,425,746	$10,006,879	$36,486,367	3.1%	103.73%
2062	$42,773,446	$27,969,249	$4,580,648	$10,223,549	$39,849,311	3.1%	105.32%
2063	$44,085,889	$28,845,210	$27,019,114	($11,778,435)	$20,660,847	3.1%	106.92%
Total	1,042,113,612	683,895,433	217,133,205	141,084,974	615,201,005	202.9%	
NPV	592,033,591	389,781,327	121,132,121	83,124,464	311,994,155	154.8%	

7.4.8. Option 3b: Organics Diversion: Community Composting

Option 3b: Organic Collection and Diversion Program, Community Composting. In this scenario, the County would develop a community composting facility in Eastern Madera County. As mentioned in Section 4, the scenario would follow the CalRecycle waste composition assumptions at 67.3% organics, reporting with 54,500 tons available for diversion County wide. However, with the facility located in the eastern portion of the County an analysis was conducted of the relationship of the unincorporated eastern population as a portion of unincorporated eastern and western county population based on zip code data was performed, resulting in a 38.6% relationship, estimating 21,000 organic tons would be available on average. This scenario assumed a participation rate of 15%, resulting in approximately 3,300 organic tons available for community composting annually over the next 20 years.

Table 3233: Results Summary – Option 3b: Community Composting

Fiscal Year	Revenues + Increases	Operating Expenses	Capital	Net Cashflows	Liner Fund 111 Reserves	Gate / Franchise Tip Fee Adj. %	Landfill Capacity %
2023	$9,319,754	$8,011,577	$3,312,500	($2,004,323)	$1,937,483	15.8%	43.25%
2024	$10,276,552	$8,816,762	$3,792,000	($2,332,210)	($2,066,635)	6.0%	44.83%
2025	$15,907,990	$9,497,750	$5,056,600	$1,353,640	($2,381,112)	87.0%	46.40%
2026	$16,009,653	$9,406,269	$5,100,000	$1,503,384	($2,610,749)	0.0%	47.99%
2027	$16,112,886	$9,518,455	$300,000	$6,294,431	$1,883,004	0.0%	49.58%
2028	$16,295,061	$9,924,845	$950,000	$5,420,216	$5,431,899	0.0%	51.17%
2029	$16,468,394	$10,249,050	$4,832,500	$1,386,845	$4,873,574	0.0%	52.77%
2030	$16,631,331	$11,122,982	$4,621,000	$887,349	$3,738,678	0.0%	54.37%
2031	$16,807,701	$11,093,448	$341,000	$5,373,253	$7,008,955	0.0%	55.98%
2032	$16,988,825	$11,531,399	$341,000	$5,116,426	$9,938,303	0.0%	57.58%
2033	$17,543,868	$11,856,109	$1,689,105	$3,998,654	$11,904,292	3.1%	59.19%
2034	$18,091,957	$12,240,046	$10,567,324	($4,715,413)	$5,094,259	3.1%	60.80%
2035	$18,660,024	$12,586,388	$1,809,412	$4,264,225	$7,199,660	3.1%	62.41%
2036	$19,264,136	$12,944,489	$1,872,741	$4,446,905	$9,421,325	3.1%	64.02%
2037	$19,885,961	$13,314,209	$1,938,287	$4,633,465	$11,760,910	3.1%	65.63%
2038	$20,518,847	$13,747,830	$2,006,127	$4,764,890	$14,161,313	3.1%	67.25%
2039	$21,146,498	$14,137,332	$12,103,113	($5,093,947)	$6,630,086	3.1%	68.86%
2040	$21,794,483	$14,540,125	$2,149,014	$5,105,343	$9,222,878	3.1%	70.48%
2041	$22,484,230	$14,956,977	$2,224,229	$5,303,024	$11,935,490	3.1%	72.09%
2042	$23,195,819	$15,448,573	$2,302,077	$5,445,169	$14,709,734	3.1%	73.70%
2043	$23,930,187	$15,894,744	$2,382,650	$5,652,793	$17,608,345	3.1%	75.32%
2044	$24,665,336	$16,356,414	$13,865,860	($5,556,938)	$9,211,133	3.1%	76.93%
2045	$25,424,773	$16,834,137	$2,552,354	$6,038,281	$12,320,124	3.1%	78.55%
2046	$26,231,983	$17,394,917	$2,641,687	$6,195,379	$15,494,179	3.1%	80.16%
2047	$27,065,012	$17,906,485	$2,734,146	$6,424,382	$18,802,087	3.1%	81.77%
2048	$27,899,503	$18,435,886	$15,462,283	($5,998,667)	$9,588,585	3.1%	83.39%
2049	$28,761,520	$18,983,761	$2,928,885	$6,848,874	$13,120,947	3.1%	85.00%
2050	$29,677,111	$19,623,843	$3,031,396	$7,021,872	$16,721,210	3.1%	86.62%
2051	$30,621,966	$20,210,670	$3,137,495	$7,273,802	$20,464,776	3.1%	88.23%
2052	$31,597,168	$20,818,026	$3,247,307	$7,531,835	$24,354,109	3.1%	89.85%
2053	$32,574,899	$21,446,648	$17,723,268	($6,595,017)	$14,000,562	3.1%	91.46%
2054	$33,584,643	$22,177,681	$3,478,597	$7,928,364	$18,050,264	3.1%	93.07%
2055	$34,655,937	$22,851,154	$3,600,348	$8,204,435	$22,244,028	3.1%	94.69%
2056	$35,761,349	$23,548,268	$3,726,360	$8,486,721	$26,456,547	3.1%	96.30%
2057	$36,902,240	$24,269,874	$3,856,782	$8,775,584	$30,825,186	3.1%	97.92%
2058	$38,046,810	$25,105,274	$20,320,821	($7,379,285)	$18,901,549	3.1%	99.53%
2059	$39,228,806	$25,878,543	$4,131,482	$9,218,781	$23,427,786	3.1%	101.14%
2060	$40,482,346	$26,679,049	$4,276,084	$9,527,214	$28,111,812	3.1%	102.76%
2061	$41,776,077	$27,507,774	$4,425,746	$9,842,557	$32,955,603	3.1%	104.37%
2062	$43,111,081	$28,463,000	$4,580,648	$10,067,434	$37,863,470	3.1%	105.99%
2063	$44,444,061	$29,351,259	$27,019,114	($11,926,311)	$20,611,900	3.1%	107.60%
Total	1,049,846,779	694,682,022	216,431,341	138,733,415	560,927,548	204.9%	
NPV	596,401,480	395,285,637	121,130,842	81,989,324	291,119,928	156.7%	

7.4.9. Summary Key Findings

1. **Status quo or baseline option:** provides the lowest cost disposal option.

2. **Option 1 Loss of City and Out-of-County**: results in a loss in revenues and an increase in unit processing costs due to reduced waste deliveries to the landfill thereby reducing the economies of scale for the operation.

3. **Option 2a Trickle Site:** Completely shutting down the landfill would require the County to incur significant landfill closure costs and begin the required post-closure care costs. As a result we evaluated an option to only send a minimal amount of waste to the landfill resulting in it becoming a "trickle site". This results in the County still incurring a portion of the fixed costs of the landfill operations in addition to the cost of transfer and disposal at the American Avenue Landfill resulting in a higher total overall cost.

4. **Option 2b Mixed Waste Processing:** This option is theoretical and assumes the cost to be comparable to Placer County, however it is unclear whether a MWP facility will meet compliance with SB1383 without substantially greater capital investments. Additionally, a key challenge the County is likely to face is a lack of scale and market for the recovered commodities.

5. **Option 3a Curbside Organics:** It is our understanding the County must offer voluntary curbside collection service to the non-rural tracks of the unincorporated County. We worked to assess the fiscal impacts of implementation of such a program. We determined that the effects to the disposal system would likely be minimal assuming low participation rates in the program. Higher participation rates could reduce economies of scale of the landfill and if so would require greater rate increases than what is identified herein.

6. **Option 3b Community Composting:** There has been substantial growth in the number of community composting programs across the Country. Most programs surveyed by the Institute for Local Self-Reliance report they are operated and administered by private organizations. Most of the programs incorporate a collection service as part of the program. Community participation and program funding are the two (2) most significant barriers to the expansion of community composting programs. For the purposes of our evaluation, we assumed a 15% participation in a community drop-off service. CalRecycle may offer grant funding opportunities for local communities to help with initial funding, however longer-term funding and maintenance would be required. Funding from the County's solid waste tip fees may not be the most appropriate funding mechanism and may produce a subsidy from those that don't use the facility to those that use the facility.

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TABLE 25 BELOW SUMMARIZES THE TOTALS AND NET PRESENT VALUE OF THE SCENARIOS FROM FISCAL YEAR 2023 THROUGH FISCAL YEAR 2063.

Table 3435: Combined Scenarios Results Summary

Scenario	Revenues + Increases	Operating Expenses	Capital	Net Cashflows	Liner Fund 111 Reserves	Gate / Franchise Tip Fee Adj. %
Baseline						
Total	1,042,095,411	685,762,563	216,431,341	139,901,506	583,966,386	187.4%
NPV	592,032,372	390,301,556	121,130,842	82,604,297	300,699,086	147.3%
Option 1a: Loss of City Waste						
Total	948,926,245	636,302,751	188,124,146	124,499,348	502,234,354	207.9%
NPV	540,208,967	362,812,472	106,326,235	73,074,583	254,638,352	159.5%
Option 1b: Loss of Out of County Waste						
Total	936,672,117	639,820,235	177,187,593	119,664,289	695,560,622	214.9%
NPV	534,850,413	364,574,682	99,600,126	72,679,929	360,186,398	166.1%
Option 1c: Loss of City & Out of County Waste						
Total	827,390,072	562,074,515	161,164,286	104,151,272	511,445,563	215.9%
NPV	473,936,289	321,738,436	92,863,786	61,338,390	245,683,817	167.1%
Option 2a: Send all MSW out of County except NFTS						
Total	844,306,772	634,199,254	120,583,711	89,523,808	413,021,417	217.9%
NPV	487,236,581	363,486,545	72,671,386	53,082,973	209,094,003	169.0%
Option 2b: Mixed Waste Processing Program						
Total	1,481,505,641	1,282,359,880	120,583,711	78,562,050	242,308,865	303.4%
NPV	833,762,063	716,388,100	72,671,386	46,706,899	128,359,335	241.7%
Option 3a: Full Organics Diversion Program						
Total	1,042,113,612	683,895,433	217,133,205	141,084,974	615,201,005	202.9%
NPV	592,033,591	389,781,327	121,132,121	83,124,464	311,994,155	154.8%
Option 3b: Community Composting						
Total	1,049,846,779	694,682,022	216,431,341	138,733,415	560,927,548	204.9%
NPV	596,401,480	395,285,637	121,130,842	81,989,324	291,119,928	156.7%

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APPENDIX A: Stakeholder Interviews

To: Jared Carter | Madera County
From: Matt Wittern, Makenna Sturgeon | Raftelis
Date: April 17, 2023
Re: Madera County Solid Waste Management Program Stakeholder Interviews Summary

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Executive Summary:

Early in 2023, Madera County engaged Raftelis to conduct a solid waste management study. Community input is critical to ensuring the study represents the needs of the communities Madera County serves. To gather initial input from stakeholders representing the County's diverse interest groups, we conducted in-depth interviews, aiming to:

- Better understand the history of solid waste management in Madera County
- Understand stakeholders' level of knowledge of the existing solid waste management program
- Gauge whether and to what degree the existing program is meeting the communities' needs
- Record any gaps that are not being met by the existing program

This approach was successful, and stakeholders were open and forthcoming with their opinions. Most are clearly interested in a solid waste management program that is cost-effective, that costs are recovered equitably, and that provides a level of service that aligns with varied needs in the geographically diverse county.

Interviews confirmed that the biggest challenges facing the current solid waste management program include conforming with state regulations and tipping fee disparities.

Overview and Methodology:

Madera County identified 12 groups representing several interest areas across the County's communities. Each group had 1 – 4 individuals. Invitations to participate were sent individually via phone and email. By the end of the survey period, Raftelis interviewed 12 individuals.

While confidentiality was promised, those interviewed represented at least one – and frequently more than one – of the following groups/categories:

- County elected officials
- Madera County Trash Advisory Group
- Chambers of Commerce
- Realtors
- Faith-based community
- Historically underrepresented communities
- Other personnel

Key Findings:

SB 1383 is generally understood. Stakeholders typically do not support it and are concerned with the County's response to it:

- When asked about SB 1383, all groups shared that they felt it is a bad policy or leaned in that direction. They are concerned with its cost implications and how the County will comply.
- Some gave grace to the County, acknowledging that this is a difficult regulation to maneuver.

"If our approach to 1383 implementation is just taking composting to the landfill, it would increase truck traffic, harm air quality, disproportionately impact the community in the landfill area."

"Our county does a good job. The state makes it very difficult for the County to follow their mandates without passing on the cost to residents and businesses."

"They've [The County] been creative in the areas subject to the 'mandated service.' Developed an ordinance that allows people in those census tracts to 'opt-in.' So far, they've avoided scrutiny."

"…should be giving more options. As an example, subcontract a pickup of organics without requiring residents to have and pay for another can."

Affordable and accessible options are a priority to most stakeholders:

- Nearly everyone interviewed rated low-cost options as a priority.
- Most interviewers acknowledged that affordability and accessibility are already standing problems. There are common occurrences of waste being left in riverbeds because residents aren't able to transport it or can't afford to dispose of it. In other instances, communities have regular burns scheduled to dispose of waste.

"No, the solid waste management program does not meet our needs. With all the trash getting burned, it's not meeting people's needs. Folks are burning trash on a weekly basis."

"I would love more opportunities for businesses to get rid of hazardous waste. There are things in place that make it hard for them to get rid of that waste."

"It's not efficient or easy [for businesses] to use a local dump site. Their hours are not necessarily compatible with when businesses want to go, and of course, there's a cost for that."

Communities are not interested in mandatory programs.

- Community groups seem to be concerned with the cost associated with mandatory programs.
- If programs are mandatory, several interviewees thought the County should find a way to make them cost-free.

"It'd be nice if it [organics] could be a voluntary program. For now, yes, to make sure it's funded without having to pass on these additional costs to the community."

"…should be giving more options. As an example, subcontract a pickup of organics without requiring residents to have and pay for another can."

"From the state level, it [organics regulation] likely has noble intent, but on a micro view it doesn't make sense at all. East County produces so little (nobody actually knows), why do I need a 96-gallon cart to take care of two gallons of trash? Forcing a third container doesn't make sense."

"Church members don't like being told what to do. There's pushback on the new 'three' cans, and custodial complains about misuse and parishioners not following the rules. They're older demographics."

Community groups are concerned with how the landfill is operated, including the tipping fee disparity.

- Fairmead specifically is concerned with air quality and health. A community representative mentioned that the landfill is too large and worries that incentivizing dumping worsens it.
- Several interviewees mentioned the tipping fee disparity and voiced concern about it attracting additional out-of-county waste to the landfill.
- Community groups are concerned with the lifespan of the landfill. They worry there is not a long-term plan to maintain it.

"…find a more cost-efficient and effective way to run the dump. I believe that it is possible that the County could take over for the contractor and – given no profit motive – run it more efficiently."

"…bringing in trash from outside the county. This doubles (at the very least) the amount that would normally be put there from Madera. If we stop taking from outside the county, this will extend the lifespan of our facility. This is a service-oriented approach vs. the current 'hauler/profit' focus."

"I've heard that there are different tipping fees for in-county vs. out-of-county. This doesn't help our residents, and it also brings more trash to the landfill. Those who had been part of the community for a long time never knew it'd get this large. They don't want their landfill to expand."

There's a general interest in organics and recycling if it's a low-cost option.

- At the mention of increased recycling or organic waste services, most interviewees seemed interested; however, this interest came with a caveat, they don't want the services to cost more.
- In many cases, interviewees said recycling services are already inaccessible or hard to use.
- Organics came up most often in discussions concerning SB 1383, and with the knowledge that they'd like to see the County get creative with how it deals with organic waste.

"I would support neighborhood composting—drop-off and county takes to composting facility. I'd support it if it were available and not mandatory. It would need to be free, the cost paid by fee add-on to the tipping fee."

"The County doesn't really service the city. When businesses talk about that, they're hindered in recycling. There's no efficient way for them to participate in a program for recycling. Oftentimes, they have to pay to recycle."

"Recycling cans were mandatory – at first, people weren't for it, but it seems to be clicking. Recycling is good, and businesses seem to like it more than heading to the recycling center. People were upset about the mandatory fee at first, but they've warmed up to it because they use it."

"We're looking for low-cost options for organic materials."

Historical challenges we were made aware of during discussions with interviewees, but do not recommend pursuing.

- Events like the County's franchise fee issue came up during discussions. Community groups remember these events and continue to use them to justify their lack of trust in the County.
- Communities seem to be aware of the exemptions the County made while working to address SB 1383. While some appreciated the exemptions, others felt the County should have done more to resist.
- Community groups are interested in developing a waste management authority. However, other stakeholder groups, including Supervisors, don't feel there is the political will to implement an authority.
- A waste management task force was also recommended by groups. The group proposed this task force review the entire current solid waste and recycling program and develop a long-term objective for it. That task force would consist of representatives from the County and the community.

Next Steps:

Incorporate feedback into the solid waste management study.

The feedback we gathered from these in-depth interviews informed the development of the online community survey, which is designed to gather input from a broader swath of the public. Insights from stakeholder interviews, results from the online survey, and information gathered at in-person stakeholder engagement events will be incorporated into the solid waste management study.

APPENDIX B: Community Survey

To: Jared Carter | Madera County
From: Matt Wittern, Makenna Sturgeon | Raftelis
Date: June 28, 2023
Re: Madera County Solid Waste Management Community Survey Summary

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Executive Summary:

Early in 2023, Madera County engaged Raftelis to conduct a solid waste management study. Community input is critical to ensure the study considers the needs of the communities Madera County serves. To gather input from members of the many communities that make up Madera County, we published an online community survey, aiming to:

- Understand how the current solid waste management program is used
- Gauge whether and to what degree the existing program is meeting the communities' needs
- Record any gaps that are not being met by the existing program

The survey received a little over 100 responses and provided beneficial insights into the community's needs. Most respondents were clearly interested in a solid waste management program that is cost-effective, costs are recovered equitably, and provides a level of service that aligns with varied needs in the geographically diverse county. Several respondents were interested in increased services; however, mandatory services are a concern.

Key takeaways from the survey include:

- Low-cost services and services that protect human health, safety, and quality of life were among the most important elements of a solid waste management program
- Preserving the natural environment and promoting recycling and waste reduction were priorities of several survey respondents. Respondents were generally supportive of increased recycling services.
- Communities are not interested in a program with mandatory participation
- Fairness was a key concern among respondents
- Survey respondents are generally aware of SB 1383 and do not support it
- Most (69%) of respondents said they do not know how Madera County funds its solid waste program, which reveals a gap the County may consider filling with ongoing stakeholder communication

Overview and Methodology:

Madera County launched an online community survey in April and was marketed through press releases, social media, and during the solid waste management study's early community engagement events. The study consisted of 47 questions with several follow-ups triggered if certain questions were answered in a specific way.

Respondent Demographics:

Respondent Profiles

Of the 72 individuals who answered the survey question asking how they'd identify where they live, 75% identified as living in a rural area. About 70% answered that their trash collector is Emadco. These two data points give us confidence that the survey reached the appropriate audience – stakeholders in unincorporated Madera County.

While there were respondents that identified as living in the city or suburbs, there were fewer of them.

A majority of survey respondents (95%) live in single-family homes, and 88% own their homes.

Respondent Services

Trash

- A majority (68%) of respondents said they most often use subscription waste collection services. The next largest group (15%) said they take their trash to the County landfill.
- Fewer respondents shared how often they take their trash to the landfill or transfer station. Of those who answered, nearly 50% said once per month, and 20% said twice per month.
- Of the respondents who were asked which drop-off location they use for trash, 52% said they use the transfer station, and 27% use the landfill. 21% answered "other."
- **When asked to rate their satisfaction with the County's trash collection services on a scale of 1-5, with 5 being "very satisfied," the average rating came out to 3.8**
- **When asked to rate their satisfaction with the County's trash drop-off center on a scale of 1-5, with 5 being "very satisfied," the average rating came out to 3.2**

Recycling

- Most respondents (53%) use a subscription waste collection service for recycling. About 33% of respondents take their recycling to a recycling center.
- Of the respondents who were asked which drop-off location they use for recycling, 35% use a private drop-off center, 25% use the transfer station, 17% use the landfill, and 23% answered other.
- **When asked to rate their satisfaction with the County's recycling collection services on a scale of 1-5, with 5 being "very satisfied," the average rating came out to 3.5**
- **When asked to rate their satisfaction with the County's recycling drop-off on a scale of 1-5, with 5 being "very satisfied," the average rating came out to 2.7**

Organics

- How respondents handle yard waste was more evenly distributed. 32% primarily do backyard composting; 16% leave yard waste in their yards or on their properties; 13% said they use curbside or alley collection; and the rest were scattered across landscaper management, shared dumpsters, taking yard waste to the County's recycling/mulch drop-off, and other. The County's drop-off had the least amount of use.
- **Respondents were split when it came to being in support of the County providing organic material recycling—41% were in support, 41% were *not* in support, and 17% answered "unsure."**

Key Findings:

Ensuring low-cost services and protecting human health, safety, and quality of life were the most important elements of a solid waste management program:

- When asked to rate the importance of several aspects of a solid waste management program, ensuring the program is cost-effective, protecting human health and safety, and providing a quality living environment rose to the top.
- When asked what the best outcome of the study meant to respondents, price and increased services came up in several responses.
- Respondents made "easy to do" a priority as well.

"Whatever the outcome is make sure it does not raise rates in any way shape or form."

"The best outcome would be to provide the best services for the community at a cost that everyone can afford while minimizing our waste that gets sent to the landfill."

"To set up a (non-landfill located) drive-up/drive-thru style bulk bin drop-off for recyclables, including glass and Styrofoam. And, household hazardous waste items; mainly batteries."

"To have a mountain area recycle and composting service here, not trucking green waste by truck to a remote location."

"Age of residents should be considered as to how easily bin can be handled and distance and terrain involved."

"As Seniors, we have very little waste weekly. To curve expenses for people like us maybe you could discount our trash bill and arrange for less pickup. … The cost of waste service is making me consider canceling pick up and taking our trash to a friend/family home and splitting the bill or landfill."

Preserving the natural environment and promoting recycling and waste reduction were priorities of several survey respondents. Respondents were generally supportive of increased recycling services:

- While not leading priorities, preserving the natural environment and promoting waste reduction were prioritized by respondents.
- Of those who gave written responses, respondents were generally interested in available recycling services and education about how to recycle.
- When asked to describe themselves, most respondents (77%) said they "believe it is their duty to recycle as much as they can whenever they can." 24% said they recycle when it is convenient.
- Most respondents (71%) were confident that they know which items are accepted by their recycling collector.

- When asked how respondents recommend the County get residents to recycle correctly, a majority were interested in making recycling guidelines easier to understand and providing information more effectively and often.
- Most respondents (63%) support providing incentives to recycle. 47% would support additional drop-off centers for recycling, and 36% would support curbside collection.

“Outreach to the community on recycling bins and green waste. I have owned my home for four years and have no idea what could/couldn’t be put in either container!”

“A better plan to protect the environment by reducing the waste and carbon footprint while making it cost-effective for all involved.”

“On an individual level, for everyday people to take greater thought about what we use and where it is going. To me, the best outcome would be increased awareness of the energy and resources we use.”

Communities are not interested in mandatory programs.

- When asked about what a successful study looked like to them, several respondents made clear their opposition to a mandatory program.
- Flexibility was an ongoing theme in survey responses. While people were generally interested in solid waste services, many respondents would like to see services meet individual needs instead of being sweeping services for all.

“NO mandate to pay or participate. Lower rates to process this County's trash. Keep outside counties’ trash, outside. Have Madera Co. residents monitor/make decisions for Madera Co. citizens.”

“A service that is offered, not enforced. Few can afford any additional bills and regulations.”

“Not requiring homeowners to pay for organic waste bins unless they choose to. Many homes compost and paying for an additional bin is not needed. Many homes up here do not have full-time residents etc.”

Equity is a key concern among residents.

- When asked to rate it on a Likert scale, ensuring customers pay their fair share did not score as high a priority as some of the other priorities like low cost and preserving the environment. However, it was mentioned several times in response to the question that asked what a successful study would look like.
- While not directly mentioning fairness, many responses highlighted concern about residents only paying for what they need/use.

“Ensuring all customers pay equal share based on the volume of waste they produce. Community-based organic recycling.”

“Fairness”

Survey respondents are generally aware of SB 1383 and do not support it.

- More than half (56%) of respondents said they were aware of SB 1383. 34% said they are not aware of the legislation.
- 56 respondents shared whether they thought it is a bad policy. Of those who answered, 68% believe SB 1383 is a bad policy, and 21% said it's a good policy.
- The survey went on to ask, "Some areas of Madera County have been granted exemptions from SB 1383. Do you think the county should be doing more to resist the implementation of SB 1383?" 38 people responded to the question. Of those, 89% thought the County should be doing more to resist the implementation of SB 1383.

Next Steps:

Incorporate feedback into the solid waste management study.
The feedback we gathered from the survey and information gathered at in-person stakeholder engagement events taking place in July will be incorporated into the solid waste management study.

APPENDIX C: Closure Cost

Summary of Fairmead Landfill Closure Plan Estimates – 2021 TetraTech

Description	Estimated Quantity	Units	Unit Price	Total
FINAL COVER/GRADING				
Mobilization/Demobilization 1.1	1	LS	$261,000	$261,000
Construction Survey1.2	1	LS	$94,240	$94,240
Clear and Grub 1.3	130	AC	$1,174	$152,620
Final Cover 1.4	1,046,730	CY	$2	$2,574,956
	Item 1 Subtotal			$3,082,816
FINAL COVER CONSTRUCTION QUALITY ASSURANCE 2.0				
Field Personnel (Monitoring/Inspecting/Field Tests/Certification Report)	1	LS	$240,008	$240,008
Laboratory Tests	1	T&M	$163,185	$163,185
	Item 2 Subtotal			$403,193
EROSION CONTROL				
Seeding and Fertilizing 3.0	130	AC	$4,078	$530,075
	Item 3 Subtotal			$530,075
LANDFILL GAS MONITORING AND CONTROL SYSTEM				
Landfill Gas Monitoring System 4.0	-	-	-	$0
Landfill Gas Control System				
Main Collection Headers and Lateral Piping 4.1	-	-	-	$0
Extend Well Heads 4.2	130	EA	$625	$81,100
	Item 4 Subtotal			$81,100
DRAINAGE CONTROL SYSTEM 7.0				
Drainage Control System	-	LS	$293,047	$293,047
	Item 7 Subtotal			$293,047
Gravel Top Deck Access Road	100,000	LS	$1	$83,000
	Item 10 Subtotal			$83,000
CONSTRUCTION MANAGEMENT 11.0				
Construction Management	40	WKS	$10,088	$403,520
Final Report	1	LS	$23,360	$23,360
	Item 11 Subtotal			$426,880
SURVEY				
Settlement Monument Installation 12.0	2	EA	$1,608	$3,216
	Item 12 Subtotal			$3,216
ENGINEERING DESIGN AND SUPPORT 13.0				
Design and Support	1	LS	$383,200	$383,200
	Item 13 Subtotal			$383,200
FINAL CLOSURE PLAN 14.0				
Final Closure/Post-Closure Maintenance Plan Preparation	1	LS	$76,600	$76,600
	Item 14 Subtotal			$76,600
	Subtotal Closure Cost			$5,363,127
	20% Contingency 15.0			$1,057,305
	TOTAL CLOSURE COST			**$6,420,432**

Summary of Fairmead Landfill Post-Closure Maintenance Plan Estimates – 2020 TetraTech

Description	Estimated Quantity		Unit Price	Total Annual Cost
FINAL COVER MAINTENANCE 1.0				
Cover Maintenance/Repair 1.1	1	LS	$27,223	$27,223
Construction Quality Assurance 1.2	1	WK	$7,120	$7,120
Total Cost (every 3 years)				$34,343
Annual Cost				$11,448
Item 1 Subtotal				$11,448
LANDFILL GAS MIGRATION/VADOSE ZONE MONITORING/LFG COLLECTION & CONTROL SYSTEM 2.0				
Flare Station Operation and Maintenance 2.1	-	LS	$63,529	$63,529
System Monitoring (Well Field Monitoring) 2.2	-	LS	$75,273	$75,273
Condensate Sump Inspections (Weekly) 2.3	-	LS	$18,777	$18,777
Compliance Monitoring				
Surface Emission Testing (77 grids at quarterly frequency) 2.4	-	LS	$64,161	$64,161
Flare Source Testing 2.5	-	LS	$31,918	$31,918
LFG Perimeter Monitoring Probes (monthly monitoring) 2.6	-	LS	$19,093	$19,093
Reporting 2.7	-	LS	$61,174	$61,174
Project Coordination and Engineering 2.8	-	LS	$78,561	$78,561
Non-Routine Repair/Replacement/Maintenance 2.9	-	LS	$97,950	$97,950
Item 2 Subtotal				$510,436
GROUNDWATER/CONDENSATE/VADOSE ZONE MONITORING 3.0				
Semi-Annual Monitoring (Sampling and Inspection) 3.1	2	EA	$7,768	$15,536
Monthly Pan Lysimeters Transducer Readings 3.1	12	MOS	$610	$7,320
Quarterly Leachate System Readings 3.1	4	QRT	$500	$2,000
Annual Leachate System Sampling 3.1	1	YR	$6,000	$6,000
Quarterly Groundwater Elevation Monitoring	4	QRT	$1,250	$5,000
Analysis - COCs (Total of 6 analysis per 30 years) 3.2	6	EA	$17,780	$106,680
COCs Analysis - Annual Cost	-	-	-	$3,556
Reporting (two reports/year including Annual Report)	2	EA	$6,771	$13,542
Leachate Maintenance	1	LS	$11,312	$11,312
Groundwater Well Replacement (assume 27 wells to be replaced over 30 years)				
Drill Rig Mobilization and Demobilization (assume 2 wells/day)	14	EA	$3,500	$49,000
Drilling/Equipment/Materials (assume 197 vf/well, 2 wells/day)	14	EA	$5,500	$77,000
Development Rig Mobilization and Demobilization (assume 1 well/day)	27	EA	$1,800	$48,600
Well Development (per well)	27	EA	$3,000	$81,000
Geologist Oversight (assume 10 hours per day)	410	Day	$120	$49,200
Geologist Vehicle (daily)	41	Day	$60	$2,460
GW Well Replacement (assume 27 wells over 30 years) - Total Cost	-	-	-	$307,260
GW Well Replacement (assume 27 wells over 30 years) - Annual Cost	-	-	-	$10,242
Item 3 Subtotal				$74,508
DRAINAGE CONTROL SYSTEM				
Repair/Reconstruct 4.0	-	LS	$3,066	$3,066

Description	Estimated Quantity		Unit Price	Total Annual Cost
Clear Material from Run-Off Surface Water Conveyances 4.1	4	HRS	$57	$229
Retention Basin Maintenance 4.2	2	EA	$6,519	$13,038
Item 4 Subtotal				$16,333
LANDFILL SETTLEMENT/MONUMENT MAINTENANCE				
Aerial Survey (incl. topographic map) (once every five years at $12,550) 5.0	1/5	YR	$5,351	$1,070
Survey/Settlement Monument Maintenance (assume one replacement/5 yr) 5.1	1/5	YR	$1,608	$322
Item 5 Subtotal				$1,392
SECURITY MAINTENANCE 6.0				
Fence (assume 10,000 LF over 30 years) 6.1	10,000	LF	$34	-
Annual Cost - Fence Replacement	-	-	-	$11,400
Gate (assume one replacement every 5 yrs) 6.1	1/5	YR	$2,482	$496
Signs (assume one replacement every 5 yrs)	1/5	YR	$629	$126
Item 6 Subtotal				$12,022
ACCESS ROAD MAINTENANCE				
Maintenance/Repair 7.0	-	-	-	$0
Item 7 Subtotal				$0
VEGETATIVE COVER MAINTENANCE/EROSION CONTROL 8.0				
Seeding and Fertilizing 8.1	130	AC	$4,078	-
Annual Cost - Hydroseeding	-	-	-	$17,671
Rodent Control 8.2	4	EA	$976	$3,904
Weed/Dust and Fire Control 8.3	64	HRS	$60	$3,870
Minor Grading 8.4	1	LS	$3,512	$3,512
Item 8 Subtotal				$28,957
LEACHATE COLLECTION SYSTEM MAINTENANCE/MONITORING				
Maintenance/Monitoring 9.0	32,000	GAL	$0	$4,160
Item 9 Subtotal				$4,160
SITE ADMINISTRATION				
Inspection 10.0	4	EA	$2,656	$10,624
Reporting 10.0	4	EA	$2,352	$9,408
Overhead Cost 10.1	-	LS	$30,000	$30,000
Item 10 Subtotal				$50,032
TOTAL ANNUAL POST-CLOSURE MAINTENANCE COST				$709,288
TOTAL 30 YEAR POST-CLOSURE MAINTENANCE COST				**$21,278,640**

APPENDIX D: Composting Facility Tiers[41]

Enforcement Agency Notification Tier Agricultural Material Composting Operations (all) 14 CCR §17856	Registration Permit Tier Vegetative Food Material Composting Facilities (<12,500 yd3) 14 CCR §17857.2	Full Solid Waste Facility Permit Composting Facilities (all) (e.g. biosolids, digestate, food material, mixed material) 14 CCR §17854
Green Material Composting Operations (<12,500 yd3) 14 CCR §17857.1(a)		Green Material Composting Facilities (>12,500 yd3) 14 CCR §17857.1(c)
Biosolids Composting Operations at POTWs (all) 14 CCR §17859.1		Vegetative Food Material Composting Facilities (>12,500 yd3) 14 CCR §17857.2
Research Composting Operations (≤5,000 yd3) (Within-vessel >5,000 yd3 with EA determination) 14 CCR §17862		
Chipping and Grinding Operations (≤200 tpd) 14 CCR §17862.1(a)	Chipping and Grinding Facilities (≥200 tpd and ≤500 tpd) 14 CCR §17862.1(b)	Chipping and Grinding Facilities (>500 tpd) 14 CCR §17862.1(c)

[41] Title 27 California Code of Regulations (T27CCR)

APPENDIX E: Landfill Valuation

Madera County

Fairmead Landfill

Asset Valuation

August 21, 2023

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www.raftelis.com

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August 21, 2023

Mr. Matt Treber
Chief of Development Services
Madera County Community and Economic Development
200 W. 4th Street, Suite 2100
Madera, CA 93637

Subject: **Madera County Fairmead Landfill; Fair Market Value of Majority, Marketable Interest on June 30, 2023**

Dear Mr. Treber:

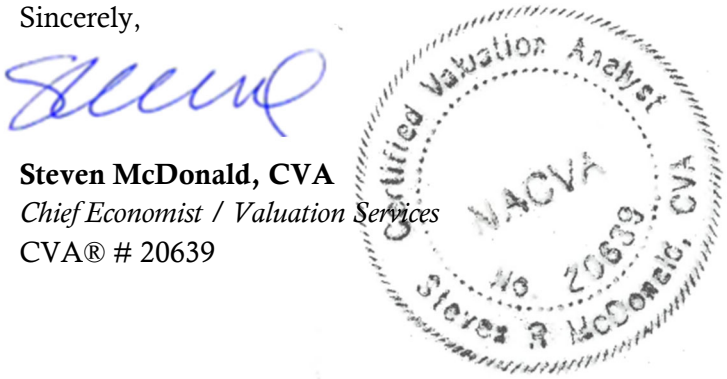
I have performed the valuation services provided in this valuation ("Valuation"), as those terms are defined by the Uniform Standards of Professional Appraisal Practice ("USPAP") and in the Professional Standards of the National Association of Certified Valuators and Analysts ("NACVA"). This Report has been prepared in accordance with the NACVA's Professional Standards dated June 1, 2017, and USPAP dated 2020-21. The estimate of value contained in this Report is expressed as a Conclusion of Value. This Valuation was performed for the purpose of a potential acquisition and the resulting Conclusion of Value should not be used for any other purpose or by any other party for any purpose.

Based on my analysis, as described in this Report, the estimate of fair market value of the Fairmead Landfill ("Subject Asset") as of June 30, 2023, is:

Eighteen Million Five Hundred Thousand Dollars ($18,500,000)

This Conclusion of Value is for the Subject Asset described in more detail in this Report and does not include any excess real property. A real property appraisal for land currently bundled with the Subject Asset was not included as a part of the scope of work for this Report. Further, these conclusions are subject to the representations and certification found in Appendix A and to the statement of assumptions and limiting conditions (Appendix B). There is no obligation to update this Report or my Conclusion of Value for information that comes to my attention after the date of this Report. My experience and qualifications are detailed in Appendix C.

Sincerely,



Steven McDonald, CVA
Chief Economist / Valuation Services
CVA® # 20639

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VALUATION SUMMARY

Date of Valuation:	June 30, 2023
Date of Report:	August 21, 2023
Subject Asset:	Solid Waste Landfill
Ownership Interest Valued:	Majority (sole ownership), Marketable interest
Restrictions, if any:	None identified
Purpose of Valuation:	Potential Transaction (Sale of Subject Asset)
Standard of Value:	Fair Market Value
Premise of Value:	Going concern
Type of Report:	Appraisal Report
Scope Limitations:	Does not include a Real Property Appraisal
Significant Assumptions and Limitations:	See Appendix B
Valuation Methods Considered:	Discounted Cash Flow (DCF) analysis (Income); Capitalization analysis (Income); Replacement Cost New (Cost); Completed Transactions (Market); Public Company Guideline (Market)
Selected Valuation Method(s):	Reproduction Cost New (Cost), Replacement Cost New (Cost), Capitalization analysis (Income), Public Company Guideline (Market), and Completed Transactions (Market)
Valuation Conclusion:	$18,500,000

REPORT ABBREVIATIONS

ASL	Average Service Life
CAGR	Compound Annual Growth Rate
CCF	Capitalization of Cash Flow
COVID-19	2019 Coronavirus pandemic
DCF	Discounted Cash Flow
DLOC	Discount for Lack of Control
DLOM	Discount for Lack of Marketability
EBITDA	Earnings before Interest Taxes Depreciation and Amortization
EPA	Environmental Protection Agency
FMV	Fair Market Value
FV	Fair Value
FY	Fiscal Year
GAAP	Generally Accepted Accounting Principals
HBU	Highest-and-best-use
IRS	Internal Revenue Service
LF	Linear Feet
MO	Month
NAICS	North American Industry Classification System
NBER	National Bureau of Economic Research
OCN	Original Cost New
OCNLD	Original Cost New Less Depreciation
O&M	Operations and Maintenance
PP&E	Plant, property, and equipment
RCN	Replacement or Reproduction Cost New
RCNLD	Replacement or Reproduction Cost New Less Depreciation
USPAP	Uniform Standards of Professional Appraisal Practice
WAAC	Weighted Average Cost of Capital
WHO	World Health Organization
YR	Year

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Appendix E: Population and MSW Demand Projections

Appendix F: Asset Listing and Supporting Financial Data

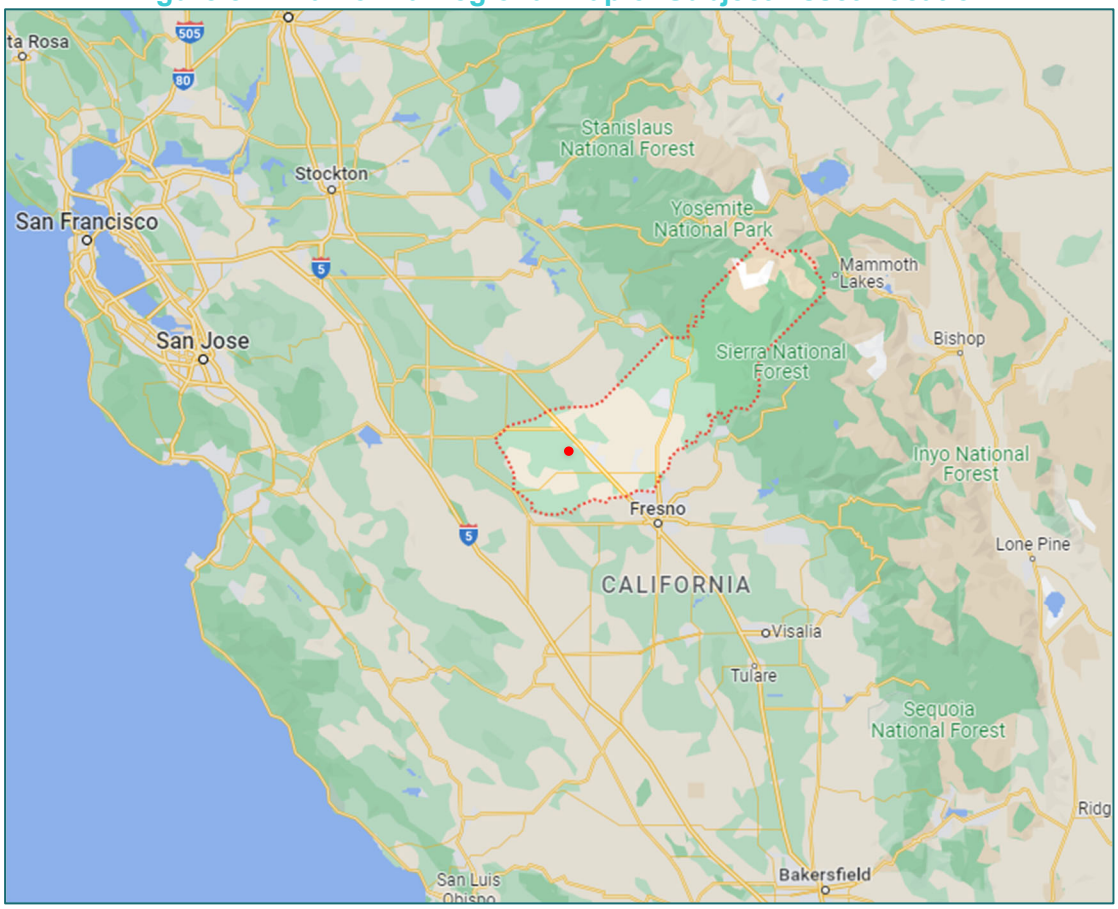
Appendix G: Sources of Data

8. Introduction

8.1. Subject of Valuation

The subject of this Valuation/Appraisal ("Valuation" or "Report") is the Fairmead Solid Waste Disposal Site[42] ("Subject Asset") located in Madera County ("County"), California (see Figure 1-1).

Figure 8-1: California Regional Map of Subject Asset Location



Source: Google Maps

The Subject Asset is a Class III municipal solid waste landfill unit[43] ("Solid Waste Landfill") located at 21739 Road 19, Chowchilla, California, roughly 10 miles northwest of the City of Madera and 30 miles northwest of the City of Fresno. The Subject Asset is owned by the County and operated under contract with a third-party, private company. The Subject Asset generally serves the waste disposal needs of the County with a total

[42] SWIS FACILITY #20-AA-0002

[43] A municipal solid waste landfill unit is a discrete area of land or an excavation that receives household waste, and that is not a land application unit, surface impoundment, injection well, or waste pile. Title 40 Code of Federal Regulations ("CFR") §258.2

population of approximately 160,300[44], however, solid waste from Fresno County is also being accepted at the Subject Asset. The County is located at the geographic center of California in the eastern San Joaquin Valley and the central Siera Nevada, approximately 3 hours away from Los Angeles to the south and San Francisco to the north. The County is part of the Fresno-Madera Combined Statistical Area and includes two incorporated cities and fifteen (15) Census-designated places ("CDP"). The County's incorporated areas include the City of Madera (county seat) and the City of Chowchilla

The Subject Asset is part of an integrated County waste management and remediation ("Waste Management") system[45] providing solid waste collection, processing, storage, and disposal services to properties within its service area. In addition, the Subject Asset is bundled with permits and operational rights that can be specifically identified with the operation of the Subject Asset. Finally, the Subject Asset currently has sufficient demand to create a going concern[46] at the date of the appraisal. The Subject Asset is described in more detail in Section 2.

8.2. Intended Users

This Valuation was requested by the County ("Client"). This Report is intended for the exclusive use of the Client and any other designated representatives of the Client. No reproduction, publication, distribution, or other use of this Report for other than its stated purpose is not authorized without prior consent of the Client and the undersigned appraiser of this Report.

8.3. Purpose and Use of this Valuation Report

This Report represents an Appraisal Report as defined by 2020-21 USPAP[47] Standard 10 for the purpose of providing an opinion of the fair market value ("FMV" or "Conclusion of Value" or "Opinion of Value") of the Subject Asset as a business enterprise in conjunction with a potential transfer (transaction) involving both tangible and intangible assets. Use of the report is restricted to the intended users and this Report and should not be used for any other purpose other than stated above.

8.4. Interest of Valuation

The interest in the Subject Asset considered in this Valuation is a majority (sole ownership), marketable interest of the Subject Asset as a business enterprise consisting of both tangible and intangible assets ("Subject Interest"). Development of a Conclusion of Value of the Subject Interest contained in this Report meets the requirements of USPAP Standard 9.

An intangible asset is generally described as an asset that lacks physical substance. A hypothetical buyer for the Subject Asset would be acquiring the bundle of rights including operational rights and other permitted rights, which reflect intangible value. More importantly, in my opinion, there is no going concern value for

[44] U.S. Census Bureau, Annual Estimates of the Resident Population for Counties in California: April 1, 2020 to July 1, 2022 (CO-EST2022-POP-06), March 2023

[45] North American Industrial Classification System ("NAICS") Code 562

[46] Estimates of remaining useful life of the Subject Asset extend approximately 30 years from the Valuation Date

[47] The Appraisal Standards Board voted on August 11, 2022, to extend the effective date of the current 2020-21 USPAP through December 31, 2023.

the land, buildings, and improvements as a solid waste landfill unit or business enterprise independent of, or without the intangible rights to operate. Without operational rights or permitted rights, a hypothetical buyer would only value buildings, equipment, and improvements at liquidation or scrap and would value land as-if vacant and marketable for a different use. Based on experience, and in my opinion, the total enterprise value in a solid waste landfill unit is a bundle of tangible and intangible and is contingent on specific operational rights and other permitted rights. This Valuation was performed for the Subject Asset in 'fee simple', which includes all rights (the bundle of rights, for both tangible and intangible assets) that can be legally vested in an owner, subject to encumbrances whatever they may be.

This fee simple ownership includes ownership of real property, operational rights, and other permitted rights, as well as other tangible assets. Fee simple ownership is the most comprehensive type of ownership since the owner may dispose of the property in any manner they select. One possessing this property has no restrictions or limitations upon ownership except those imposed by governmental entities with jurisdiction over the Subject Asset and those which were willfully created by agreement.

8.5. Ownership and Control of Subject Asset

As of the date of this Report, the County is controlling, sole owner of the Subject Asset.

8.6. Date of Valuation

The date of valuation of the Subject Interest is June 30, 2023 ("Valuation Date"). Since the Valuation Date is an arbitrary date, for example, it is not an asset transfer date, or date of agreement, or date of taking, or settlement date, or other agreement or court date, the appraiser reserves the right, at their discretion, to consider and evaluate any additional value influencing data or other pertinent factors that might become available between the date of the Report and a stipulated actual future date or historical date, if applicable, and to make any adjustments to the Report that may be required. This Report was issued Augst 21, 2023 ("Report Date"). There is no obligation or responsibility to update this Report for events, circumstances, or information that becomes available subsequent to the Report Date.

8.7. Standard of Valuation

The standard of value included in this Report is Fair Market Value ("FMV"). Pursuant to California Code of Civil Procedure Article 4 ("Civil Code")[48] relative to property value, a FMV is:

> *"(a) The fair market value of the property taken is the highest price on the date of valuation that would be agreed to by a seller, being willing to sell but under no particular or urgent necessity for so doing, nor obliged to sell, and a buyer, being ready, willing, and able to buy but under no particular necessity for so doing, each dealing with the other with full knowledge of all the uses and purposes for which the property is reasonably adaptable and available.*
>
> *(b) The fair market value of property taken for which there is no relevant, comparable market is its value on the date of valuation as determined by any method of valuation that is just and equitable."*

[48] CA Civ Pro Code §1263.310-330 (2020)

The Civil Code does not provide additional guidance, limitations, or requirements on procedures for determining FMV.

FMV can be further defined, that is not inconsistent with the guidance outlined above, but is critical for developing a credible Conclusion of Value for this assignment. Specifically, the Internal Revenue Service ("IRS") Revenue Ruling ("Rev. Rul.") 59-60, 1959-1, C.B. 237, along with Treasury Regulations § 25.2512–1 and § 20.231-1 defines FMV as:

> *"The value of the property is the price at which such property would change hands between a willing buyer and a willing seller, neither being under any compulsion to buy or to sell, and both having reasonable knowledge of relevant facts."*

IRS Rev. Rul. 59-60 further states…

> *"…in addition that the hypothetical buyer and seller are assumed to be able, as well as being willing, to trade and to be well informed about the property and concerning the market for such property."*

FMV as defined for this Report therefore includes the following assumptions:

1. A hypothetical buyer and seller are both willing, and thus interested in the transaction, and are able to enter into a transaction, implying a hypothetical buyer has sufficient funds and seller has sufficient rights;
2. A hypothetical buyer is prudent, implying a rational buyer, and is considered to be a "financial" and not a "strategic" buyer;
3. A willing buyer and willing are presumed to be dedicated to achieving their individual maximum economic advantage, but absent any compulsion to buy or sell;
4. Both parties are assumed to understand the industry, regulations, and other economic conditions and the effects they might have on the Subject Asset, as of the Valuation Date, in a sale of a majority ownership in the Subject Asset;
5. A hypothetical buyer is assumed to represent an independent third party; and
6. A hypothetical sale will be for cash.

FMV is considered the appropriate standard of value because it reflects the value of the Subject Asset as if traded freely in a competitive and open market between independent parties and therefore reflects an anticipated price of a market transaction that is in the interest of both the seller and buyer. In addition, FMV in this context would specifically exclude circumstances of the known seller or known potential buyer that would directly affect indications of value using accepted approaches and methods. Otherwise, a different standard of value would be required (e.g., fair value, investment value).

8.8. Hypothetical Willing Buyer

The population of willing buyers for the Subject Asset is considered to only contain private, for-profit companies currently engaged in Waste Management. The willing buyers in this pool of market participants might expect to derive individual value from synergistic benefits, but those synergies and the influence they might have on FMV would not be recognized by all potential buyers.

8.9. Premise of Value

The Conclusion of Value as a going concern provided in this Report assumes the Subject Asset will continue to be operated, at minimum, serving current demand representing a current and future going concern. This Conclusion of Value as a going concern assumes there is no current planned or contemplated discontinuance of service or any liquidation of any parts or whole part of the Subject Asset. The Conclusion of Value reflects an existing and operating business including, if applicable, real property or easement rights, personal property, financial assets, and intangible assets.

In the Valuation of the Subject Asset using the cost approach, it must be recognized that a reproduction or replacement cost new less depreciation only represents that component of value of the collection of physical assets. Those assets, however, are not idle, but are used to provide service as part of an ongoing operation. A purchaser acquiring a similar collection of assets completely installed and operational with customers taking regular service immediately derives revenues and economic benefits at the full component of customer demand. If a purchaser were to construct, in a hypothetical situation, its own similar collection of assets, it would not have the ability to generate revenues or economic benefits until some future date. Therefore, the FMV of the Subject Asset functioning as a going concern would been considered as part of this Valuation in all approaches and a going concern value could be specifically added to the value of physical assets in the cost approach.

8.10. Appropriate Market and Highest-and-best-use

Highest-and-best-use ("HBU") was considered for the Subject Asset being valued, including both tangible and intangible assets. The most appropriate market sector for the Subject Asset under the FMV standard as a going concern for this Report is based upon a hypothetical sale of the sole interest to a hypothetical, financial buyer engaged in Waste Management. The requirements associated with this Valuation were to determine a FMV of the Subject Interest as if it were to be sold to an independent third party, which was determined likely to be a for-profit entity. Acquisition of existing local and regional assets, both tangible and intangible, is a clear strategy for companies engaged in Waste Management. For example, the following represent clear objectives for acquisition strategies among the market's largest private operators:

> *"*[Waste Management] *pursues its strategy to grow through acquisitions…" "Our spending on acquisitions was $377 million, $76 million, and $4,088 million in 2022, 2021 and 2020, respectively…" "Substantially all of these acquisitions are related to our Solid Waste business…"* [49]

> *"*[Republic Services] *have a robust market planning process to identify opportunities to grow internally through capital investments and infrastructure development and externally through acquisitions." "We also evaluate stand-alone opportunities to acquire businesses and/or facilities that are being divested by other publicly-owned companies." "We expect to invest at least $500 million in acquisitions in 2023."* [50]

[49] Waste Management 2022 10-K Annual Report
[50] Republic Services 2022 10-K Annual Report

> *"*[Waste Connection] *senior management team has extensive experience in operating, acquiring and integrating non-hazardous waste services businesses, and we intend to continue to focus our efforts on both internal and acquisition-based growth." "We intend to expand the scope of our operations by continuing to acquire waste businesses in new markets and in existing or adjacent markets that are combined with or "tucked-in" to our existing operations." "During the year ended December 31, 2022, we completed 24 acquisitions for consideration having a net fair value of $2.334 billion."* [51]

> *"*[Casella] *aims to deploy capital in a disciplined manner and continue to grow the business through opportunistic acquisition and development activity, while maintaining conservative debt leverage levels. As part of this strategy,* [Casella] *set a goal through the fiscal year ending December 31, 2024 of adding more than $30 million per year of annualized revenues through acquisition or development activity."* [52]

Strategies among the largest private providers for growing market share are clearly focused on acquisitions, including local and regional providers, and are models for likely buyers of the Subject Asset. Collectively, there is no other reasonable use for the Subject Asset other than a Solid Waste Landfill[53], operated independently or as a part of an integrated waste remediation business.

The Subject Asset is considered a special purpose property. The existing function of the Subject Asset is to receive and dispose of municipal solid waste[54] ("MSW"). Since the underlying assets are specifically designed, configured, and constructed solely as a solid waste landfill, no alternate highest and best use should be considered in developing a price for a possible transaction. In addition, ownership of this special purpose property would be expected to include a bundle of rights which could include physical assets, real property, operational permits or rights, as well as other tangible and intangible assets. As a special purpose property, there is no going concern value for land, buildings, and improvements as a business enterprise independent of, or without the intangible rights and permits to provide services. It is assumed that with any purchase or acquisition of the Subject Asset, it would continue to be substantially used for the purposes identified and it would continue to be maintained for such purposes.

The Subject Asset may be utilized after closing for other purposes such as passive or active recreation. The most common alternative use for a closed landfill could include a golf course, nature parks, fields, or walking or biking trails for public use. However, those potential future uses would not affect the current FMV of an active landfill.

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[51] Waste Connection 2022 10-K Annual Report

[52] Casella 2022 10-K Annual Report

[53] " Solid Waste Landfill". The term "solid waste landfill" means a disposal facility that accepts solid waste for land disposal but does not include a facility which receives only wastes generated by the facility owner or operator in the extraction, beneficiation, or processing of ores and minerals, or a cemetery which disposes onsite only the grass clippings, floral wastes, or soil resulting from activities on the grounds of that cemetery. State of California Public Resources Code Chapter 656 § 40195.1

[54] Municipal Solid Waste ("MSW") consists of everyday items such as product packaging, grass clippings, furniture, clothing, bottles, food scraps, newspapers, appliances, paint, and batteries. Environmental Protection Agency

8.11. Scope of the Valuation and Scope of Work

This Report has been prepared in accordance with the NACVA's Professional Standards dated June 1, 2017, and USPAP dated 2020-21. There are no general limitations to the scope of this Report other than not including a real property appraisal. A site visit or visual inspection of the Subject Asset was conducted on November 14, 2022. Photos of visible improvements and equipment are provided in Appendix D.

Details on the scope of work performed and the research and analyses relied upon for the development of a Conclusion of Value are provided in more detail in Section 4. The scope of the assignment generally included gathering, analyzing, and applying relevant information necessary for appropriate valuation approaches, methods, and procedures to complete and express a Conclusion of Value of the Subject Asset, expressed as a single dollar amount and included:

- Review of land rights, agreements, operational rights, and permits required for the Subject Asset;
- Review of existing historical operational and financial performance of the Subject Asset;
- Compiling detailed information of the Subject Asset, such as type, quantity, size, function, etc.;
- Completion of independent research and analysis concerning the industry and economic environment in which the Subject Asset operates;
- Evaluate potential future operational and financial performance of the Subject Asset;
- Application of appropriate valuation approaches, methods, and procedures to obtain an indication of value of the Subject Interest.

A listing of Assumptions and Limiting Conditions is provided in Appendix B and a Statement of Appraiser Qualifications is included in Appendix C.

8.12. Principal Sources of Information

A list of principal sources of information is provided in Appendix G. The Client or other individuals did not deny access to any data deemed essential for this Report. Data collection for this Valuation involved a variety of public and private sources of information. Interviews and analyses were used to confirm and/or cross-check the data and information provided. Comparisons of reports, and other comparisons of sources of information were diligently performed for this Valuation.

8.13. Hypothetical Conditions/Extraordinary Assumptions

The analyses required to develop an indication of value do rely on multiple values that are present today and assumed to continue to exist in the future that would be considered normal financial or operating assumptions. These normal financial or operating assumptions are generally referenced in the Report or included as metrics in the tables supporting each analysis. No assumptions were incorporated about the financial, operating, physical, legal, or economic characteristics of the property or about market trends that were subjectively intended to influence the Conclusion of Value in a positive or negative direction.

The Conclusion of Value contained in this Report did rely on several extraordinary assumptions. An extraordinary assumption presumes as fact otherwise uncertain information about physical, legal, or

economic characteristics of the subject property; or about conditions external to the property, such as market conditions or trends; or about the integrity of data used in the analysis. A listing of Assumptions and Limiting Conditions containing general extraordinary assumptions is provided in Appendix B.

The Conclusion of Value contained in this Report did rely on a specific hypothetical condition. A hypothetical condition is an assumption directly related to this appraisal assignment, which is contrary to what is known to exist on the Valuation Date but is used for the purpose of analysis. It is assumed that a hypothetical buyer would consider certain economies of scale from a purchase that would reduce fixed operating costs.

8.14. Jurisdictional Exceptions

A Jurisdictional Exception is a law or regulation that precludes an appraiser from complying with a part of USPAP. There were no jurisdictional exceptions or requirements identified that would impact a Conclusion of Value of the Subject Asset. The Subject Asset is governed by certain federal, state, and local laws; however, none create a jurisdictional exception that impacts the development of a Conclusion of Value.

8.15. Reliance on Specialist(s)

The development of this Report did not rely on work or opinions of another Appraiser. Certain conceptual and technical engineering data were provided by the Client with respect to financial, operating, and existing assets.

8.16. Assumptions and Limiting Conditions

Assumptions and limiting conditions of this Report are provided in Appendix B.

8.17. Exclusions

This Valuation has excluded the following aspects of the Subject Asset and those aspects are not included in the Conclusion of Value delineated herein:

a) Non-restricted cash and cash equivalents and deferred assets;
b) Any excess real property;
c) Assumption of liabilities;
d) Assets owned by other associated parties; and
e) Activities, rights, and privileges of other associated parties.

In other words, this Valuation is of the Subjects Asset as listed in Section 2 of this Report.

8.18. Lease Agreements of Subject Asset

No lease agreements of the Subject Asset were identified.

8.19. Rounding of Estimated Values

Estimates of value derived from analyses contained in this Report have inherent variation and are not intended to reflect precise calculations. Table 1.1 provides guidelines for rounding estimates contained in this Report.

Table 8-1: Rounding Estimated Values

Amount Estimated	Rounded to Nearest
$0 – 5,000	$100
$2,001 - 50,000	$1,000
$20,001 – 500,000	$10,000
$500,001 – 50,000,000	$100,000
Over $50,000,000	$1,000,000

8.20. Definitions

The terms used in this Report are used in the context of the definition of terms provided in USPAP 2020-21. Common abbreviations are provided at the beginning of this document.

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9. Subject Asset

9.1. Background

The Subject Asset is part of integrated Waste Management services provided to residential households and commercial properties in the County. Waste collection services are provided to customers through private, third-party companies inside its corporate limits and waste for disposal is accepted from both customers within and outside the County's corporate limits. The Subject Asset opened as a burn-and-bury facility in the 1950s and was converted to a cut-and-fill sanitary landfill operation in the early 1970's. In 1981, Madera Disposal System (acquired by Waste Connections in 1997), a private third-party contractor, was contracted to operate the Subject Asset and to provide hauling services and to operate the Materials Recovery Facility ("MRF").

In 1993, during an expansion of the Subject Asset, workers discovered a mammoth tusk from the Pleistocene era. Since then, various fossils have been unearthed in the area and expansion activities on the Subject Asset are closely monitored by paleontologists. The fossils are displayed at the Fossil Discovery Center located adjacent to the Subject Asset. Between 1995 and 2000 the first fill area of the Subject Asset underwent a partial final closure with a monolithic final cover.

In 2011, the Madera County Grand Jury, a group of 19 individuals selected from the regular petit jury pool to serve for a year as established by California State Constitution in 1879, authorized an investigation of the solid waste management and recycling operations. The findings of the investigation, among other items outlined the following concerns:

- Through the way it was written, third party agreements put in place in 1981 and subsequently renewed for approximately 36 years with private contractors to operate the landfill did not protect the interest of the County. This was due to no formal bid process for contract renewal, the contractor not required to bale waste before compacting at the landfill, and higher landfill fees than neighboring communities.
- Inconsistencies in fees collected and expenses that seem to result in a higher profit for the contractor.
- Certain processes were not performed to the intent of the contract.
- No evidence of County receiving revenue from the sale of recyclables.
- Storage of equipment in County property not consistent with contract allowance.
- Other improper procedures observed during a site visit.

As a result of the investigation, in 2012, the County terminated all contracts with Waste Connections and filed a lawsuit for $2.9 million dollars in alleged damages due to withheld profits from the sale of recycled materials. The lawsuit appears to have been dismissed. Caglia Environmental, LLC, dba Red Rock Environmental Group ("Redrock") was awarded three separate contracts for the operation of the Subject Asset, the North Fork transfer station, and the Collection Franchise services in the valley area below 1,000 feet elevator on November 1, 2012. The term of the contract was a ten (10) year period with an option to extend an additional five (5) years. The County approved the Amendments to extend each contract through

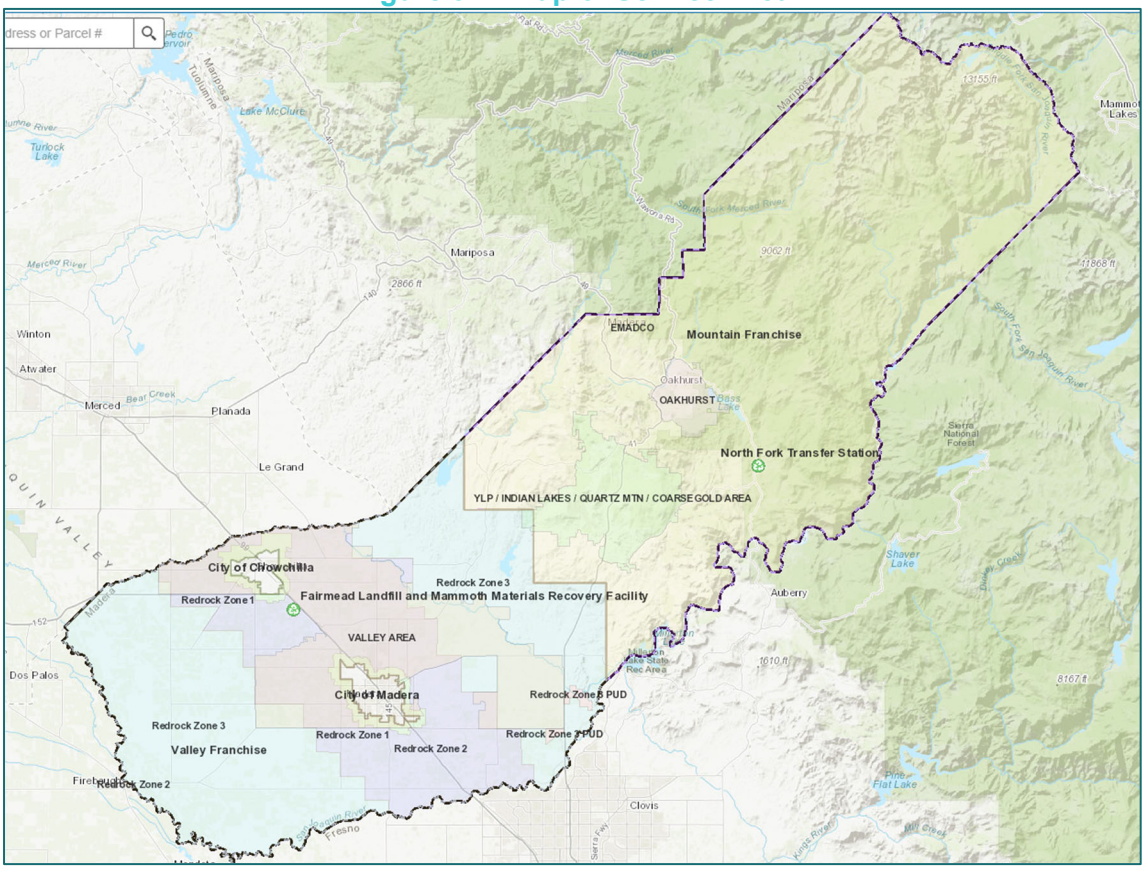
November 1, 2027. In 2018, the County Auditor-Controller's Office performed a six-month investigation and audit of Redrock and identified a risk of fraud due to lack of oversight from the County. A formal response and action plan was not obtained at this time; however, the County is continuing to utilize Redrock as its third party contractor.

9.2. Subject Asset Service Area

The County provides service to the unincorporated areas which includes the following: waste disposal facilities, residential and commercial trash collection services, recycling services, and special waste collection and clean-up events. The Subject Asset is located approximately 5 miles southeast of the City of Chowchilla and receives solid waste from unincorporated county areas, the City of Madera, and the City of Chowchilla through a contract with the County for the use of the landfill, and neighboring counties. Trash collection and curb side recycling within the cities of Madera and Chowchilla are mandatory while the rest of the county requires residents to elect to have trash collection and must pay a monthly subscription fee for the service.

The County's service area is divided into Waste Collection Franchise Areas, Waste Collection Zones, and SB 1383 Compliance Areas.

Figure 9-1: Map of Service Area



Source: Madera County Public Works Solid Waste Management Website

The four (4) Waste Collection Franchise Areas are City of Chowchilla, City of Madera, Mountain Franchise, and Valley Franchise. Madera County entered in a restated and amended agreement ("Emadco Agreement")

with Emadco Disposal Service, Inc ("Emadco") on December 18, 2018[55] with an original agreement adopted on September 23, 2014, which establishes service in areas above 1,000 feet in elevation, also known as the Mountain Franchise. The Valley Franchise receives collection services from Redrock as established by a restated and amended agreement ("Redrock Agreement") on December 18, 2018[56] with an original agreement adopted on October 2, 2012, which establishes service in areas below 1,000 feet in elevation in the County.

According to the respective collection agreements, both entities are responsible for the following, as it relates to providing franchise collection services within their respective franchise areas:

- General Services which include, among other items, personnel, management, uniforms, benefits, corporate culture, commodities and equipment, maintenance, furnishing offices, and addressing space requirements.
- Collection Services which include, among other items, offering solid waste, recycling, and yard waste collection services for residential and commercial customers, creating and maintaining route maps and customer lists, customer service, collection equipment, and billing.
- Implementation of recycling program which includes, among other items, processing, personnel, capital, website establishment, commercial recycling identification, outreach, and reporting in accordance with AB341[57], business identification and outreach to non-AB 341, school recycling, community event recycling, and environmental services.

Emadco and Redrock's monthly franchise fee to the County is equal to six (6) percent of the gross collections received for all services within their designated Franchise Areas. This amount does not include revenues from the sale of recyclable materials. Both agreements are in effect until 2027, with options to renew for two (2) additional five (5) year periods. As can be seen in the Figure above, the Valley Franchise Area is partitioned into three (3) collection zones, which are subject to different collection fees.

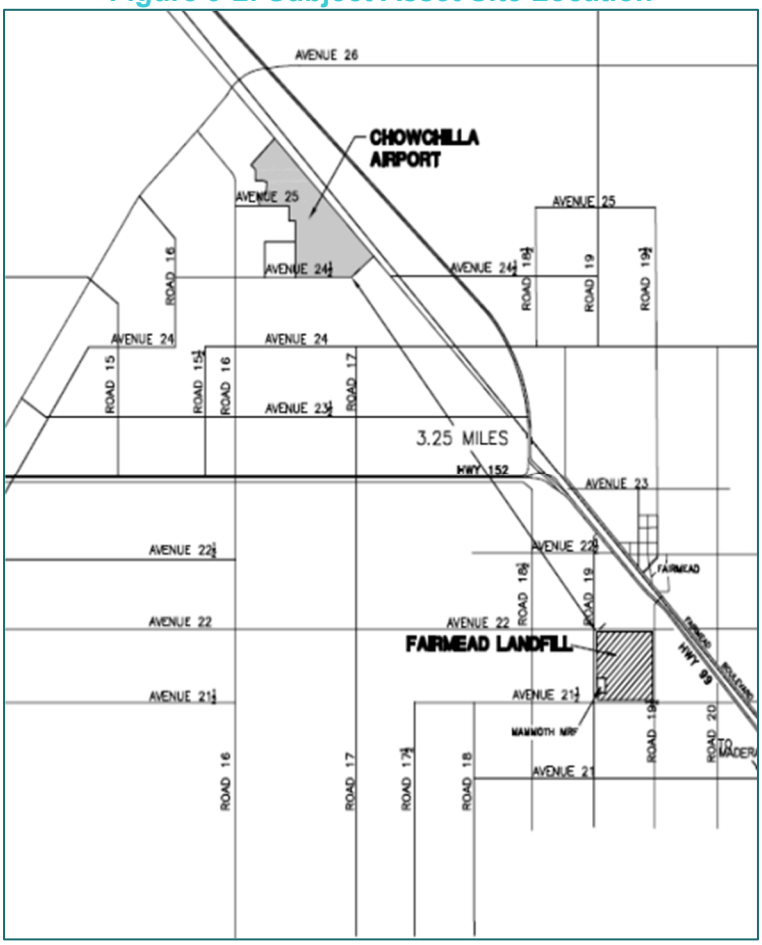
Compliance areas are established to address California law SB 1383[58], which implemented a target 75% reduction of landfilling of organic waste by 2025 by requiring counties, cities, and special districts to provide organic waste collection services to resident and commercial customers.

9.3. Subject Asset Details

The Subject Asset is located along Road 19, southwest of Highway 99 (see Figure 2-2).

[55] Restated and Amended Solid Waste and Recyclable Materials Collection Franchise Agreement Granted by The County of Madera, California to Emadco Disposal Service, Inc., dated December 8, 2018.
[56] Restated and Amended Solid Waste and Recyclable Materials Collection Franchise Agreement Granted by The County of Madera, California to Caglia Environmental, LLC., dated December 8, 2018.
[57] AB 341 (Chesbro, Chapter 476, Statutes of 2011) sets forth the requirements of the statewide mandatory commercial recycling program.
[58] SB 1383, Lara, Chapter 395, Statutes of 2016

Figure 9-2: Subject Asset Site Location



Source: Wastewater Discharge Requirements Order R5-2022-0012

The Subject Asset is a Class III solid waste disposal site located on County owned property. It encompasses 146.9 acres of permitted area, of which 122.3 acres are permitted for disposal. The following facilities are also located on the site: 1) Materials Recovery Facility (MRF), a specialized plant that receives, separates, and prepares recyclable materials and 2). The Subject Asset is the only solid waste landfill located in the County. Land uses within 1000 feet of the landfill are agricultural and residential. The Discovery Fossil Center is located 300 feet southeast of the landfill and a residence is located 1,000 feet east of the landfill. The natural topography of the location is relatively flat with approximately 238 feet MSL in the southwest corner. A summary of the disposal area is provided in Table 2-1.

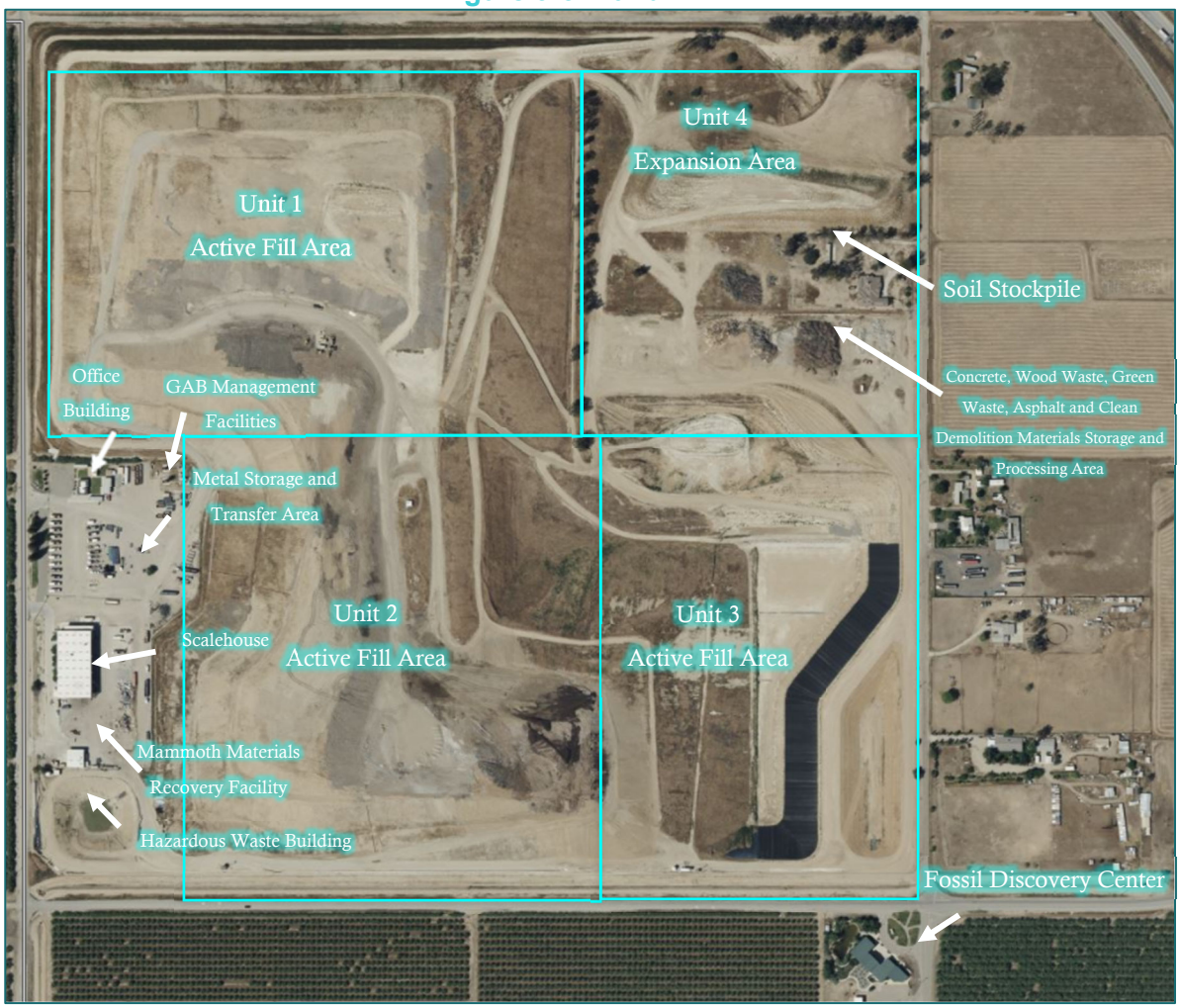
Table 9-1: Permitted Waste Management Units

Unit	Class	Size (Acres)	Status
WMU 1	Class III	45.4	Operating
WMU 2	Class III	26.0	Operating
WMU 3	Class III	27.0	Operating/Planned
WMU 4	Class III	23.9	Planned
TOTAL		122.3	

Source: Wastewater Discharge Requirements Order R5-2022-0012

WMU 1 through 4 allows for the following waste categories: municipal solid waste, and inert wastes. WMU 1 through 2 allows additional waste categories of treated wood waste, dewatered sludge, and other wastes (i.e., non-designated, non-hazardous solid waste such as dead animals, ash and cement etc.). The County is responsible for removing any waste not within the listed categories that may be discharged at the facility in error.

Figure 9-3: Landfill*



**Note: Boundaries are estimates and not to scale.*

Table 2-2 provides a summary of the components of the Subject Asset, including average year of installation and original cost. Appendix F provides a detailed listing of assets.

Table 9-2: Subject Asset Summary

Asset Category	Year [1]	Cost	Notes:
Liner/Landfill Development	2013	$16,706,320	**Units 1-3 (liner), includes closure of Unit 1**
Structures	1995	960,291	**MRF Building, Conveyor, Scale house, roll-off boxes**
Landfill Gas Recovery	1998	900,000	**Flare station, 38 extraction wells**
Hazardous Waste Facility	2004	629,320	**~2,000 square feet**
Liner Gas Probes	2012	119,327	**12 perimeter monitoring probes**
Equipment	2005	138,491	**Forklift, pump system, security system, IT network**
Monitoring Wells	2002	110,000	**27 ground water monitoring wells**
Total		$19,563,751	

Sources: County, Raftelis; Notes: (1) Average (weighted on cost) year of installation.

Capital spending, excluding land costs, for the development, construction, or acquisition of equipment comprising the Subject Asset as of the Valuation Date is roughly $19,500,000. This includes audited asset costs through June 30, 2001 and estimated capital spending for FY 2022 and FY 2023.

9.4. Subject Asset Permits

The California Department of Resources Recycling and Recovery ("CalRecycle") regulates solid waste handling, processing, and disposal activities. These include the operation of landfills, transfer-processing stations, material recovery facilities, compost facilities and waste to energy facilities. The agency requires various permitting tiers depending on the type of operations of proposed facilities. A full permit tier is required for all solid waste landfills, defined as a…

> "*…disposal facility that accepts solid waste for land disposal, but does not include a facility which receives only wastes generated by the facility owner or operator in the extraction, beneficiation, or processing of ores and minerals, or a cemetery which disposes onsite only the grass clippings, floral wastes, or soil resulting from activities on the grounds of that cemetery.*"[59]

Pursuant to California Code of Regulations (CCR)[60] a new or revised permit application must be submitted to the Regional Water Quality Control Board ("RWQCB") and to the Local Enforcement Agency ("LEA") which is the County Community and Economic Development Department, Environmental Health Division. The LEA reviews the application to determine that all requirements of CCR Title 27 Section 21570 are met and processes the application pursuant to Public Resources Code ("PRC")[61]. It then sends the proposed permit and certification of completeness to CalRecycle. At this stage the permit is reviewed for the purpose of determining compliance with State Minimum Standards, the California Environmental Quality Act

[59] State of California Public Resources Code Chapter 656 § 40195.1
[60] California Code of Regulations, Title 27, Chapter 4, Subchapter 3
[61] State of California Public Resources Code Chapter 6 § 44001-44018

("CAQE"), CalRecycle policies, and completeness of facility information. Once the CalRecycle Board approves the permit, it is sent to the LEA for issuance.

The Subject Asset's Solid Waste Facility Permit (#20-AA-002) allows for the following: 122.3 acres of disposal area, 23,007,696 cubic yards design capacity, maximum tonnage of 1,100 tons per day, maximum elevation of 370 feet MSL, maximum depth of 85 feet BGS, and an estimated closure date of 2048. The table below outlines permits and documentation required to obtain the Solid Waste Facility Permit.

Table 9-3: Subject Asset Permits and Accompanying Documents

Description	Identification Number	Associated Entity	California Code
Solid Waste Facility Permit	20-AA-002	Madera County Community and Economic Development Department- Environmental Health Division	Title 27 CCR, Chapter 4 State of California Public Resources Code Chapter 6 § 44001-44018
Waste Discharge Requirements Order; Monitoring and Reporting Program	R5-2022-0012	Regional Water Quality Control Board- Central Valley Region	Title 27 CCR, Chapter 4
Air Pollution Control District Permit to Operate	C-2913-1-2		
Conditional Use Permit	2009-004	County Board of Supervisors	
Joint Technical Document			
Environmental Impact Report	SCH # 2001031048	Filling: State Clearinghouse Certified: Madera County	California Environmental Quality Act; State of California Public Resources Code Chapter 6 § 21000
Mitigated Negative Declaration	SCH #2010031037	Filling: State Clearinghouse Certified: Madera County Planning Department	California Environmental Quality Act
Landfill Gas Monitoring and Control Plan		CalRecycle, Madera County Community and Economic Development Department- Environmental Health Division	California Code of Regulations, Title 27 (27 CCR), Division 2, Subdivision 1, Chapter 3, Subchapter 4, Article 6, Sections 20917
Preliminary Closure and Postclosure Maintenance Plan **Closure Financial Assurance Documentation** **Operating Liability Certification**		CalRecycle	Title 27 CCR
Notice of Determination			California Environmental Quality Act
Resolution Adopting Decision and Findings Regarding Madera County Integrated Solid Waste Management Project		Board of Supervisors, County of Madera	California Environmental Quality Act

9.5. Landfill Real Property

The County is listed as owner of six (6) specific parcels related to the Subject Asset, totaling 149 acres with a tax assessed land value of $775,479 (see Table 2-2).

Table 9-4: Subject Asset Real Property

Parcel Number	Address	Land Value [1]	Acres
027-192-008-000	21610 Road 19 1/2 Chowchilla CA 93610-9772	$3,490	0.91
027-192-024-000	21858 Road 19 1/2 Chowchilla CA 93610-9772	29,499	13.58
027-192-025-000	21784 Road 19 1/2 Chowchilla CA 93610-9772	366,710	4.95
027-192-026-000	21752 Road 19 1/2 Chowchilla CA 93610-9772	116,255	4.95
027-192-027-000	21716 Road 19 1/2 Chowchilla CA 93610-9772	59,670	4.95
027-192-031-000	21739 Road 19 Chowchilla CA 93610-8218	199,855	119.21
TOTAL		$775,479	148.55

Source: Madera County Property Appraiser; Notes: (1) Assessed land value, not including improvements.

It is also assumed that any easement or right-of-way agreements required to operate the Subject Asset would be transferred. The value of easement and right-of-way agreements, if applicable, are considered as part of the bundle of tangible and intangible value and have not been separately appraised for this Report.

9.6. Madera County Solid Waste Demand

9.6.1. Madera County Population

At the national level, there are only two sources of population growth: natural change and net migration. The population internal to the U.S. can and does relocate (migrate from state to state, or within a state), however, this movement in people does not add or subtract from the level of national population. This movement of individuals has no net change on total U.S. population.

Natural population growth is the result of the net change in population from the number of live births minus the number of deaths in a given period. Net migration is simply the difference in the number of people migrating into the U.S. less the number of people migrating outside of the U.S. From an historical perspective, the U.S. has long been a nation that attracts many more in-migrants compared with the number of individuals migrating out. As a result, the projection of population at the national level can be reduced to estimating natural growth and expected migration.

While both the rates of births and deaths can and have exhibited distinct trends over time, natural population change tends to be relatively stable. For example, birth rates among highly urbanized, industrialized economies have tended to decline over time. However, at the same time, improvements in broad social conditions such as working, nutrition and medicine have tended to reduce death rates – collectively resulting in a stable net change in natural population. Regardless, the underlying conditions that affect both birth and deaths rates generally take long periods of time to manifest, thereby resulting in relatively slow changes in each. Migration, on the other hand, can and has exhibited some variation from year to year depending on national immigration policy and global economic conditions, among other things. Most importantly, migration rates are not a continuous measure over time, they are discrete values from year to year.

The more challenging aspect of estimating and projecting population for areas lower than a national level is generally a result of significant variation that can be caused by both total migration and internal movement, in effect the observed patterns of settlement. Natural growth is also relatively stable at state, county, and municipal levels similar to rates at the national level. Specific areas (state, county, city, etc.) can and do have

differing rates depending on social-economic conditions, but changes and trends are relatively slow to materialize. For example, a population that is very young on average would be expected to have a higher birth rate and lower death rate than average – but trends shifting rates of birth and death would take decades to materialize only as the population ages over time.

But internal migration can and does exhibit relatively sudden shifts from year to year. At the national level, the number of in-migrants in a specific time period settle into a specific area (state, county, city, etc.) based on a wide number of reasons – family, income, jobs, crime, prices, costs, etc. Similarly, and generally more significant, the number of individuals moving within the U.S. (state to state, county to county, county to city, city to county, etc.) are also driven by the same factors. Mobility within the U.S. has historically represented 10-25% of the total U.S. population. This movement does not impact national population counts but can and does materially impact smaller subdivisions of the U.S. In addition, trends in the factors affecting decisions to locate or relocate can exhibit changes in very short time periods, particularly tied to changes in economic activity (both positive and negative). However, the projection of population at a state, county, or city level can also be reduced to estimating natural growth and expected net migration (albeit subject to wider ranges of variation).

Between 1990 and 2023, the estimated increase in population of the County totaled 71,304 or 80% on a base of 89,125[62], reflecting a compound annual growth rate ("CAGR") of 1.4%. The majority of change is estimated to have come from natural growth (55%) with the balance of change resulting from net population migration (45%), as illustrated in Table 2-5.

Table 9-5: Historical Population Change by Component

Component of Change [(1)]	1990-99	2000-09	2010-19	2020-22	2023	Total
Total Change	32,758	25,647	6,341	3,913	2,644	**71,304**
Natural Growth (net)	12,863	12,979	11,128	1,466	1,145	**39,581**
plus: Births	19,080	21,325	20,999	4,613	2,347	**68,364**
less: Deaths	(6,217)	(8,346)	(9,871)	(3,147)	(1,202)	**(28,783)**
Net Migration [(2)]	19,895	12,907	(4,704)	2,598	1,499	**32,196**
Other [(3)]	-	(239)	(83)	(151)	-	**(473)**
Growth Rates:						
Birth rate per 100	2.38	1.92	1.55	1.48	1.46	**2.32**
Death rate per 100	0.78	0.75	0.73	1.01	0.75	**0.98**
Annual Migration	2,211	1,434	(523)	1,299	1,499	**976**

Source: U.S. Census, Raftelis. Notes: Birth and Death rates are average over period. Death rate for 2020-2022 is impacted by COVID-19. (1) Census Population and Housing Estimates 1990-2022. Raftelis estimated 2023. (2) Includes Domestic and International migration. (3) Unquantified variance or rounding.

Before 1990, most of California's population growth came from domestic migration, but most recently growth has shifted towards natural increases. In total, gains from international migration have been offset by domestic migration losses over the past 10 years, which is expected to continue at the state level. Total population in California has declined by nearly 500,000 since 2019 as a result of domestic out migration.

[62] 1990 Census, U.S. Census Bureau

Multi-year polling indicates that residents are generally leaving California because of housing prices, transportation costs, congestion, and rising crime rates.

Patterns of growth in the County have lagged these trends as most early growth in California was concentrated in major urban areas along the coast before moving into rural areas in the central and eastern parts of the state. As a result, the migration boom for the County happened after 1990 before trailing off over the last 10 years (see Table 2-x). However, unlike the state as a whole, the County has benefited from increased net migration contributing to the majority of population growth between 2020 and 2022, an atypical trend relative to many urban areas in the state.

Consistent with the discussion above, the California Department of Finance ("CDOF"), Demographic Research Unit is responsible by statute for maintaining postcensal population projections which are calculated using a demographic balancing equation[63]:

$$Population_{Year} = Population_{Year(-1)} + (Births - Deaths) + Net\ Migration$$

The CDOF methodology calculates the population for a target year by starting with the population from a base year and adding expected natural increase (births minus deaths) and net migration[64]. The CDOF current population projections[65] for the County suggest relatively no long-term growth, with population projected to reach slightly more than 159,000 in 2060 (see Table 2-6).

Table 9-6: CDOF County Population Projections

Series	Base	2025	2060	Total Change	Annual Change	CAGR (1)
Vintage 2017 (Base=2015)	154,956	174,156	262,065	87,909	2,511	
Vintage 2023 (Base=2020)	156,141	159,823	159,048	(775)	(22)	
Variance	n/a	(14,333)	(103,017)	(88,684)	(2,533)	

Source: CDOF. Notes: (1) CAGR between 2025 and 2060.

While the CDOF's methodology is widely accepted as an appropriate approach for developing population projections, the significant variation between current and prior projections illustrates the challenges with these models at county and city levels. More importantly, the lack of robustness in population models only a few years apart should raise concerns with the potential accuracy of projections over the long-term. The more than 100,000 population swing between the CDOF's 2017 release and 2023 release appears to reflect an over-adjustment and continuation of likely short-term negative net migration between 2019-2019 and the impacts of COVID-19 on the rate of deaths in the County between 2020-2022 (see Table 2-x). Two-thirds (66%) of total change in population in the County is estimated to have come from net migration over the past two (2)

[63] The population balancing equation is the most fundamental equation in demographic analysis and is also used to estimate population growth. United Nations, Department of Economic and Social Affairs, Population Division
[64] https://dof.ca.gov/forecasting/demographics/projections/
[65] California Department of Finance. Demographic Research Unit. Report P-2A: Total Population Projections, California Counties, 2020-2060 (Baseline 2019 Population Projections; Vintage 2023 Release). Sacramento: California. July 2023.

years, reversing the domestic population losses observed in the past decade. If this trend continues and the rate of deaths return to normal, it is not likely the County's population will remain flat for the next 35 years.

The effects of increasing housing and transportation costs have touched all areas of the state, however the County would be expected to be better positioned than other urban areas with the strongest market pressures driving residents to leave the state. For example, the cost of housing in the County has risen similarly as fast[66] as markets such as Los Angeles and San Francisco, but the relative price of home ownership in the County remains significantly lower. The median price of a home in Los Angeles and San Francisco is $975,000 and $1,405,000, respectively, compared with $445,000 in the County[67]. In addition, population density in the County is low, indicating sufficient capacity to absorb population growth. Currently, the population density[68] in the County is only 44% relative to Fresno County.

Table 2-7 provides an alternative population projection used for this Report considering continuation of trends in birth and death rates prior to 2020 and modest short-term gains in net migration before reflecting an imbalance in domestic out-migration higher than international in-migration.

Table 9-7: Population Projections by Component

Component of Change	2023	2023-32	2032-41	2041-50	2050-59
Total Population	162,430	182,262	198,022	209,052	214,612
Components of Change:		19,830	15,760	11,030	5,560
Natural Growth (net)		10,830	10,810	10,130	8,710
plus: Births		21,960	22,940	23,480	23,560
less: Deaths		(11,130)	(12,130)	(13,350)	(14,850)
Net Migration (1)		9,000	4,950	900	(3,150)
Growth Rates:					
Birth rate per 100		1.42	1.34	1.28	1.24
Death rate per 100		0.72	0.71	0.73	0.78
Annual Migration		1,000	550	100	(350)

Source: Raftelis. Notes: Birth and Death rates are average over period. Death rate for 2020-2022 is impacted by COVID-19. (1) Includes Domestic and International migration.

See Appendix D for a detailed projection of County population growth through 2060.

9.6.2. Solid Waste Generation

The demand for Waste Management and Remediation services is primarily driven by household population, generally resulting in utilizing a concept of solid waste per capita (e.g., lbs/day/capita) as a metric to understand or estimate solid waste generation. There are additional demographic and socio-economic characteristics that can be used to explain either growth or relative per capita rates to include household unit growth, persons per household, household income, discretionary consumer spending, commercial

[66] Measured on an index basis over time.
[67] 2023. Market trends at Redfin.com
[68] 75 people/square mile compared with 170 people/square mile

establishment growth, manufacturing output, and agricultural output, many of which are highly correlated and also primarily a function of household population growth. Therefore, a value of waste generation (lbs/day/capita) inherently captures many of these socio-economic factors.

Between 1995 and 2023, annual MSW[69] landfilled at the Subject Asset increased from approximately 80,500 tons (4.8 lbs/day/capita)[70] to 225,700 tons (9.1 lbs/day/capita), reflecting a 3.7% compound annual growth rate (see Table 2-8).

Table 9-8: Historical Subject Asset MSW Demand

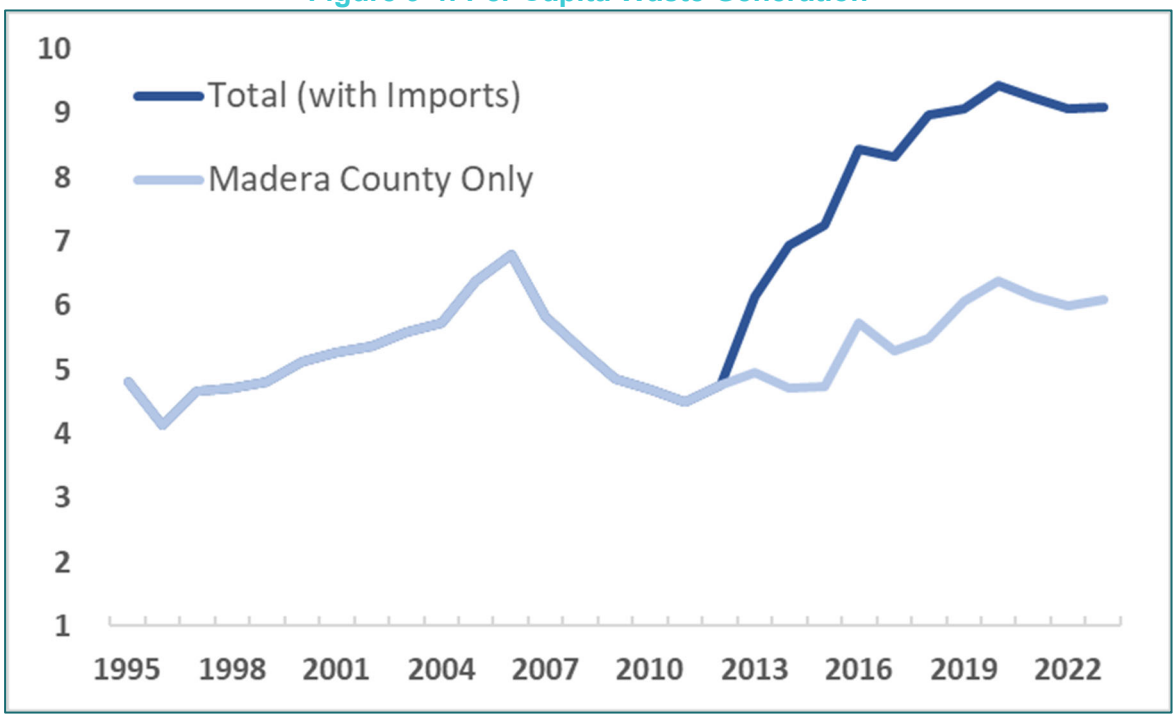
Calendar Year	Waste (Tons)	Tons per Day (1)	County Population	Per Capita Waste (lbs/day)
1995	80,529	263	109,300	4.82
1996	71,341	233	113,143	4.12
1997	83,260	272	116,442	4.67
1998	85,821	280	119,143	4.71
1999	89,693	293	121,883	4.81
2000	96,755	316	123,587	5.12
2001	101,140	331	125,581	5.26
2002	105,175	344	128,369	5.36
2003	113,455	371	132,738	5.59
2004	120,342	393	137,106	5.74
2005	137,046	448	140,313	6.38
2006	149,378	488	143,622	6.80
2007	130,138	425	146,067	5.82
2008	120,539	394	148,359	5.31
2009	110,786	362	149,234	4.85
2010	108,259	354	150,986	4.69
2011	104,399	341	151,675	4.50
2012	110,282	360	151,527	4.76
2013	142,215	465	151,370	6.14
2014	162,627	531	153,456	6.93
2015	170,378	557	153,576	7.25
2016	198,722	649	153,956	8.44
2017	197,952	647	155,423	8.32
2018	215,092	703	156,882	8.96
2019	221,138	723	157,327	9.19
2020	223,101	729	156,343	9.33
2021	222,125	726	158,910	9.14
2022	222,991	729	160,256	9.09
2023*	225,700	738	162,430	9.08
CAGR	3.7%	3.7%	1.4%	2.3%

*Source: CalRecycle, Madera County. Notes: * Estimate. Landfilled waste only, does not include ADC. Calendar year basis, January to December. (1) Based on 306 operating days in a year.*

[69] Solid waste only, does not include ADC.
[70] Using 306 operating days per year.

Growth in total waste landfilled at the Subject Asset was generally identified as a result of growth in population, a positive trend in waste generation rates per person (partially offset by fluctuations in economic activity), and incremental waste imported from areas outside of the County (see Figure 2-4).

Figure 9-4: Per Capita Waste Generation



Source: CalRecycle, Madera County. Notes: MSW lbs/day/capita. Landfilled waste only, does not include ADC. Calendar year basis, January to December.

Total annual volume of solid waste landfilled at the Subject Asset increased by more than 145,000 tons between 1995 and 2023 (see Table 2-9).

Table 9-9: MSW Estimated Cause of Change

Total 1995 MSW Tons	80,529
Cause of Annual Change:	
Population growth	39,145
Increased waste per capita	30,239
Economic Activity (1)	12,803
Imported MSW (2)	61,904
Other (Unquantified) (3)	1,080
Subtotal Annual Change	145,171
Total 2023 MSW Tons	225,700

Source: Raftelis; Notes: MSW only, does not include ADC. Calendar year basis, January to December. (1) County unemployment. (2) MSW from outside County. Average annual from 2013 to 2023. (3) Generally, variance in rate on volume.

Roughly 43% of the total increase in solid waste tons on an annual basis is attributed to the Subject Asset accepting waste from outside of the County[71]. Growth in population and increased per capita waste generation is estimated to contribute 28% and 21%, respectively. Economic activity is specifically measuring the difference in current economic activity[72] from the base in 1995 and estimated to contribute 9% to the change in annual volume. However, a portion of the change in per capita waste is likely also a factor of economic activity in terms of increased household incomes and consumer consumption.

The impact of each identified factor driving solid waste demand, particularly the significant decline in economic activity from the Great Recession[73] and slow recovery of the housing market and importing waste starting in 2013, has created a cycle of waste generation rates around the positive trend between 1995 and 2023 (see Table 2-10).

Table 9-10: Demand Growth Rates

Component	1995-2006	2006-2012	2013-2023	1995-2023
Tons per day	5.8%	-4.9%	4.6%	**3.7%**
Population	2.5%	0.9%	0.6%	**1.4%**
Total Per Cap (lbs/day)	3.2%	-5.8%	4.0%	**2.3%**
Madera Per Cap (lbs/day)	3.2%	-5.8%	2.1%	**0.8%**

Source: CalRecycle, Madera County, Raftelis. Notes: Compound Annual Growth Rates. Calendar year basis, January to December.

The County experienced strong net migration between 1990 to 2009 along with relative economic growth in housing and jobs[74], resulting in a 5.8% annual growth rate in MSW tons from a 2.5% annual growth rate in population and 3.2% annual growth rate in waste per capita. The Great Recession significantly reduced consumer consumption and economic activity in the County and is likely the primary reason for the slowdown in population growth and reduction in waste per capita for the period between 2006-2012. While population continued to grow more slowly between 2013 to 2023, total tons per day increased at an annual growth rate of 4.6% primarily from importing volume from outside the County.

Estimating the cause of change in annual solid waste ton prior to 2013 illustrates the significant impact of the Great Recession as well as the relatively impact of solid waste imports. Total annual volume of solid waste landfilled at the Subject Asset increased by slightly less than 30,000 tons between 1995 and 2012 (see Table 2-11).

[71] Based on average annual tons between 2013 and 2023. The volume from outside the County has generally increased since 2013 and would account for a higher proportion of annual change if measured over a different time period.
[72] Using County unemployment as a proxy for total economic activity.
[73] Generally referring to the longest recession since WWII, starting in 2007 and lasting into 2009, and representing the most significant economic downturn since the Great Depression in the 1930s.
[74] Employment increased 57% between 1990 and 2006 (seasonally adjusted) and the unemployment rate dropped 3.5 percentage points.

Table 9-11: MSW Estimated Cause of Change

Total 1995 MSW Tons	80,529
Cause of Annual Change:	
Population growth	31,112
Increased waste per capita	24,033
Economic Activity [1]	(24,144)
Imported MSW [2]	-
Other (Unquantified) [3]	(1,248)
Subtotal Annual Change	29,753
Total 2012 MSW Tons	110,282

Source: Raftelis; Notes: MSW only, does not include ADC. Calendar year basis, January to December. (1) County unemployment. (2) MSW from outside County started in 2013. (3) Generally, variance in rate on volume.

The impact of the significant decline in economic activity offset all growth in increased per capita waste generation rates between 1995 and 2012, leaving all of the change in annual volume coming from population growth. Again, the effect of economic activity is specifically measuring the difference in economic activity from the base in 1995. So, while the trend of increased household incomes and consumer consumption continued to exist, the severe decline in the economy mitigated more than a decade of increasing waste demand.

Based on growth in County population, increasing per capita waste generate rates, and imported solid waste from outside the County, the Subject Asset is estimated to have 57.1% of remaining permitted capacity on the Valuation Date (see Table 2-12).

Table 9-12: Subject Asset Utilization

Fiscal Year (FY)	2018	2019	2020	2021	2022	2023*
Total MSW (tons) [1]	206,423	217,502	219,328	218,568	224,901	226,722
Landfill Utilization (CY) [2]						
Annual Volume Landfilled	342,712	355,191	317,827	317,779	344,619	350,150
Total Waste-in-place	8,182,510	8,537,701	8,855,528	9,173,307	9,517,926	9,868,076
Remaining Capacity	14,825,186	14,469,995	14,152,168	13,834,389	13,489,770	13,139,620
% of Capacity Used [3]	35.6%	37.1%	38.5%	39.9%	41.4%	42.9%

*Source: CalRecycle, County, Raftelis; Notes: * Estimate. Fiscal year basis, July to June. (1) Landfilled waste only, does not include ADC. (2) Landfill airspace including ADC, cubic yards. (3) Permitted airspace capacity is 23,007,696 cubic yards.*

Between 2018 and 2023, the flow of solid waste consistently reduced remaining permitted capacity at a rate of roughly 1.38 to 1.54 percentage points annually.

9.6.3. Demand and Capacity Projections

Between 2018 and 2023, the flow of solid waste consistently reduced remaining permitted capacity at a rate of roughly 1.38 to 1.54 percentage points annually. If per capita solid waste generation rates remained constant, the remaining life of the Subject Asset could range between 37 to 41 years at that pace of utilization. A scenario of constant annual reduction of remaining capacity would likely require no County population growth (as the CDOF suggest in Table 2-6) or significant diversion of solid waste from the Subject Asset (either a result of SB 1383 or a reduction of out-of-County waste). However, the analysis in this Report assumes continued growth in solid waste demand at the Subject Asset driven by County population growth, modest declines in per capita waste from diverted solid waste, and continued out-of-County waste (see Table 2-13 and Appendix F).

Table 9-13: Projected Subject Asset Utilization

Fiscal Year (FY)	2025	2030	2035	2040	2045	2050
MSW (tons) [1]	232,920	249,910	265,500	279,700	292,470	303,720
Landfill Utilization (CY) [2]						
Annual Volume Landfilled	372,672	399,856	424,800	447,520	467,952	485,952
Total Waste-in-place	10,607,692	12,553,564	14,628,572	16,821,596	19,121,436	21,516,156
Remaining Capacity	12,400,004	10,454,132	8,379,124	6,186,100	3,886,260	1,491,540
% of Capacity used	46.1%	54.6%	63.6%	73.1%	83.1%	93.5%

Source: Raftelis; Notes: Fiscal year basis, July to June. (1) Landfilled waste only, does not include ADC. (2) Landfill airspace including ADC, cubic yards.

Based on these assumptions, the permitted capacity of the Subject Asset is expected to be reached in 2051 and closed in 2052 (see Appendix F).

9.7. Form of Organization of Owner

The County is a General Law[75] county established as a political subdivision of the State of California and as such can exercise the powers specified by the Constitution and laws of the state. The County is governed by an elected, five-member Board of Supervisors.

9.8. Restrictions on Sale of Subject Interest

The County did not identify any restrictions for the potential sale of the Subject Asset for the purpose of this Report. The County and Caglia Environmental, LLC entered into a Restated and Amended Solid Waste Management Services Contract[76] ("Services Contract") on December 18, 2018, for operation and maintenance services of the Subject Asset. The Services Contract was originally executed October 2, 2012, for a term of 15 years, which expires October 1, 2027. The County has the option to renew the Services Contract for two (2) additional five-year periods. The County is required to provide Red Rock with written notice of its

[75] The California Constitution recognizes two types of counties: general law or charter. General law counties must adhere to the "general laws" approved by the Legislature and the governor. General law counties must follow state statutes that dictate the number, appointment, and election procedures for county officials.
[76] County Contract No. 9717B-C-2018

intent to renew the Services Contract no later than 90 days. The County also has the right to terminate the Services Contract at any time with written notice to Red Rock of no less than 180 days from the date of termination[77]. The County would be required to pay a termination fee of $1,950,000[78].

9.9. Prior Related Ownership Transactions

No prior transactions for the Subject Asset, in whole or in part, have been identified. The County has been sole owner of the Subject Asset from initial construction and installation.

9.10. Competition

Competition in both collection and disposal is significant and includes private companies, governmental operations, and quasi-governmental operations. The County has exclusive rights to and has granted exclusive franchise agreements to third-party operators for waste collection services. Currently, the Subject Asset is the only solid waste landfill located in the County. Other private or governmental landfill operations could be permitted and compete with the Subject Asset for waste disposal.

9.11. Impact of COVID-19

In March 2020, the World Health Organization ("WHO") declared the disease first detected in 2019 caused by the novel strain of coronavirus ("COVID-19") a pandemic. The impact of COVID-19, from a social and economic perspective, has been severe and has reached every population around the world. As of the date of this Report, efforts to mitigate these impacts have progressed significantly with a majority of the adult U.S. population receiving a vaccine, including vaccine boosters. However, a general consensus among health experts continues to indicate that the ease with which COVID-19 is transmitted, the emergence of new variants of COVID-19 both globally and domestically, and unequal access to vaccines in large parts of the world will likely result in COVID-19 shifting from a pandemic disease to an endemic one. An endemic disease remains persistently present but is generally manageable from a health perspective.

The analyses contained in this Report are therefore based on an assumption of a COVID-19 endemic existing for multiple years beyond 2022. Under this scenario, the presence of a COVID-19 endemic is not expected to create additional severe social and economic restrictions similar to the events responsible for the most recent recession in 2020. The roll-out of vaccinations and boosters to a wider population in the U.S. is expected to continue throughout 2023 and certain market trends accelerated during the COVID-19 pandemic are expected to continue, such as in-store pickup, contactless delivery, and remote work arrangements which will continue to contain future impacts of COVID-19 as experienced in 2020. In addition, the proactive response within many consumer industries (e.g., retail, entertainment, food and beverage), including both operational and financial, along with prior Federal stimulus programs helped to sustain the current economic recovery through 2022, avoiding a recession leading into 2023.

Even with a COVID-19 endemic lasting beyond 2022, there is a reasonable expectation that social and economic functions will return and remain "normal", with the exception of a continued presence of voluntary masks in public, certain operational and capacity modifications remaining permanent in some industries, and

[77] Article XIII, Section 13.4., Services Contract
[78] Appendix I, Services Contract

the possibility of vaccination or testing documentation requirements for travel and other activities. All of which, would not be expected to disrupt ongoing business or the current economic recovery. Beyond 2022, returning to "normal" implies that COVID-19 would be a manageable health issue. However, the expected performance of national, state, and local economies would be materially impacted in the event of a future recurrence of the severe social and economic restrictions that occurred in 2020.

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10. Economic and Market Overview

10.1. Current National Economic Situation

In February 2020, the U.S. Economy ended its longest period of expansion since 1945, a consequence of the global response to the COVID-19 pandemic ("Great Lockdown"). The breadth and depth of the Great Lockdown was obvious – the worst economic downturn in employment and production since the Great Depression. Between March and April 2020, the U.S. economy lost nearly 23,000,000 non-farm payroll jobs, and national unemployment rates approached 15%. However, this recession was also the shortest in history, lasting only two months, and the U.S. economy officially began recovering in May 2020.

While the economy grew in 2021 and 2022, a few of factors continued to represent a drag on the economic outlook in the short run, including the impacts of historic inflation, major disruptions in global trade and domestic supply chain capacity, constraints on fiscal spending and stimulus, and rising income inequity. While many households welcomed government stimulus programs, the U.S. has added more than $11 trillion in debt since 2016, pushing the expected debt burden to $31 trillion in 2022. This Federal stimulus was a significant reason the economy has rebounded quickly in 2020, and the recession didn't last much longer, but that bill will come due at some point.

Some of the fallout of the COVID-19 induced recession can be viewed as positive, albeit still difficult individuals under or unemployed today (some of which appears to be by choice, however). The economic response to this recession has simply accelerated several market trends that existed pre-COVID-19, many of which created stronger productivity gains (e.g., online retail, remote workforce) in 2021 and 2022. Despite the headwinds, the U.S. economy remained fundamentally sound after the Great Lockdown through all of 2022. At the end of 2022, household and business income-to-debt balances were in relatively good shape, and consumers were sitting on a lot of accumulated savings. As well, Gross Domestic Product ("GDP") reached pre-pandemic levels, even though employment levels lagged immediately following the Great Lockdown. While labor shortages are not good, the strong growth in productivity (output per worker) was a very positive sign. Finally, the passage of the bipartisan infrastructure agreement supported the economy in the short term and would be expected to foster even greater productivity growth in the long run.

Of notable concern beginning in 2021, however, was the rapid spike in prices, which continued in the first half of the year as a result of specific impacts from the COVID-19 induced recession, supply chain constraints, and energy process impacted by the situation in Ukraine. For the full year of 2022, the consumer price index remained at a 40-year high, ending the year at 8% year-over-year growth. But, the blistering annual growth rate of GDP (real) continued after the Great Lockdown, growing at 6.7% in the fourth quarter of 2021 despite high consumer prices. The majority of this growth was fueled by consumer demand from pandemic related savings and fiscal stimulus and partly contributed to price pressures. Despite our ability to point to specific problems driving commodity and producer prices (e.g., domestic supply chain), demand-side growth prompted the Federal Reserve to aggressively raise interest rates in an attempt to control the robust inflation in 2022 and beyond. The upper target of the Federal Funds rates has increased from 0.25% at the end of 2021 to 5.25% through July 2023.

Many economic experts considered a recession in 2023 more than a 50% probability starting the year. For the first half of 2023, however, the progress of the current economic recovery from the recession created by COVID-19 continues and has generally performed better than expected. Recent positive economic news includes:

- The US economy grew 2.4% in the second quarter of 2023 after a 2.0% growth in the first quarter.
- While inflation remains above a 2% target, consumer prices continue to decline on a year-over-year basis for the twelfth consecutive month, reflecting a 3.1% annual increase over the peak of June 2022.
- Strong employment growth has pushed unemployment to pre-COVID levels by the middle of 2022 and remains at 3.6% in 2023 (June).
- Total payroll employment continues to exhibit strong growth, adding more than 306,000 jobs in May and 209,000 in June 2023.
- While labor participation still has room to recover, the point is that the vast majority of people looking to work are working.
- Levels of consumer spending are expected to stay afloat from significant households' savings created in 2020 and 2021. Real (inflation adjusted) retail and food service sales were above the prior year despite higher costs.

But there are still a few headwinds as the economy continues to grow in 2023 and moves into 2024. Regardless of positive news or the ability to find some level of positive outcomes from negative economic news, U.S. consumers remain relatively pessimistic compared with prior economy recoveries. Consumer confidence by the middle of 2022 was off 50% from the start of the recovery despite two years of consecutive growth, adding nearly 23,000,000 payroll jobs (800,000 monthly average), and having more household savings than ever before. Today (June 2023), consumer confidence remains 33% lower than its peak in February 2020. In addition, housing demand slowed significantly in 2022 from rising interest rates, finishing the year more than 3% down from 2021. Starting in 2022, national single-family housing starts declined twelve months in a row, down nearly 25% from the prior year in April 2023 before posting a slight gain in June 2023. Housing prices and the expectation that interest rates will remain at current levels would be expected to keep housing off by nearly 7% in 2023. Finally, the U.S. debt burden is expected to reach nearly $33 trillion by the end of 2023.

A pending U.S. economic recession in 2023 or 2024 is now likely a 30% probability. The sharp increase in interest rates will continue to provide the necessary adjustments to slow aggregate demand and bring inflation under control in 2023. Even with the improvement in year-over-year prices at the end of 2022 and into the first half of 2023, inflation is too high, and the Federal Reserve is expected to stay on course with interest rate increases until it is sustainably back to a 2% target. We have clear experiences from the 1970's and 1980's that indicate if the pressure to reduce inflation is removed too soon, the problem will come back stronger.

Real gross domestic product growth slowed to 2.1% in 2022. Under the best-case scenario, a relatively short economic recession at the end of 2023 or in 2024, followed by recovery at the end 2024 is expected to slow gross domestic product for the year to 1.5%. However, the job market has shown no sign of slowing at the beginning of 2023 with nearly 1,700,000 payroll jobs added in the first six months 2023 (278,000 monthly average), so it's likely that expectations for an economic recession are pushed further out. Again, despite most of the positive signs heading into the second half of 2023, the concern is how consumers feel today – the

opposite of irrational exuberance. Job growth aside, plenty of jobs for those who want to work, and more savings than most have ever had – but consumers aren't very positive about the future. The relatively smooth 2022 mid-term elections did appear to contribute to some measurable gain in how consumers feel, with confidence gaining nearly 10 points from the 50-point low in the middle of 2022. However, it is not likely consumers will regain post-pandemic confidence until inflation is back to "normal" in the 2% range and the Federal Reserve lowers interest rates.

Table 3-1 provides estimated economic performance in 2022, an estimate for 2023, and projection for 2024.

Table 10-1: U.S. Economic Outlook

GDP Component	Actual 2020	Actual 2021	Estimate 2022	Forecast 2023
Gross Domestic Product ($, bil)	23,315.1	25,462.7	27,016.2	28,421.0
Chain-weighted Price Deflator (2012=100)	118.9	127.2	132.6	136.8
Real Gross Domestic Product ($, bil)	19,609.8	20,014.1	20,371.7	20,779.0
Real Gross Domestic Product (% chg)	5.9	2.1	1.8	2.0
Real Disposable Personal Income ($, bil)	16,129.7	15,126.9	15,635.2	16,275.0
Ratio; DPI to GDP (%)	82.3	75.6	76.7	78.3
Real Disposable Personal Income (% chg)	1.9	(6.2)	3.4	4.1
Real Consumer Spending (% chg)	8.3	2.7	2.2	2.8
Retail Sales (% chg)	16.9	8.9	1.8	4.0
Federal Surplus/(Deficit) Share of GDP (%)	(11.1)	(5.6)	(7.5)	(5.3)
Total Debt ($, bil)	28,677.0	30,829.5	32,052.4	33,552.4
Total Debt Share of GDP (%)	123.0	121.1	118.6	118.1
Consumer Price Index (%, chg)	4.7	8.0	3.9	3.2
Wage and Salary Employment Cost Index (%, chg)	4.0	5.3	4.3	3.9
Average Monthly Employment Change (thousands)	606	399	210	400
Unemployment rate (%)	5.4	3.6	3.7	3.8
Employment-to-Population (%)	58.4	60.0	60.3	60.0
Housing Starts, Privately-owned (thousands)	1,606	1,551	1,446	1,450
30-Year Fixed Mortgage Interest Rate (%)	2.96	5.34	6.71	5.65
Federal Funds Effective Rate (%)	0.08	1.68	4.77	4.56
Federal Funds Upper Limit (%, year-end)	0.25	4.50	4.97	4.75
10-year Treasury Note Yield (%)	1.45	2.95	3.85	4.50

Source: U.S. Federal Reserve; Raftelis; Data updated as of August 2023

10.1.1. Registered Municipal Advisor Disclosure

Raftelis is a Registered Municipal Advisor within the meaning as defined in Section 15B (e) of the Securities Exchange Act of 1934 and the rules and regulations promulgated thereunder (Municipal Advisor Rule). However, except in circumstances where Raftelis expressly agrees otherwise in writing, Raftelis is not acting as a Municipal Advisor, and the opinions or views contained herein are not intended to be, and do not constitute "advice" within the meaning of the Municipal Advisor Rule.

10.2. Waste Collection and Disposal Market Overview

The Waste Collection (NAICS 5621) and Waste Treatment and Disposal (NACIS 5622) industries are part of Waste Management and Remediation Services (NAICS 562)[79]. The Waste Collection industry includes operators that collect household waste, and industrial and commercial waste[80], hazardous waste[81], and recyclable materials. Activities in this industry also include owning or operating transfer stations in which waste is consolidated from local collections for transport over a longer distance to disposal facilities. The Waste Treatment and Disposal industry includes operators that own and/or operate waste treatment or disposal facilities, including waste combustors (waste-to-energy plants), solid waste landfills, and compost dumps.

A significant number of companies participating in Waste Treatment and Disposal, particularly the largest operators, also provide waste collection and hauling services. It is generally preferable for collection operations to use disposal facilities owned or managed by the same operator. This industry practice is referred to as "internalization" as opposed to using third-party disposal facilities. Internalization within the industry generally allows operators to generate higher consolidated margins and stronger operating cash flows. However, the significant capital and regulatory requirements for developing and operating a landfill serve as a barrier to landfill ownership and it is common for smaller third-party haulers to dispose of waste at the most economical landfill available, including government-owned facilities.

Table 3-2 provides a summary of the major Waste Management and Remediation companies based in the United States.

Table 10-2: Major US Waste Management and Remediation Companies

	Waste Management	Republic Services	Waste Connections	Casella Waste Systems
Market Capitalization (mils) (1)	$71,969	$48,567	$36,881	$4,682
Number of employees	49,500	40,000	22,109	3,200
Active Landfills (2)	259	206	100	9
Transfer Stations	337	233	157	65
Recycling Facilities	97	71	79	9
Collections share of revenues (3)	64%	70%	76%	60%
Landfills share of revenues	19%	17%	16%	9%

Source: U.S. Bureau of Labor Statistics ("BLS"), Securities and Exchange Commission ("SEC"); Notes: (1) 6/30/2023. (2) Does not include closed landfills or landfills actively being closed. (3) Includes transfer stations fees and excludes intercompany deduction of revenue.

Both Waste Collection and Waste Treatment and Disposal services primarily depend on the volume of waste produced and will continue to be driven by population growth, increases in consumer spending, increase in business establishments, and manufacturing output. Segmentation within the Waste Collection industry

[79] Does not include operations or government-owned facilities providing similar services.
[80] Municipal Solid Waste ("MSW") – waste generated by households, businesses and institutions, excluding industrial and construction waste.
[81] Hazardous Waste – waste that poses substantial or potential threats to public health or the environment.

includes non-residential waste (51%), residential waste (31%), transfer, collection, and storage facilities (16%), and hazardous waste and other services (2%). Within the Waste Treatment and Disposal, industry segments include solid waste landfills (41%), hazardous waste landfill and disposal (40%), waste-to-energy facilities (14%), and other services (4%).

Barriers to entry in the Waste Management and Remediation Services industry are high, and trends are increasing.

Table 10-3: Industry Barriers to Entry

Barriers	Waste Collection	Waste Disposal
Legal and Regulatory	State and local regulations generally attempt to minimize recyclable or organic waste in landfills. This increases collection and transfer costs from utilizing less optimal disposal sites.	Regulation significantly increases the cost of permitting, developing, and operating new landfill sites. Regulations vary by location and are generally increasing in strictness.
Initial Costs	Initial investment in collection vehicles, containers, and transfer stations to start services.	Existing disposal facilities are expensive to purchase while new disposal facilities are expensive to permit, develop, and construct.
Differentiation	Franchised collection contracts tend to be exclusive, and there is a trend for larger companies to vertically integrate their services, offering a full range of services in collection, recycling, transfer and disposal.	Existing disposal contracts and increasing waste disposal internalization by larger, vertically integrated industry operators can make it difficult for new operators to enter the industry.
Capital and Labor	Capital costs remain central in waste collection, but wage costs are also relatively high given high employee requirements for operations.	Significant labor requiring a range of skill levels are required for operations, with total wages accounting for 20% of overall industry revenue.

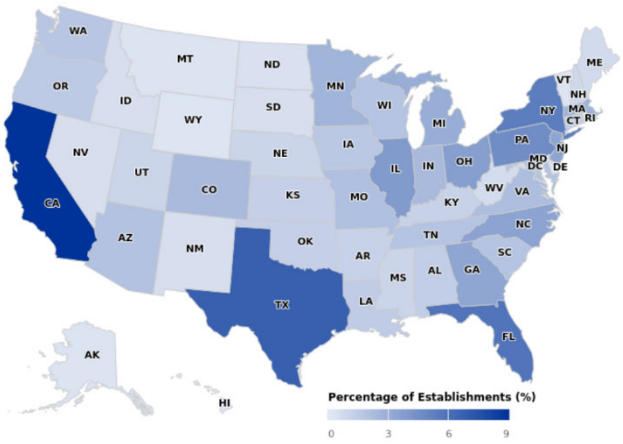
Source: IBIS

While the barriers to entry are high, competition in both collection and disposal is significant and includes private companies, governmental operations, and quasi-governmental operations. Waste Treatment and Disposal service providers compete mainly on the basis of price, geographic location, quality and range of services offered. Competition in Waste Collection is primarily focused on consolidation of smaller regional and local providers and privatization of governmental operations. Many smaller companies specialize in certain discrete areas of waste management to include 1) operators of alternative disposal facilities, 2) companies that use parts of the waste stream for renewable energy and other by-products, and 3) waste brokers that rely on local market haulers to address specific customer needs. Waste Collection and Disposal operators benefit from economies of scope and scale. Many of the larger waste management companies are moving to increase their level of vertical integration, providing them with greater efficiencies and scalability. While there is a significant concentration of major private companies that provide consolidated Waste Collection and Waste Treatment and Disposal, the overall industries are fragmented when considering counites, municipalities, and smaller specialized companies.

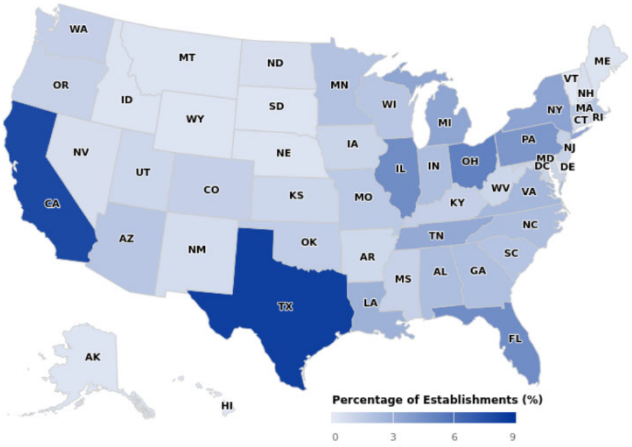
Because Waste Collection and Waste Treatment and Disposal services primarily depend on the volume of waste produced, driven by population growth and consumer spending, industry establishments are concentrated in states with the largest populations (see Figure 3-1).

Figure 10-1: Concentration of Waste Collection and Disposal

Waste Collection



Waste Disposal



Source: IBIS

As the most populous state, California ranks highest in Waste Collection revenue, establishments, and employment. The concentration of Waste Disposal establishments are highest in California and Texas (see Table 3-4).

Table 10-4: 2022 California Industry Size

	Waste Collection	Waste Disposal
Establishments	1,158	234
Annual Est. Growth	2.9%	1.9%
Revenues	$11.1 Bil	$1.6 Bil
Annual Revenue Growth	3.5%	2.1%
Employment	32,711	5,083
Annual Emp. Growth	2.2%	1.6%
Wages and Salaries	$2.7 Bil	$0.4 Bil
Annual Wage Growth	5.4%	3.4%

Source: IBIS

Companies engaged in Waste Management are generally focused on the following key factors driving market penetration, competitive advantages, and long-term profit stability:

- Compliance with Federal and State regulations – Significant industry regulation at federal, state, and municipal levels requires expertise and technical competency to comply with existing and future regulatory requirements.
- Vertical integration and extensive collection and disposal networks – Efficient routing of waste collection reduces costs, particularly in areas with high population density. In addition, operators that combine collection services with disposal capacity can channel waste to their own treatment and disposal facilities.

- Operating cost efficiency – Fuel, disposal, and regulatory compliance costs are increasing significantly, requiring collection and disposal operators to effectively manage costs to maintain profitability. In addition, companies that incorporate technology to create energy from waste will have a competitive advantage with current favorable renewable energy regulations.
- Long-term collection and disposal contracts – Negotiating long-term collection agreements, including exclusive municipal franchise agreements, reduces the risks associated with underused equipment and personnel. The ability to maintain existing public or private clients is essential for ensuring income stability and provides consistent waste volumes and lower transport costs.

The outlook for Waste Management is positive with growth in demand for collection and disposal expected to steadily increase industry revenue and profit. Generally, the Waste Management industry will be as stable as the broader economy, with waste production growing directly with economic activity. Near-term growth in consumer spending and industrial production will drive growing demand for industry services as the economy continues to expand from the most recent recession. Overall industry growth and costs will balance each other with construction activity and business expansion boosting construction and nonresidential waste collection services and companies transition to more advanced equipment in efforts toward cost efficiency and sustainability. Where growth is unable to offset increasing costs, the industry is expected to increase prices for their services.

Recycling of certain waste will have a significant effect on the Waste Management industry's structure and performance. Growing social awareness of waste reduction and promises to reduce or eliminate waste could slow demand for disposal services if enough rhetoric translates to structural change. Waste Collection services, however, would see increased performance with continued investment in curbside recycling programs and drop-off programs. In addition, the increased efficiency of the recycling processing system will help offset increasing operating costs from relocating landfill and transfer stations farther from populated areas and implementing sustainable technologies.

Finally, industry consolidation and significant competition will continue to increase. Market incentives for consolidation will continue in the near term as many of the key factors describe earlier benefit from economies of scope and scale. In addition, as the market continues to transition to green energy production, the waste-to-energy segment of Waste Management will see relatively more growth, particularly with the 2022 Inflation Reduction Act providing funding and tax incentives. Larger, more diversified companies will be better positioned to meet the capital, regulatory, and technology requirements for waste-to-energy systems. However, increases in the number of households and businesses establishments will expand the opportunities for existing and new companies engaged in traditional waste collection and disposal.

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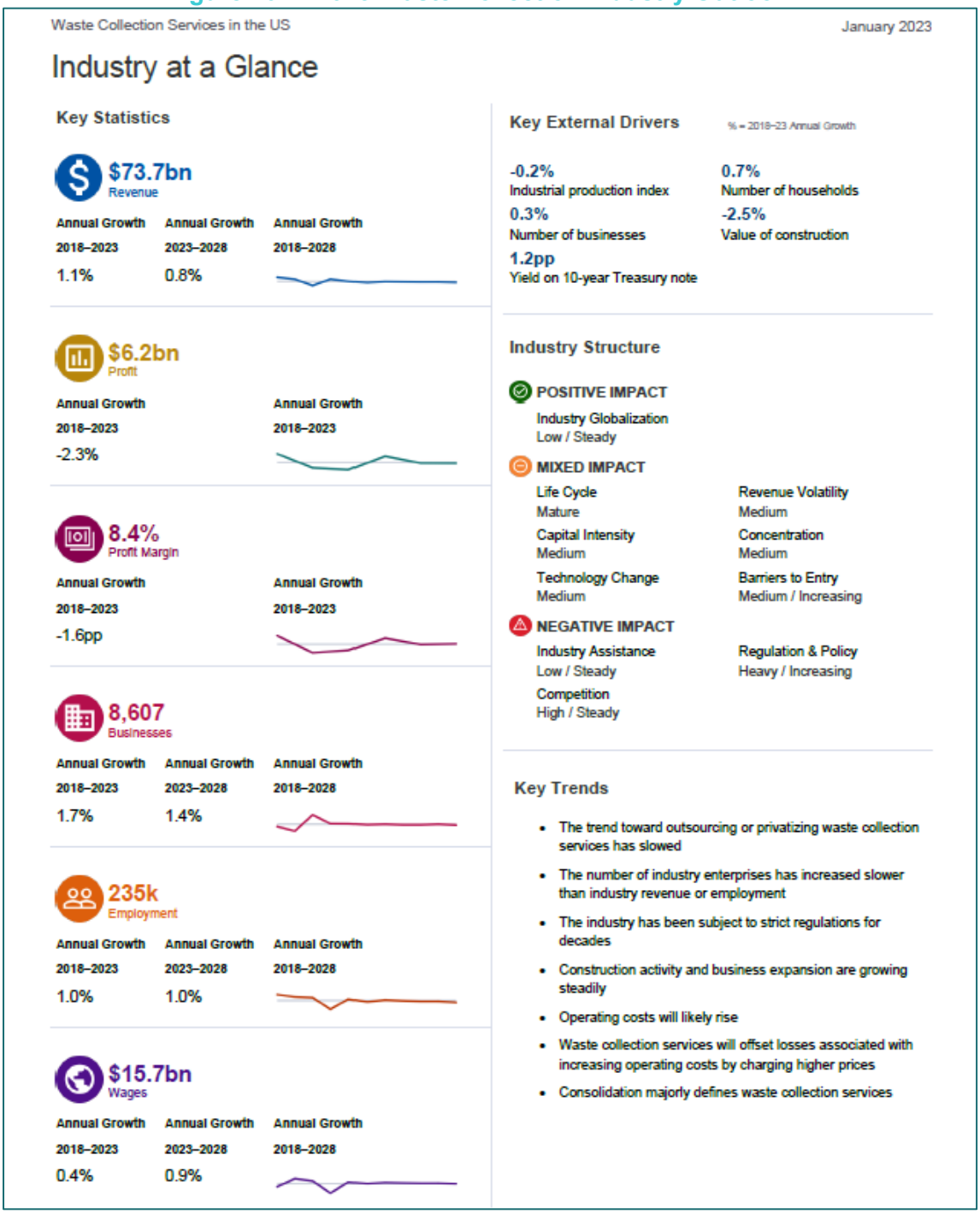
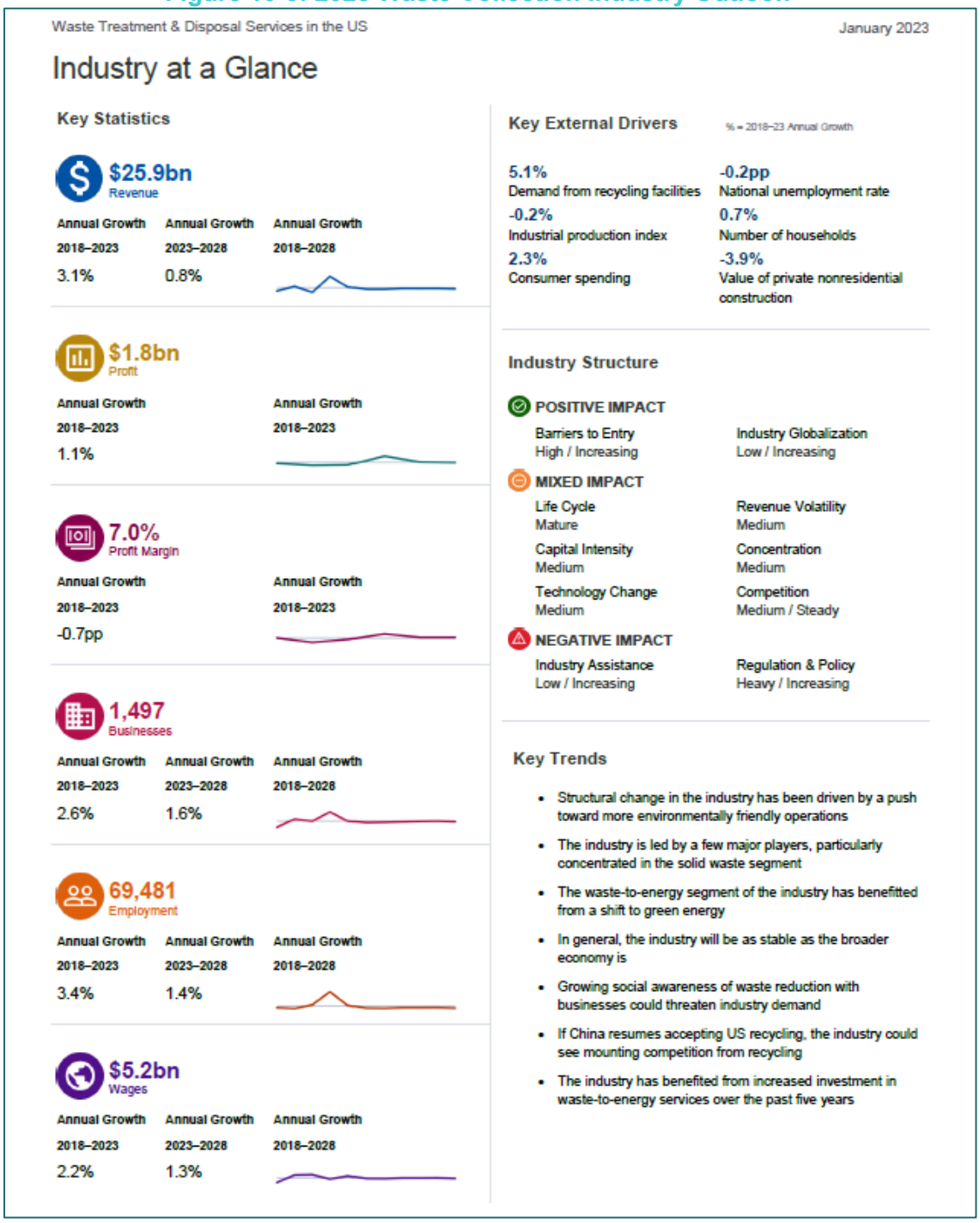
Figure 10-2: 2023 Waste Collection Industry Outlook [82]



[82] IBISWorld.com, January 2023

Figure 10-3: 2023 Waste Collection Industry Outlook [83]



[83] IBISWorld.com, January 2023

10.3. Regulation of Solid Waste in California

The Waste Management industry is subject to extensive and evolving federal, state and local environmental, health, safety, and transportation laws and regulations. These laws and regulations are administered primarily by the Environmental Protection Agency ("EPA) and various other federal, state, and local environmental, zoning, transportation, land use, and health and safety agencies. Many of these agencies regularly examine Waste Management operations to monitor compliance with laws and regulations and have the power to enforce compliance, obtain injunctions, or impose civil or criminal penalties in cases of violations.

Because the primary mission of the Waste Management industry is to collect, process, and manage solid waste and recyclables in an environmentally sound manner, a significant amount of industry expenditures are related, either directly or indirectly, to environmental protection measures, including compliance with federal, state, and local rules. Generally, there are costs associated with siting, design, permitting, construction, operations, monitoring, site maintenance, corrective actions, financial assurance, and facility closure and post-closure obligations. The acquisition, development or expansion of a waste management or disposal facility, materials recovery facility, compost facility, transfer station, or landfill gas-to-energy facility, requires considerable time, effort, and money to obtain or maintain required permits[84]. Compliance with current regulations and future requirements could require operators in the industry to incur significant ongoing capital and operating expenditures.

The regulatory environment in which the Waste Management industry operates is influenced by frequent changes in leadership at the federal, state, and local levels. While increasing regulation may have a negative impact on overall industry operating costs, extensive environmental regulation is also a barrier to rapid entry that benefits existing Waste Management companies. In addition, regulatory requirements are universal within the Waste Management industry and generally do not create an individual competitive advantage.

10.3.1. Federal Regulation

The primary U.S. federal statutes affecting Waste Management are summarized below:

- The Resource Conservation and Recovery Act of 1976 ("RCRA"), as amended, regulates handling, transporting, and disposing of hazardous and non-hazardous waste and delegates authority to states to develop programs to ensure the safe disposal of solid waste. Landfills are regulated under Subtitle D of RCRA, which sets forth minimum federal performance and design criteria for solid waste landfills, and Subtitle C of RCRA, which establishes a federal program to manage hazardous wastes from cradle to grave. These regulations are typically implemented by the states, although states can impose requirements that are more stringent than the federal standards.
- The Comprehensive Environmental Response, Compensation and Liability Act of 1980 ("CERCLA"), as amended, provides for federal authority to respond directly to releases or threatened releases of hazardous substances into the environment that have created actual or potential environmental hazards. CERCLA's primary means for addressing such releases is to impose strict liability for cleanup of disposal sites upon current and former site owners and operators, generators of the hazardous substances at the site and transporters who selected the disposal site and transported

[84] Generally, Waste Management permits are subject to continual renewal, modification, suspension or revocation by the issuing authority.

substances thereto. Liability under CERCLA is not dependent on the intentional release of hazardous substances; it can be based upon the release or threatened release of hazardous substances, even resulting from lawful, unintentional and attentive action, as the term is defined by CERCLA and other applicable statutes and regulations. The EPA may issue orders requiring responsible parties to perform response actions at sites, or the EPA may seek recovery of funds expended or to be expended in the future at sites. Liability may include contribution for cleanup costs incurred by a defendant in a CERCLA civil action or by an entity that has previously resolved its liability to federal or state regulators in an administrative or judicially-approved settlement. Liability under CERCLA could also include obligations to a potentially responsible party ("PRP") that voluntarily expends site clean-up costs. Further, liability for damage to publicly-owned natural resources may also be imposed.

- The Federal Water Pollution Control Act of 1972[85] ("FWPCA"), as amended, regulates the discharge of pollutants into streams, rivers, groundwater, or other surface waters from a variety of sources, including solid and hazardous waste disposal sites. If Waste Management operations discharge any pollutants into federally protected surface waters, the Clean Water Act requires operators to apply for and obtain discharge permits, conduct sampling and monitoring, and, under certain circumstances, reduce the quantity of pollutants in those discharges. The EPA also requires landfills and other waste-handling facilities to obtain storm water discharge permits, and if a landfill or other facility discharges wastewater through a sewage system to a publicly-owned treatment works, the facility must comply with discharge limits imposed by the treatment works. Further, before the development or expansion of a landfill can alter or affect certain "wetlands," a permit may have to be obtained providing for mitigation or replacement wetlands. The Clean Water Act provides for civil, criminal and administrative penalties for violations of its provisions.
- The Clean Air Act of 1970, as amended, provides for federal, state, and local regulation of the emission of air pollutants. Most MSW landfills and landfill gas-to-energy facilities are subject to regulations implemented under the Clean Air Act, including new source performance standards, emission guidelines, and national emission standards for hazardous air pollutants. These regulations impose performance standards to minimize air emissions from regulated MSW landfills, subject those landfills to certain operating permit requirements under Title V of the Clean Air Act and, in many instances, require installation of landfill gas collection and control systems to control emissions or to treat and utilize landfill gas on- or off-site.
- The Occupational Safety and Health Act of 1970 ("OSHA"), as amended, establishes certain employer responsibilities, including maintenance of a workplace free of recognized hazards likely to cause death or serious injury, compliance with standards promulgated by the Occupational Safety and Health Administration, and various reporting and record keeping obligations as well as disclosure and procedural requirements. Various standards for notices of hazards, safety in excavation and demolition work and the handling of asbestos, may apply to Waste Management operations. The Department of Transportation and the Occupational Safety and Health Administration, along with other federal agencies, have jurisdiction over certain aspects of hazardous materials and hazardous waste, including safety, movement and disposal. Various state and local agencies with jurisdiction over disposal of hazardous waste may seek to regulate movement of hazardous materials in areas not otherwise preempted by federal law.

[85] Also known as Clean Water Act.

10.3.2. State Regulation

The primary California statutes affecting Waste Management are summarized below:

- Title 27, Environmental Protection–Division 2, Solid Waste ("Title 27 CCR"), as amended, regulates California landfills, with laws and regulations enforced through various environmental entities including the California Environmental Protection Agency ("CalEPA"), Air Resources Board ("ARB"), CalRecycle, Department of Pesticide Regulation ("DPR"), Department of Toxic Substances Control ("DTSC"), Office of Environmental Health Hazard Assessment ("OEHHA"), and the State Water Resources Control Board ("SWRCB"). Landfill facilities may fall under the authority of state and local regulatory agencies including the Regional Water Quality Control Boards ("Regional Boards"), Department of Toxic Substances Control ("DTSC"), and local enforcement agencies ("LEA").
- Waste types listed for each facility are wastes a facility is permitted to accept for disposal in accordance with their Regional Board-issued Waste Discharge Requirements (WDR). Solid Waste Facility Permits issued by an LEA and CalRecycle also identify waste types a facility is authorized to accept for disposal[86]. A potential disposal site operator must complete a Report of Disposal Site Information which outlines proposed waste classification and management in order to obtain a solid waste facility permit[87]. While a facility may be permitted for a list of certain types of accepted wastes, they may choose not to accept certain waste types and are not obligated to do so.
- Effective January 1, 2022, state legislature passed the Senate Bill 1383 which resulted in changes to various state Codes of Regulations, with the main one being changes to Title 27 CCR, Division 2, Chapter 3 outlining the requirements of new or expanding landfills to implement organize waste recovery activities, and existing landfills to submit, no later than January 1. 2023, an Organized Disposal Reduction Status Impact Report to CalRecycle. This was a result of an earlier initiative to tackle methane emissions in California by targeting short-lived climate pollutants and reducing organic waste disposal by 75% by 2025 and rescue for people to eat at least 20% of currently disposed surplus food by 2025.

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[86] California Water Boards, State Water Resources Control Board.
[87] Title 27 CCR § 21600 and § 21590

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11. Valuation of the Subject Asset

11.1. Methods Considered and Selected

An Opinion of Value for the Subject Asset was determined considering industry standard approaches and methods of valuation covering the following subjects: 1) Cost Approach (net assets), 2) Income Approach, and 3) Market Approach. These approaches analyze various aspects of the Subject Asset, including the physical conditions of the existing assets, the potential cash flows or income anticipated to be generated by the Subject Asset in the future, and financials or transactions related to the prices for the acquisition of similar assets or equity in the same. None of these methods may be considered ideal on a standalone basis since each evaluates a particular facet of the Subject Asset. The consideration of all three approaches provides valuable input when considering other factors and the use of judgment and opinion in indicating a value of the Subject Interest. The context and applicability of each method was considered in the reconciliation of a Conclusion of Value provided in Section 5.0.

11.2. Cost Approach

The methodology selected for use in the cost approach for valuation of the Subject Asset was both a reproduction and replacement cost new less depreciation ("RCNLD"). These methods are commonly utilized in the determination of value of similar special purpose property and have been accepted methods involving the acquisition of similar assets throughout the U.S. This approach and these methods are based on an appraisal theory of substitution and the prevailing market concept that an investor or hypothetical buyer may not consider paying more for an interest in assets than the cost to replace the same assets or system components with the same characteristics.

The reproduction cost was derived from a detailed listing of asset details provided by the County and applying common cost escalators to the original cost basis of assets based on specific characteristics of assets (e.g., type, function, capacity). The replacement cost was derived by applying unit costs for the development of landfills with similar characteristics as the Subject Asset. These unit costs were obtained from final bid tabulation sheets for the development of landfills. This cost approach does not include the consideration of any future capital cost requirements after the Valuation Date.

11.2.1. Replacement versus Reproduction Costs

There is a difference between the reproduction cost and the replacement cost of assets. The reproduction cost is a duplication of exactly the same facilities in the same manner as originally installed and is derived by escalating project costs from original installation values. In contrast, the replacement cost is the provision of facilities that would be available today with their improved efficiencies and costs of commercially available materials and equipment. In addition, the installation of assets is assumed to be completed as one single project and obtaining the economy of scale of a larger project versus the incremental addition of assets from multiple smaller projects. The replacement cost method assumes that the most economical sequence of construction is utilized. This means that the cost of restoration, impacts of conflicts, etc. are not included. In addition, only one (1) start up and shut down cost is included. Similarly, any premiums or overtime costs or special procurement or special mobilization or demobilization costs are not included other than for the single

large economic construction project. Thus, the replacement cost approach generally excludes excess capital which an investor might not consider paying for in the existing facilities.

11.2.2. Costs Index

Multiple cost indexes were considered for the escalation of costs from original installation. CalRecycle produces an annual inflation index for landfill construction costs and the reporting of landfill closure liability[88]. The CalRecycle Report calculates the inflationary increase in the closure, post-closure maintenance, and/or corrective action cost estimates for the previous calendar year. In addition, Engineering News record ("ENR") and the Bureau of Labor Statistics ("BLS") produce annual cost indices for general construction and producing waste management services and equipment (see Table 4-1).

Table 11-1: Annual CAGR Cost Index by Age

	1-year	5-year	10-year	15-year	20-year	25-year
ENR Construction Cost Index	2.6%	3.9%	3.4%	3.1%	3.5%	3.3%
Cal Recycle Landfill Costs	7.0%	3.2%	2.3%	2.1%	2.2%	2.1%
PPI – Waste Management Services	12.5%	6.6%	4.6%	3.8%	3.4%	3.4%
PPI – Equipment	5.2%	4.7%	2.8%	2/1%	1.9%	1.5%

Source: CalRecycle; BLS, ENR

The County provided a detailed list of assets with original cost and installation dates. The Reproduction Cost method applied the appropriate cost index multiple by age of asset to derive a Reproduction Cost New ("RCN") for each asset listed (see Appendix X).

11.2.3. Recommended Depreciation

There are three (3) components to the overall depreciation considered in the Cost Approach, whether utilizing a replacement or reproduction cost method. The first component of depreciation, and the first to be applied, is the physical depreciation of each asset line item using each asset's date of installation and an average expected lifecycle in years. Depreciation has been taken on a straight-line basis using average service lives ("ASL") for structures, equipment, and vehicles (see Table 4-2).

Table 11-2: Average Service Life

Category	ASL (Years)
Structures and Buildings	40 to 50
Electrical Equipment	15 to 25
Vehicles and Equipment	5 to 25

Source: General Industry Standards derived from prior Valuation/Appraisal analyses and engineering reports

[88] Title 27, California Code of Regulations (27 CCR), Division 2, Subdivision 1, Chapter 6, Subchapter 3, Article 1, Section 22236

Depreciation for all other landfill improvements (e.g., site improvements, liners, gas recovery, hazardous waste facility) has been taken based on the remaining permitted capacity of the Subject Asset. The Subject Asset is expected to have a remaining permitted capacity of 57% at the end of 2023. Generally, the straight-line depreciation of structures, buildings, and equipment exceeds the current 43% of landfill capacity used through 2023.

Depreciated using ASL values in any Cost Approach reflects expected physical depreciation on an "average" basis, meaning components are likely to be required to be replaced earlier or later than the exact value of an ASL. For the purpose of estimating the probable remaining value considering physical depreciation, however, an approach assuming components are required to be replaced on average at the same time would result in the same value if each component's actual future date of failure is known. Therefore, the fact that some components will remain used and useful after its ASL would be balanced with components of the same asset class that need to be replaced earlier. These ASLs can be derived from prior work experience in valuation, facility design and construction, and cost of service rate analyses. This type of information can be assembled through public and private clients over many years and generally represents a proprietary source of information available to an appraiser. Based on my education, training, and experience, ASL values used in the study are reasonable.

The second consideration is the possibility of functional obsolescence or functional depreciation of the existing assets. Functional obsolescence is associated with the facilities themselves and is inherent to the Subject Asset, being derived from construction, configuration, operation, management, and administration inefficiencies that are not reflected in physical depreciation. For example, a poor or inefficient system design or construction that has been newly installed would have minimal physical depreciation but could have substantive functional depreciation. These functional inefficiencies are not intentional and are generally recognized after years of operating the system. Functional obsolescence can be considered as a whole or specific to one or more aspects of the Subject Asset.

The final component is external obsolescence or economic depreciation. External obsolescence accrues from all external factors impacting the Subject Asset and includes the impact of federal, state, and local regulation, customer acceptance of financial requirements, historical rates and charges, the ability to generate excess revenues sufficient to support the physical asset value or improvements to physical assets, market conditions, development conditions, and many other factors external to the Subject Asset itself. Economic depreciation is generally considered for the Subject Asset as a whole and likely reflects the impacts considered in the principle of contribution. In appraisal practice, the principle of contribution states that an asset's specific value is no more than what it contributes total value, not what the asset costs to acquire or construct.

11.2.4. Site Work and Indirect Cost Components

Site work, generally including grading, site access, mobilization, demobilization and other overhead costs are inherently included in the original cost basis with the reproduction method and are assumed to generally reflect approximately 16% to 22%[89] of direct asset costs. Indirect cost components were included as line items in the final bid tabulation sheets for the replacement cost method. These indirect cost components would be

[89] Indirect costs from our research of final bid tabulations as found to range from 16% to 22%.

expected to include legal costs; insurance costs and other related items; licenses, permits, and fees; technical services; financing; and overhead costs.

11.2.5. Adjusted (Reproduction) Net Assets

Cost indices for landfill development and construction provided by ENR were applied to specific line items of the Original Cost New ("OCN") of the Subject Asset. Table 4-3 provides a summary of the resulting current reproduction costs described in Section 2 (see Appendix F).

Table 11-3: Net Assets (Reproduction Cost) Method

Cost by Component	RCN	DEPR	RCNLD
Liner/Landfill Development	$29,957,789	$12,865,407	$17,092,382
Structures	2,346,655	1,219,159	1,127,496
Landfill Gas Recovery	2,029,948	871,763	1,158,185
Hazardous Waste Facility	1,151,213	494,390	656,823
Liner Gas Probes	171,276	73,555	97,721
Equipment	184,509	120,989	63,520
Monitoring Wells	226,481	97,263	129,218
Total	$36,067,871	$15,742,525	$20,325,346

Sources: County, Raftelis

The estimated new reproduction cost value ("RCN") of the Subject Asset is $36,067,871 and rounds to $36,100,000. The total physical depreciation of these assets using remaining landfill capacity and average years-in-service for structures, buildings, and equipment and reasonable expected ASLs is $15,742,525 based on a Valuation Date of June 30, 2023, and rounds to $15,700,000. The remaining RCNLD is $20,325,346 and rounds to $20,30,000. Based on the new reproduction cost less depreciation ("RCNLD") analysis, total weighted average depreciation of the Subject Asset is estimated at 43.6%.

11.2.6. Adjusted (Replacement) Net Assets

Alternatively, values for Replacement Cost New ("RCN") of the Subject Asset were estimated using final bid tabulation sheets for new landfill projects in California, Oregon, and New Mexico. These bid sheets included a total of 19 separate bids for new landfill projects ranging from 5 to 28 acres (see Table 4-4). Each line item for bids was tabulated using a low, high, and average bid value to produce a range of new landfill costs. Based on the observed relationships between new construction costs and the footprint (acres) of each landfills' disposal site, these estimates were also imputed to estimate the replacement of a new 122-acre disposal site.

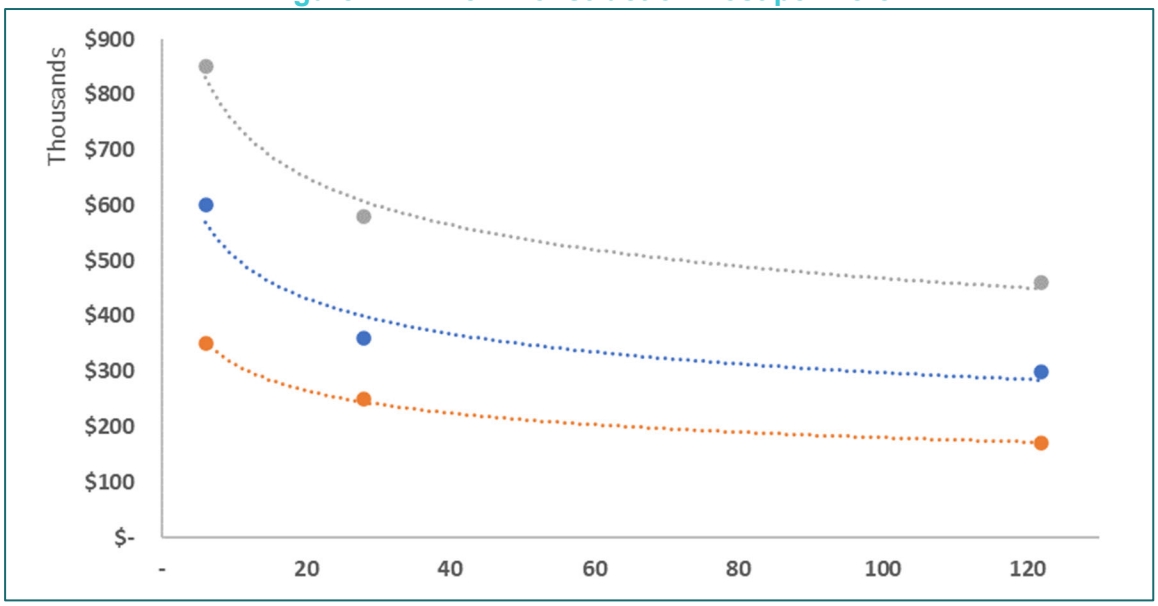
Table 11-4: New Construction Cost per Acre

Disposal Site	Low	Average	High
6-acre	$350,000	$600,000	**$850,000**
28-acre	$250,000	$360,000	**$580,000**
122-acre	$170,000	$300,000	**$460,000**

Sources: Raftelis; Notes: Composite costs from final bid tabulation sheets.

New landfill construction costs are dominated by the cost of excavation, fill, compaction, and liner costs[90] and exhibit an inverse relationship with the size of the disposal site footprint, illustrating non-linear economies of scale (se Figure 4-1).

Figure 11-1: New Construction Cost per Acre



Source: Raftelis; Notes: Composite costs from final bid tabulations.

Applying new construction costs for a landfill with a 122-acre disposal footprint results in an estimated RCN value between $20,800,000 (low) and $56,300,000 (high), reflecting an average RCN value of $36,700,000. The consistency of the reproduction and replacement cost methods was considered in indicating a cost value for the Subject Asset, resulting in the conclusion that a new reproduction cost of $36,100,000 (see Table 4-3) is appropriate.

11.2.7. Original Cost

Raftelis was provided with a detailed asset listing outlining the original purchase price of each asset. Based on this analysis, original costs of the Subject Asset are estimated at $21,416,963 with estimated accumulated depreciation totaling $8,678,458 or 40.5% of original costs, resulting in an original cost less depreciation or net book value ("OCLD") of $12,738,505, which rounds to $12,700,000.

[90] These costs accounted for 85% to 95% of total construction costs.

11.2.8. Land

A separate real property appraisal was not included in the scope of work. Any fee-simple interest in real property being utilized by the Subject Asset is assumed to be transferred and included as a component of the Subject Asset with respect to the income and market approach. In its current use, land has been added considering County Property Assessor market values. A $1,500,000 value for land was considered based on its use as part of the Subject Asset.

11.2.9. Consumables and Inventory

No allowance for consumables and inventory was included.

11.2.10. Vehicles, Tools, Equipment, and Miscellaneous Property

No additional tools or equipment, including chattel property, were identified to be included. Machinery, equipment, and vehicles have been included as other assets in the calculation of RCNLD.

11.2.11. Records

Drawings, reports, and other rights to documentation or information associated with the Subject Asset has been included. An allowance of two percent (1%) of the depreciated value for the Subject Asset is estimated for this Report and equates to $203,000.

11.2.12. Deficiencies and Deferred

The issue of deficiencies and deferred in the context of the business valuation of a utility system is relatively subjective. For example, a typical average service life of a structure ranges between 40-50 years. Assets that continue to be used long after their average service life is not an indication of "deferred" replacement or maintenance. There are many procedures and processes that can extend as well as reduce the useful life or an asset. The impact on value for the Subject Asset as a result of management practices of deferring typical maintenance or operating with observed and unobserved deficiencies should be considered as a whole. Based on information provided in the process of data collection and due diligence, no apparent issues or concerns with deficiencies or deferred maintenance have been identified. Capital additions for the period reviewed have generally been consistent with the depreciation of renewable assets and equipment. No deduction of the RCNLD was therefore included for a deficiencies and deferred allowance.

11.2.13. Functional Depreciation

Functional obsolescence or depreciation is associated with the specific facilities themselves and is inherent to the Subject Asset itself, being derived from certain construction, configuration, operation, management, and administration. Current issues that are assumed to not be corrected by planned or future capital expenditure requirements included in the Report or those that corrective measures are unknown, warrant consideration for a deduction for functional depreciation. Functional depreciation is not generally considered in the income or market approaches. To the degree that assets are inherently obsolete or not functioning as intended, those impacts would be reflected in those approaches. Based on information provided in the process of data collection and due diligence, no deduction of the RCNLD was included for a functional depreciation allowance.

11.2.14. External Depreciation

External (economic) obsolescence or depreciation accrues from all external factors impacting the Subject Asset. The impact of regulation, customer acceptance, historical rate and charge regulation or lack thereof, the ability to generate excess revenues sufficient to support the physical asset value or improvements to physical assets, market conditions, development conditions, and many other factors external to the Subject Asset itself. External depreciation is not generally considered in the income or market approaches. To the degree that external factors are, in fact, impacting the ability to generate income or are causing an increase in operating costs, those impacts would be reflected in those approaches. An informed, hypothetical buyer is assumed to maximize their economic advantage from a potential transaction and would consider certain external factors, such as those described above, as potential risks.

A common measure of potential economic depreciation can be reflected in the variance between current asset replacement or reproduction costs and indications of value from an income or market approach. Again, based on the appraisal principle of contribution, an individual asset's value is no more than its contribution to total value, not its cost to construct. Given the external constraints of competition, market prices, and regulation, an investor-owned hypothetical buyer may not expect to earn a reasonable return on equity ("ROE") considering cost values. The Subject Asset, as an integrate component of a waste management system, is expected to have some constraints relative to pricing. The current flow of solid waste includes volumes from outside of the County that would have alternative locations should the current relationship with transport costs and tipping fees is altered. The Subject Asset could increase tipping fees in the hands of a private owner in order to achieve a reasonable ROE, however, that could result in a loss of total revenue if the flow of solid waste were to decline. Therefore, an allowance for economic depreciation of fifteen percent (15%) was applied to total net RCNLD.

11.2.15. Going Concern

The value of a business property, including a utility system, is more than the mere cost to reproduce or replace less depreciation. Going concern value is an enhancement to the structure physical asset value because these assets are in use. Elements of going concern value include, but are not limited to, the time and cost of building the business, the establishment of services and customers, the exercise of managerial skill, the efficiency of the work force, and the records of the fully functioning, organized business.

Going concern value of comparable systems generally ranges from zero to twenty (0 to 20) percent of net assets. An alternative indication of going concern could be expressed as three (3) to six (6) months of net income, reflecting the time required to fully replace or reproduce the Subject Asset and begin operating as a going concern. For the purpose of this analysis, the amount of $2,500,000 (equal to roughly 17% of net assets and roughly equal to three (3) months hypothetical pre-tax net income[91] or ("EBIT") is applied to the Subject Asset for the estimated going concern value. The adjustment to reflect a going concern value as used in the cost approach is not exclusively an estimate of the intangible value of the Subject Asset.

11.2.16. Total RCNLD

The summary of the RCNLD with additions, deductions, and allowances is shown on Table 4-5.

[91] Includes an assumed reduction in fixed costs for economies of scale likely considered by a hypothetical buyer.

Table 11-5: Total Net Assets (Replacement Cost) Method

Replacement Costs by Component		
RCNLD (Table 4.2)		**$20,300,000**
Land[92]		**1,500,000**
Consumables and inventory		**Not included**
Tools and equipment		**No additional**
Records, Reports, Business Information, SOPs, O&M Manuals		**203,000**
Deficiencies and deferred		**-**
Functional depreciation		**-**
Subtotal		**$22,003,000**
External depreciation (15%)		**(3,300,450)**
Subtotal		**$18,702,550**
Going concern (15%)		**2,500,000**
Total Indication of Value	**Calculated**	$21,202,550
	Rounded	$21,200,000

Source: Raftelis

The value indicated by this method is on a "control" and "marketable" basis with respect to the Subject Asset. Discounts for a lack of control ("DLOC") and a lack of marketability ("DLOM") reflected in the Subject Interest of this valuation will be considered and applied in a later section.

11.3. Income Approach

The Income Approach is based on an appraisal principal of anticipation and the premise that the value of a property is the present value ("PV") of the anticipated future economic benefits of owning the property[93]. The underlying principle in this approach is that buyers invest in or acquire ownership in assets with the expectation of receiving anticipated future economic benefits. This approach is relevant when the property being valued generates or is anticipated to generate economic benefits in the form of net income, profits, or cash flows that benefit a future owner. It is assumed (hypothetical) that future ownership of the Subject Asset would include revenues generated from adopted rates and charges and provide economic benefits in the form of net income, profits, or cash flows.

[92] Includes the distribution substation parcel and a portion of property at the WWTP.
[93] Hitchner, James R. Financial Valuation: Applications and Models, 2011, 3rd Edition

11.3.1. Methods of Income Approach

The income approach measures a hypothetical buyer's risk against the potential earnings of an asset or system of assets, either tangible or intangible. Two methods are typically used to provide an indication of value including 1) net income capitalization and 2) discounting future cash flow. Both methods use a formula to calculate the present value of a business enterprise based on future cash flows or profits (i.e., economic benefits). An enterprise's total value (i.e., Enterprise Value) can be defined as the sum of total equity and total long-term debt[94].

Commonly accepted measures of economic benefit that can be capitalized or measured as cash flow over time include either cash flow to equity or cash flow to invested capital. Cash flows to invested capital represent the total after-tax cash flow (Net-operating Profit After Taxes or "NOPAT") generated by the enterprise and available to the owners of the subject's invested capital: stockholders (equity) and creditors (debt). This measure of economic benefit is defined as follows[95]:

> *Net cash flows or Economic Benefit = NOPAT + depreciation and amortization + changes in working capital additions - capital expenditures + long-term debt interest (net of taxes)*

In its simplest form, the capitalization method basically divides expected annual cash flow at the discretion of an owner as defined above by an appropriate capitalization rate (capitalization of cash flow or "CCF"). CCF provides a relatively non-complex method to use for valuing assets based on expected cash flow available to a hypothetical buyer. A comparatively lower capitalization rate would indicate less risk associated with an investment and a comparatively higher cap rate for a property might indicate more risk. A CCF approach to income valuation reflects an approach based on historical revenue and expense performance trends, adjusted to reflect expected future financial performance.

The discounting method works a bit differently than the capitalization method. First, the income stream as defined above is projected over some future period of time, usually measured in years. Next, the discount rate which reflects the risk of realizing this income over time is determined using generally accepted methods. In addition to the income over time, a calculation is made to estimate what the system will be worth at the end of the projection period. This end-of-period value is also known as a reversion value, or residual value, or terminal value. The summation of these discounting calculations provides an indication of present value of what the owner interest in income is worth today (discounted cash flow or "DCF"). A DCF approach reflects a specific set of conditions and assumptions into the future.

Neither method is more accurate. In fact, if growth of the benefiting cash flow is constant, zero, or negligible, the results of a DCF or CCF approach would be identical. When short-term and long-term growth are measurably different or annual rates of growth are expected to oscillate significantly, a DCF is capable of reflecting different growth rates annually. A capitalization approach tends to be favored in a mature, low growth or low change environment. A DCF method tends to be more favored in a high growth or change environment.

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[94] Corporate Finance Institute

[95] American Society of Appraisers, BV202: Introduction to Business Valuation – Income approach, ©2014

11.3.2. Appropriate Discount Rate – CCF and DCF

Discount rates and capitalization rates are a reflection of the relative risk and uncertainty of receiving a stream of benefits in the future. The difference between the two rates is the capitalization rate equals the discount rate less the expected growth rate. Because the economic benefits typically being measured include those available to pay back equity and debt (i.e., capital), discount rates can be closely aligned with "cost of capital" concepts, but they are not synonymous. Cost of capital refers to the required rate of return necessary to attract sufficient equity or debt for a specific capital investment. A discount rate is a concept of risk that is used to reflect the value of future cash flows to determine if they are greater than the cost[96] of an investment in the present. Therefore, the cost of capital is the minimum rate required for investors and creditors, where the discount rate is a rate that meets or exceeds the cost of capital[97].

Risk and uncertainty associated with the amount, timing, or both, of cash flows of an asset or system of assets, either tangible or intangible, are key considerations when measuring FMV because a hypothetical buyer presumed to be reasonably risk-averse would demand an adjustment to value for bearing the uncertainty inherent in potential future cash flows. An indication of FMV should include a risk premium reflecting the amount that market participants would demand as compensation for the uncertainty inherent in the cash flows. In some cases, determining the appropriate risk premium might be difficult or rely on subjective judgement. However, the degree of difficulty or subjectivity are not sufficient reasons to exclude a risk premium.

An appropriate discount rate to be applied using the income approach was considered using both an industry standard approach of a weighted average cost of capital ("WACC") and an alternative risk assessment of the future earning potential of the System. Most importantly, because we are considering FMV of the Subject Asset from the perspective of a hypothetical buyer, it is not appropriate to use a specific WACC that is unique to a specific buyer.

11.3.3. WACC Consideration

The overall rate of return considering WACC is comprised of long-term debt and common equity capital and the corresponding cost rates for debt and equity. The combination of the capital structure ratio and the appropriate cost rates of long-term and common equity generates the overall rate of return. Based on my experience, education, and training, it is my opinion that a reasonable WACC in the hands of a hypothetical buyer would include an equal distribution of equity and debt (50% equity and 50% debt), but no more than 60% debt, resulting in 40% equity. Using a return to equity of 9.6% and a 4.4% rate for long-term debt[98] results in a range of discount rates between 6.48% to 7.00%.

11.3.4. Alternative Discount Rate Consideration

An alternative discount rate for the purpose of this Report is estimated using a build-up method and is represented by the sum of 1) a risk-free market rate of return, 2) a futures risk discounting the value of the US dollar, 3) an industry risk based on industry specific betas, and 4) a specific risk for the System itself. Table 4-6 provides a summary of the discount rate calculation.

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[96] Total cost, including overhead, profit, and contingency.

[97] Harvard Business Review: A Refresher on Cost of Capital, April 30, 2015

[98] Aaa Corporate Bond Yield (AAA), St. Louis Federal Reserve, June 2023

Table 11-6: Calculated Discount Rate

Factor	Rate	Notes:
Risk-free rate	3.66%	30-year Treasury constant maturity yield
Futures risk	-1.17%	Difference between 10-year and 3-month Treasury constant maturity
Industry risk	2.55%	Sum of Risk-free, futures, and specific risk multiplied by Beta of 1.02
Specific risk	1.50%	Risk specific to the Subject Asset considering multiple factors
Total	6.54%	

Source: U.S. Federal Reserve; NYU; Raftelis

A risk-free market rate of return is generally measured using long-term US Treasury yields on actively traded non-inflation-indexed issues adjusted to constant maturities. The yield on a 30-year Treasury constant maturity on June 30, 2023, was 3.66% and was used to reflect a risk-free market rate of return. Futures risk is reflected in the difference between long-term and short-term Treasury yields. The numerical difference in yields (constant maturity) between 10-year and 3-month Treasury issues was -1.17% on June 30, 2023. Industry risk is represented by the sum of risk-free market rate of return and futures risk multiplied by an industry specific Beta. A Beta value of less than 1.0 reflects low industry risk, and vice versa. As of January 2023, the Stern School of Business at New York University estimated Beta values for the Environmental & Waste Services industry is 1.02. Finally, specific risk is an adjustment that requires significant professional judgment to capture the risk associated with, but not limited to the following factors:

a) Future financial risk of the business enterprise;
b) Operational characteristics of the business enterprise;
c) Key management and employee risk;
d) Size premium or discount of the business enterprise; and
e) Market barriers (including regulation) or lack of service projection risk.

An individual business enterprises' risk profile is unique and could change over time. As of the Valuation Date, based on my experience, education, and training, a specific risk of 1.5% was used to reflect consideration of risk specific to the Subject Interest being valued.

11.3.5. Discount Rate Selected

There is recent upward pressure on discount rates as a result of recently rising market interest rates. The risk-free rate alone has increased by nearly 300-basis points since 2020. The theory of discounting and risk would suggest that the market is reflecting higher levels of future risk and therefore would require higher rates of return for the same investment. The negative value of futures risk (i.e., an inverted yield curve) also suggests a higher probability of recession in the near-term. While a reduction of a market discount rate on the same cash flow would increase capitalized value, the inverted yield curve actually implies that the market expects a future decline in economic activity. Therefore, investors would be expected to accept lower economic benefits (e.g., cash flow), holding all else constant.

This upward movement in market rates would be expected to reduce an enterprises' market value, holding all else constant. However, because firms can strategically change the mix of equity and debt, it would be reasonable for WACC rates to remain constant in the short-term as market interest rates continue to rise.

Therefore, considering both a WACC and a build-up of potential risks and uncertainty in future cash flow and based on my experience, education, and training, a discount rate of six and one-half percent (6.50%) was considered most appropriate using general and specific market risk assumptions. With a compound annual growth rate of 1.00% expected in demand at the Subject Asset, the capitalization rate is five and one-half percent (5.50%).

11.3.6. Subject Asset Expense and Net Income Trends

Based on annual reporting[99], gross margin for the County landfill operations has declined between 2018 and 2023, primarily as a result of operating costs increasing at a faster rate than revenues (see Table 4-7).

Table 11-7: Historical Landfill Revenues and Costs

Year	Revenues	Net Operating	Closure	Gross Margin
2018	$7,479,671	$4,775,725	$391,863	31%
2019	7,150,611	5,567,620	345,618	17%
2020	8,376,667	6,899,878	233,063	15%
2021	8,876,661	6,959,071	190,116	19%
2022	8,896,301	7,348,964	228,061	15%
2023	8,940,000	7,462,190	405,336	12%
CAGR	3.6%	9.3%	0.7%	-

Source: County Annual Financial Statements

However, consistent positive gross margin from landfill operations over the past six years represents a significant improvement compared with the ten-year period prior to 2018. Enterprise Funds are generally used to account for functions that are operated in a manner similar to private business enterprises (a.k.a Business-type Activity), where the intent is the total costs of providing goods or services on a continuing basis are funded or recovered primarily through user fees or charges[100]. It is more common for Enterprise Funds to be operated, at minimum, funding all of its operating requirements including capital, which has to start with positive gross margin. For the period prior to 2018, the landfill operations reported gross margin 7 out of 10 years. The landfill operations operated with significant deficits in 2010 and earlier. It appears that efforts to raise fees and charges for services were specifically targeting improving the financial performance of this Enterprise Fund.

11.3.7. Normalized Pro Forma

For purposes of this analysis, a CCF and DCF method were utilized to reflect the current value of future revenue. The development of the income approach for valuation analysis required certain assumptions and considerations with regard to financial, economic, and operational conditions that may occur in the future. Although such assumptions and considerations are applied based on current and historical data pertaining to the Subject Asset, to the extent that actual future conditions differ from those utilized herein, the results may vary from those in the analysis. The principal assumptions and considerations utilized to normalize net income in the income approach are summarized as follows:

[99] County Annual Financial Reports
[100] California State Controller

a) The Subject Asset, if sold, would be expected to continue providing service to existing customers, with all current inherent efficiencies and inefficiencies.
b) A transfer of the Subject Asset would include current restricted cash balances for closure costs and the liability of post-closure costs.
c) A hypothetical buyer is assumed to be a financial buyer, not a strategic buyer. As a financial buyer, the Subject Asst is most likely a for-profit enterprise.
d) Current rates for fees and charges at the Subject Asset are below a market average. It is assumed that rates and charges to support the operation of the Subject Asset would increase to remain the same relative to achieving an expected return on equity if no operational efficiencies could be achieved.
e) It is assumed that a hypothetical buyer would consider potential economies of scale (hypothetical condition) resulting in a reduction in fixed operating costs through vertical integration or increased fees and charges (assumption c).
f) Future rate increases over time are expected to, at most, average equal to increases in operating and maintenance ("O&M") expenses; thereby generating constant net revenues (gross revenues less cost of goods sold).

Based on the hypothetical conditions of increased gross revenues and a reduction in fixed operating expenses, annual normalized net income (EBITDA) is $3,190,000, resulting in a net operating profit after taxes[101] ("NPOAT") of $1,360,000 (see Appendix F).

11.3.8. Cash Flow to Invested Capital

The Income Approach is based on the premise that value of a financial resource is equal to the present value of the future cash flow and future reversionary value of the same. A widely practiced approach in business valuation is to adjust NOPAT by adding back depreciation, amortization, interest, and deducting requirements for future capital expenditures and working capital. Depending on the desire to measure value to invested capital or value to equity, there are additional additions of interest payments for long-term debt and changes in debt principal, respectively. The resulting net cash flow represents a benefit stream available to an owner with a controlling interest (whether equity or debt depending on the value calculated) in the business enterprise and total enterprise value can be calculated using a capitalization rate which is equal to the discount rate less future growth in economic benefits. Table 4-8 provides a summary of normalized (hypothetical) annual financial performance of the Subject Asset.

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[101] Also referred to as net income. Based on a for-profit hypothetical buyer.

Table 11-8: Summary of Cash Flow to Invested Capital

Net Economic Benefits	Normalized Annual
Net Operating Profit after Taxes (NOPAT)	**$1,360,000**
Depreciation	937,000
Working Capital (1)	(10,000)
Capital Expenditures (2)	(252,000)
Interest expenses (net of taxes) (3)	265,000
Cash Flow to Invested Capital	$2,300,000

Source: Raftelis; Notes: (1) 12.5% of operating costs to serve System growth. (2) Average annual capital spending for remaining 28 years, not including final closure costs. (3) assumes 60% of FMV funded with debt at 5.7%.

For the purpose of this Report, operating income was normalized by adding and subtracting specific items. It is normal to add values for depreciation and amortization and deduct requirements for capital expenditures. Finally, long-term debt interest payments were added to reflect value of invested capital. These adjustments result in an expected annual net cash flow to invested capital of $2,300,000 to be capitalized for the purpose of determining enterprise value.

11.3.9. Capitalization of Cash Flow

Applying a 5.50% capitalization rate on normalized cash flow and making adjustments for the terminal value, post-closure liability, and reserved funds for final closure costs implies an enterprise value of $16,461,543 (see Table 4-12). No adjustment would be made for functional depreciation since net economic benefits (e.g., income) would be realized with all inherent efficiencies or inefficiencies, including those described in the allowance for functional depreciation in the Cost Approach. Capital expenditures used to adjust operating income are considered normal, neither extraordinarily low or high, and no additional adjustment for deficiencies and deferred maintenance would be considered.

The capitalization of income analysis therefore indicates a of value of the Subject Interest at $16,500,000, as provided on Table 4-9.

Table 11-9: CCF of Invested Capital

		Values
Normalized Cash Flow (1)		$2,300,000
Capitalization rate		5.50%
Capitalized Market Value		$41,818,182
CCF Adjustments:		
Terminal Value (2)		(9,000,000)
Post-closure costs (3)		(23,701,639)
Restricted closure fund (3)		7,345,000
Total Indication of Value	**Calculated**	**$16,461,543**
	Rounded to	$16,500,000

Source: Raftelis; Notes: (1) Includes hypothetical assumption of either fixed cost efficiency or revenue increases. (2) There is no terminal value of the Subject Asset after closure. (3) CY 2023 cost estimate and fund balance of restricted reserves.

The value indicated by this method is on a "control" and "marketable" basis with respect to the net cash flow available to an owner of the Subject Asset. DLOC and a lack of marketability DLOM reflected in the Subject Interest of this valuation will be considered and applied in a later section.

11.4. Comparative Company or Sales (Market Approach)

There are two methods for the Market Approach that are primarily used when indicating the enterprise value of a business to include, 1.) the Completed Transactions Method and 2.) the Guideline Public Company Method. Generally, these methods are used to value both intangible and tangible assets or total enterprise value of a business based on the pricing multiples observed for similar companies that were sold (merger or acquisition) or have shares of equity traded in a public stock exchange (e.g., NYSE, NASDAQ).

The Completed Transactions Method is similar to the Guideline Public Company Method with respect to selecting a set of comparable companies as a basis of indicating a value for the Subject Asset. However, this method evaluates observed purchase prices at a specific transaction date of recent acquisitions for the set of comparable companies or assets. Where the set of companies using the Public Company Method are publicly traded, the set of comparable companies for the Completed Transactions method can reflect both public and private companies.

The market for investment and merger and acquisitions (i.e., transactions) in Waste Management and Remediation can include a variety of circumstances that affect purchase prices. The type of ownership (e.g., municipal-owned, investor-owned) between buyer and seller, the life-cycle of assets[102], and industry segment (e.g., collection, processing, disposal) are major factors that can affect both financial performance and perceived market value. In appraisal practice, FMV is generally considered in the future and in the hands of the buyer, unless otherwise defined. Therefore, considering the economic motivation of the buyer in the future versus the seller in the past is an important part of applying either the Completed Transaction method or Public Company Guideline method. A for-profit buyer may have different expectations about future value, and therefore what they are willing to pay for that value, than a not-for-profit seller is currently performing or has performed in the past. The premise of the market method is that either observed equity prices or transaction prices in fact are a reflection of the buyer's perceived value in the future. However, when the likely buyer, for example, is a not-for-profit and a seller is a for-profit, applying the market method must carefully consider the different economic and individual self-interests that affect an indication of value.

The Guideline Public Company method evaluates the prices paid for publicly traded equities as the basis to determine the value of the Subject Asset. The financial data available from public sources has generally been audited by registered independent accountants and prepared according to Generally Accepted Accounting Principles ("GAAP"). As a result, the information is reliable, consistent, and independently verified. This is a

[102] All tangible assets generally have a fixed service life and value inversely declines over time. Landfills in particular are a "wasting asset" or "consumed asset" because they have a specific capacity and the complexity of regulation and capital investment as a barrier to entry in the industry makes this asset more difficult to simply replace. In addition, unlike other tangible assets that can be renewed or maintained to extend service life or frankly utilized (in-place and in-service) well beyond its depreciated life cycle, once a landfill (excluding physical expansion) is at its permitted capacity it is fully consumed.

significant advantage since the alternative (Completed Transactions Method) is not generally subject to the same transparency.

The basic principle of the Guideline Public Company Method is that the prices of an individual share of stock indicate the market value of the equity when applied to all outstanding shares. Credible application of this method relies on the assumption that the selection of public companies engaged in the same industry or utilize assets similar to the Subject Asset. Because the multiples are based on the market's expectation of value in the equity pricing of a set of comparable companies as of the valuation date, the multiples produced are therefore possibly indicative of the perceived FMV and risk associated with the Subject Asset. This limits adjustments to the multiple based on economic activity, industry outlook, or regulatory factors. The market is assumed to rationally respond to these factors and therefore these issues are factored into the equity pricing.

While the set of comparable companies used in the Guideline Public Company Method differ from the Subject Asset in their respective stages of development and size, they have comparable operational models and financial risks. Current performance from an equity value perspective also reflects the economic conditions of the industries in which the Subject Asset is operated. Thus, the comparative analysis to the Subject Asset is based on the performance and characteristics of the sample as a whole rather than on any individual guideline company selected. However, it is generally recognized that these publicly traded companies are significantly larger and possibly more diverse than the Subject Asset and a size adjustment should be considered and applied if warranted.

11.4.1. Guideline Public Company Method (Equity Traded)

Table 4-14 provides a list of publicly traded companies operating in the Waste Management and Remediation Services market (NAICS 562). While these companies operate larger and more diverse systems and businesses, it is reasonable to assume that multiples of certain characteristics of these systems and businesses would reflect comparable financial performance for a business or asset operating in the same market. Because the scale of these companies is not exactly comparable with the Subject Asset, a size adjustment should be considered when indicating value. With a size adjustment, it is reasonable to assume that the financial benefits for owners or investors from invested capital and debt are comparable when reduced to a multiple of revenues or sales, or assets, or earnings (i.e., EBITDA or EBIT).

The enterprise value as a multiple of total revenue, net book value, and profit is provided based on audited annual and quarterly reports through 12/31/2022, adjusted for the Valuation Date.

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Table 11-10: Guideline Public Company Method Enterprise Value Multiple

Company (Symbol)	Enterprise Value Multiple per…			
	Revenue	Net Book [2]	EBITDA	EBIT
Republic Services (RSG)	2.83x	1.49x	10.66x	17.13x
Waste Connections (WCN)	2.94x	1.36x	10.51x	16.92x
Waste Management (WM)	2.76x	2.10x	10.19x	16.49x
Casella Waste Systems (CWST)	1.94x	1.88x	9.10x	20.76x
GFL Environmental (GFL)	2.07x	0.78x	8.07x	18.40x
Adjusted Multiple	2.69x	1.51X	10.06X	16.99x

Source: SEC 10-K Reports and 10-Q Reports (9/30/2022); Notes: Enterprise value is defined as the sum of equity and long-term debt and is consistent with value of invested capital; (1) Weighted on revenue, net plant, EBITD, or EBIT, respectively. (2) OCLD of assets or Book Value

Using the Guideline Public Company analysis (average of multiple value) indicates a total enterprise value of the Subject Interest of $16,235,963 and rounds to $16,200,000 (see Table 4-11). Calculated values ranged between $13,000,000 and $21,000,000.

Table 11-11: Guideline Public Company Indication of Enterprise Value

System Metric	Subject Asset	Value Multiple	Implied Value
Gross Revenues [1]	$8,012,000	2.69x	$21,552,280
Net Plant (Book Value) [2]	$11,275,000	1.51x	$17,025,250
EBITDA [3]	$1,260,000	10.06x	$12,675,600
EBIT [3]	$656,000	20.87x	$13,690,720
Total Indicated Value		**Calculated[4]**	**$16,235,963**
		Rounded to	$16,200,000

Notes: (1) CY 2023, Fairmead Landfill only, does not include North Fork transfer station. (2) Estimate using FY 2021 year-end plus capital additions through 6/30/2023. (3) Excludes hypothetical assumption of reduced fixed costs. (4) Average, equally weighted.

While this method produces a significantly wide range of values, additional weighting or manipulation, in my opinion, would not generate a materially different indication of value than a simple average. Either weighting or eliminating the low and high values produces an average indication of value near $16,000,000. Therefore, in my opinion, the most appropriate indication of value from this method is the calculated $16,200,000 based on a simple average.

Because equity ownership in publicly traded companies reflects fractional ownership, the value indicated by this method is on a minority control, marketable basis with respect to the Subject Asset. DLOC and a lack of marketability DLOM reflected in the Subject Interest of this valuation will be considered and applied in a later section.

11.4.2. Completed Transaction Method

The market for Waste Management and Remediation Services is very competitive but highly fragmented between several large, multi-national companies and a significant number of local or regional suppliers. Strategies for growth within markets generally include customer retention through differentiated services, growing customers within an existing service area, and strategic acquisitions of local and regional businesses and assets. These strategies are clearly articulated in Securities and Exchange Commission ("SEC") annual reports by the major companies providing Waste Management and Remediation Services.

> *"*[Waste Management] *pursues its strategy to grow through acquisitions…" "Our spending on acquisitions was $377 million, $76 million, and $4,088 million in 2022, 2021 and 2020, respectively…" "Substantially all of these acquisitions are related to our Solid Waste business…"* [103]

> *"*[Republic Services] *have a robust market planning process to identify opportunities to grow internally through capital investments and infrastructure development and externally through acquisitions." "We also evaluate stand-alone opportunities to acquire businesses and/or facilities that are being divested by other publicly-owned companies." "We expect to invest at least $500 million in acquisitions in 2023."* [104]

> *"*[Waste Connection] *senior management team has extensive experience in operating, acquiring and integrating non-hazardous waste services businesses, and we intend to continue to focus our efforts on both internal and acquisition-based growth." "We intend to expand the scope of our operations by continuing to acquire waste businesses in new markets and in existing or adjacent markets that are combined with or "tucked-in" to our existing operations." "During the year ended December 31, 2022, we completed 24 acquisitions for consideration having a net fair value of $2.334 billion."* [105]

> *"*[Casella] *aim to deploy capital in a disciplined manner and continue to grow the business through opportunistic acquisition and development activity, while maintaining conservative debt leverage levels. As part of this strategy,* [Casella] *set a goal through the fiscal year ending December 31, 2024 of adding more than $30 million per year of annualized revenues through acquisition or development activity."* [106]

Strategies among the largest providers for growing market share are clearly focused on acquisitions, including local and regional providers, and are models for likely buyers of the Subject Asset.

A Completed Transactions method generally utilizes a sample of purchase prices from comparable transactions that meet a set of defined characteristics. The selection of transactions using the set of defined characteristics represents an attempt to create a sample that is as homogeneous as possible, requiring minimal, if any, adjustments to purchase prices or other transactions metrics. The single largest challenge with utilizing completed transactions to indicate a value is the ability to identify circumstances that would disqualify transactions that are not consistent with FMV. This challenge generally occurs when a buyer or seller is not entirely free of a compulsion to buy or sell and when the purchase prices is influenced by a strategic

[103] Waste Management 2022 10-K Annual Report
[104] Republic Services 2022 10-K Annual Report
[105] Waste Connection 2022 10-K Annual Report
[106] Casella 2022 10-K Annual Report

motivation from either a buyer or seller. The next challenge is obtaining sufficient data from transactions. Because the market for waste management assets is more active among private, for-profit companies, most transaction details are confidential.

Tables 4-12 provide a list of transactions meeting that were considered to provide an indication of value.

Table 11-12: Selected Transactions

Seller	Buyer	Type	Price [1]	Revenue	EBITDA
Waste Management	BFI Canada	Asset	$91M	5.4x	7.6x
PSC Metals	SA Recycling	Asset	$290M		5.4x
Advanced Disposal	Waste Management	Equity	$4.9B	3.1x	
GFL Environmental	Terrapure	Equity	$742M	2.5x	
GFL Environmental	Advanced Disposal	Asset	$835M	2.4x	
Casella	GFL Environmental	Asset	$525M	2.8x	12.0x
Casella	Consolidated Waste	Asset	$219M	3.1x	12.2x
AVERAGE				2.85x	9.98x

Source: Raftelis, CPUS Proceedings; Notes: (1) Inflation Adjusted Purchase Price.

The Completed Transactions method indicates a total enterprise value of the Subject Interest to be $17,704,500 and rounds to $17,700,000 (see Table 4-13).

Table 11-13: Completed Transaction Indication of Enterprise Value

System Metric	Subject Asset	Value Multiple	Implied Value
Gross Revenues [1]	$8,012,000	2.85x	$22,834,200
EBITDA [2]	$1,260,000	9.98	$12,574,800
Total Indicated Value		**Calculated**	**$17,704,500**
		Rounded to	$17,700,000

Notes: (1) CY 2023, Fairmead Landfill only, does not include North Fork transfer station. (2) Excludes hypothetical assumption of either reduced fixed operating cost or increased revenues.

The value indicated by this method is on a "control" and "marketable" basis with respect to the fee-simple purchases of the set of observed transactions. DLOC and DLOM reflected in the Subject Interest of this valuation will be considered and applied in a later section.

12. Adjustments

12.1. Adjustments for Control

The Subject Interest of this Report is the majority, marketable interest of the Subject Asset. Minority shareholding or ownership interests that lack the ability to control a business enterprise are considered to have less value on a pro rata basis than a controlling, majority interest. The only adjustment or discount for lack of control ("DLOC") is warranted for the Guideline Public Company Method since the basis for the indication of value is equity shares (minority control) of those enterprises included. Generally, a control premium can range from 20% to 40% resulting in a discount for lack of control equal to DLOC = $1 - \frac{1}{(1+control\ premium)}$ or 16.7% to 28.6%. In my opinion, an assumed control premium of 30% is reasonable to adjust the Guideline Public Company indication of value resulting in an implied DLOC of 23% using the Guideline Public Company method.

The balance of methodologies selected (i.e., Cost, Income, and Completed Transactions) reflect values on a controlling basis. In those analyses, net cash flow, net assets, and transfer of both tangible and intangible assets through acquisition are at the discretion of the owner and therefore reflect control of the business enterprise.

12.2. Adjustments for Lack of Marketability

Ownership of a majority or minority interest in a closely held private company or for assets in a special purpose market are not readily marketable and a discount for lack of marketability ("DLOM") may be appropriate for the determination of a Conclusion of Value of the Subject Asset. The IRS has addressed the issue of discounts for a lack of marketability in Revenue Ruling 77-287, by stating:

"Securities traded on a public market are generally worth more to investors than those that are traded on a private market."

Theoretically, the use of a discount for a lack of marketability arises from the risks associated with a potential sale of the Subject Asset. This risk can generally be categorized in the following categories[107]:

a. Uncertain time horizon to complete sale,
b. Cost to prepare for and execute sale,
c. Risk as to eventual sale price and future expenses,
d. Non-cash and deferred transaction proceeds, and
e. Inability to borrow against the estimated value of assets.

These categories can be viewed as the absence of a ready or existing market for the sale or purchase of the Subject Asset in contrast to publicly traded stock.

[107] Chapter 7: Valuation Discounts and Premiums. Fundamentals, Techniques, & Theory. NACVA. 1995-2012

Some common factors that have been identified as impacting marketability[108] and applicable to the Subject Asset are as follows:

Subject Company Factor	Observation (1)
Dividend-paying history	None
Dividend Yield	Not applicable
Attractiveness of subject business	Very Good
Attractiveness of industry	Very Good (stable industry demand and earnings)
Prospects for a sale or public offering	Good (contingent on potential buyers)
Number of identifiable buyers	Good
Availability of access to reliable information	Very Good
Management	Very Good
Earnings (relative to investor market)	Poor
Revenue	Good
Financial condition	Good
Percent of share held by insiders	None (0%)
Percent of independent directors	100%
Business risk	Moderate
Ease of transfer of assets	Good (requires consent)

Notes: (1) Quality scale = Poor, Good-, Good, Good+, Very Good, Excellent

Pursuant to the Code, ownership of the Subject Asset may be transferred under curtained conditions[109]:

- Any owner or operator of a solid waste facility who plans to encumber, sell, transfer, or convey the ownership or operations of a solid waste facility or disposal site to a new owner or operator, shall notify the enforcement agency and the board, 45 days prior to the date of the anticipated transfer. The notification shall be in writing and shall include information as determined by the board, including any financial assurances, if applicable.
- The enforcement agency and the board shall review the notification documentation and any available records of enforcement actions taken against the proposed transferee, and shall determine, within 30 days of receipt, whether the facility will be operated in compliance with the terms and conditions of an approved permit and any other applicable requirements, including, but not limited to, the requirements of Division 13 (commencing with Section 21000). If the solid waste facility will not be operated in compliance with the terms and conditions of an approved permit, or any other applicable requirements of Division 13 (commencing with Section 21000), the new owner or operator shall be required to file an application for a revised or modified solid waste facilities permit.
- If the enforcement agency or the board determines that the facility will be operated in compliance with the terms and conditions of the existing permit, the enforcement agency may change the name of the owner or operator on the permit.

The requirements of the Code do not restrict the transfer of ownership of the Subject Asset but would increase the uncertainty of the time horizon of a sale or transfer. In addition, the 180-day notice requirement for the

[108] Discount for Lack of Marketability: Job Aid for Valuation Professionals. IRS. September 2009
[109] Title 27.

termination of the operating contract also adds to potential uncertainty in a transaction and would impact a DLOM.

The application of a DLOM in a Valuation is relatively subjective and can range from zero (0) to forty (40) percent. There are relative degrees of marketability that depend on a number of factors (as noted above) and circumstances for each valuation engagement and applied to each value methodology considered. Based on my training, prior valuation experience, and opinion, a DLOM of 10% was determined to be appropriate for this Valuation. While the Subject Asset have a documented history of income earnings and future growth potential, the process through each regulatory agency with authority for approval of a transfer of ownership could create additional time and effort to complete a potential transaction.

12.3. Other Adjustments

Other adjustments, including the loss of key persons or thin management, were considered but not found appropriate for the Conclusion of Value.

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13. Reconciliation of Indicated Values

An Opinion of Value for the Subject Asset was determined considering industry standard methods of valuation. These approaches analyze various aspects of the Subject Asset and even though none of these methods may be considered ideal on a standalone basis, the consideration of all three approaches provides valuable input when considering other factors and the use of judgment in indicating value of the Subject Interest. Table 6-1 provides a summary of the Conclusion of Value considering the methods of valuation utilized in this Report and applying discounts for control and marketability.

Table 13-1: Reconciliation of Valuation Methods Utilized Indication of FMV

Valuation Method	Approach	Value Indicated (Rounded)	DLOC(1)	DLOM(2)	Adjusted Value (rounded)
Reproduction Costs	Cost	$21,200,000	0%	10%	$19,100,000
Capitalized Cash Flow (CCF)	Income	$16,500,000	0%	10%	$14,900,000
Guideline Public Company	Market	$16,200,000	23%	10%	$18,900,000
Completed Transactions	Market	$17,700,000	0%	10%	$15,900,000

Notes: (1) The DLOC, if applicable, is applied by dividing the value indicated by 1 minus the calculated discount. (2) The DLOM, if applicable, is applied by multiplying the value indicated by 1 minus the discount indicated.

The indications of value derived in this Report are based on the scope of work as described, the nature of the Subject Asset, the Subject Interest being valued, the application of each valuation method, and my experience, education, and training. None of these methods may be considered ideal on a standalone basis since each evaluates a particular facet of the Subject Asset. The consideration of all three approaches provides valuable input when considering other factors and the use of judgment and opinion in indicating a FMV of the Subject Interest.

The value indicated by the Cost Approach generally reflects an upper limit that a buyer would consider for the Subject Asset. Considering, for this assignment, anticipated economic benefits (Income Approach) and values indicated from other observed investments (Market Approach) provides additional input on the lower limit that a buyer might consider for the Subject Asset. The value indicated by the Income Approach could be improved from the vertical integration of the Subject Asset with other Waste Management assets. However, the analysis of this Report considers only minimal improvement resulting from the transfer of assets to a larger, more diversified private company. Therefore, in my opinion, collectively the valuation methods utilized in this Report reflect a FMV range between $16,000,000 and $19,000,000.

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14. Conclusion of Value

I have performed the valuation services provided in this Valuation, as those terms are defined in the Uniform Standards of Professional Appraisal Practice and in the Professional Standards of the National Association of Certified Valuators and Analysts. This Report has been prepared in accordance with the NACVA's Professional Standards dated August 1, 2017, and USPAP dated 2020-21. The estimate of value contained in this Report is expressed as a Conclusion of Value. This valuation was performed for the purpose of a potential acquisition and the resulting Conclusion of Value should not be used for any other purpose or by any other party for any purpose.

Based on my analysis, as described in this Report, the Conclusion of Value of the Fairmead Landfill as a going concern as of June 30, 2023, is:

Eighteen Million five Hundred Thousand Dollars ($18,500,000)

This Conclusion of Value is for the Subject Asset described in more detail in this Report and does not include any excess real property. A real property appraisal was not included as a part of the scope of work for this Report. Further, these conclusions are subject to representations and certification found in Appendix A and to the Statement of Assumptions and Limiting Condition found in Appendix B. There is no obligation to update this Report or my Conclusion of Value for information that comes to my attention after the date of this Report. My experience and qualifications are detailed in Appendix C.

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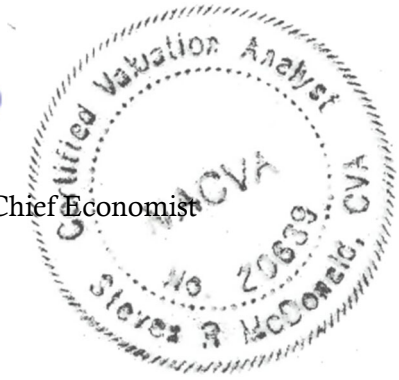
APPENDIX A:

Valuation Representations and Certification

I certify that, to the best of my knowledge and belief:

- The statements of fact contained in this Report are true and correct.
- The reported analyses, opinions, and conclusions are limited only by the reported assumptions and limiting conditions (see Appendix B), and are my personal, impartial, and unbiased professional analyses, opinions, and conclusion.
- I have no present of prospective interest in the Subject Asset and no personal interest with respect to the parties involved.
- I have performed no services, as an appraiser or in any other capacity regarding the Subject Asset within the three-year period immediately preceding acceptance of this engagement.
- I have no bias with respect to the Subject Asset or the parties involved with this engagement.
- Acceptance of this engagement was not contingent upon developing or reporting predetermined results.
- My compensation for this Report is fee-based and is not contingent upon the development or reporting of a predetermined value or direction in value that favors the cause of the client, the amount of the Conclusion of Value, or the attainment of a stipulated result, or the occurrence of a subsequent event directly related to the intended use of this valuation.
- My analyses, opinions and conclusions were developed, and this Report has been prepared, in accordance with the NACVA's Professional Standards dated June 1, 2017, and USPAP dated 2020-21.
- I have made a personal inspection of the Subject Asset.
- No work from one or more independent, outside valuation specialist was used during the valuation engagement.
- The parties for which the information and use of this Report is restricted are identified and the Report is not intended to be, and should not be, used by anyone other than such parties.



Steven McDonald, CVA, Chief Economist
CVA© #20639

August 21, 2023

Date

APPENDIX B:

Assumptions and Limiting Conditions

1. The Conclusion of Value contained in this Report did rely on a hypothetical condition (see Section 1).
2. All other assumptions are listed in the description of the analyses used to indicate value in the Subject Asset, some of which are extraordinary assumptions.
3. There are gaps in audited financial information that were estimated for FY 2022 and FY 2023. The most recent audited financial statements available covered FY 2021.
4. No responsibility is assumed for legal matters, nor is any opinion on the title rendered herewith. It is assumed that the title to the property is good and marketable.
5. All existing liens and encumbrances, if any, have been disregarded and it is assumed that the property is free and clear.
6. The appraiser has made no survey of the property and, unless specifically stated, assumed there are not encroachments involved.
7. The sketches and maps in this Report are included to assist the reader in visualizing the property and are not necessarily to scale or depict all items above or below ground.
8. It is assumed that the property is in full compliance with all applicable federal, state, and local environmental regulations and laws unless non-compliance is stated, defined, and considered in this Report.
9. It is assumed that all applicable zoning and land use regulations and restrictions have been complied with, unless non-conformity has been stated, defined, and considered in this Report.
10. It is assumed that all required permits, licenses, certificates of occupancy, consents, easements, and other legislative or administrative authority from any local, state, or national government or public entity or organization have been or can be obtained or renewed and transferred with minimal effort for any use on which the value estimate in this Report is based.
11. Proposed improvements, if any, on or off-site, as well as any repairs required, are considered for purposes of this appraisal to be completed in a good and workmanlike manner.
12. Furnishings, mobile equipment, tools, or business furniture and utility management items indicated and typically considered as part of real estate and/or major personal property items have been aggregated and valued as general plant.
13. Responsible ownership and competent management are assumed.
14. It is assumed that there are no hidden or unapparent conditions of the property, soil, or structures which would render it more or less valuable. Further, unless otherwise stated in this Report, the existence of hazardous material or any other environmental problems or conditions, which may or may not be present on the property, was not observed or disclosed. We have no knowledge of the existence of such materials or conditions on or in such close proximity that it would cause a loss in value. We, however, did not search to detect such substances or conditions. The presence of substances such as asbestos, urea formaldehyde foam insulation, radon, or other potentially hazardous materials which could have an adverse effect on the value of the property were not observed or detected in our inspections. The value estimate is predicated on the assumption that there is no such material or condition on or in the property that would cause a loss in value. No responsibility is assumed for any such conditions, or for any expertise or knowledge required to discover them.
15. No responsibility is assumed for the absence or presence of any endangered species on this property. This appraisal assumes that there are no endangered species which would prevent, restrict, or adversely affect any transfer, development, or improvement of the Subject Asset.
16. No impact studies and/or special market, or feasibility analysis or studies have been required or made unless otherwise specified. We reserve the right to alter, amend, revise, or rescind any of the

statements, findings, opinion, value estimates, or conclusions contained herein if any of these studies require it.

17. Certain data used in compiling this report was furnished from sources which we consider reliable; however, we do not guarantee the correctness of such data, although so far as possible, we have checked and/or verified the same and believe it to be accurate.
18. We have accepted as correct and reliable all information provided by the owner and owner's counsel, or the owner's agents, which was used in the preparation of this Report. All data came from sources deemed reliable, but no liability is assumed for omissions or inaccuracies that subsequently may be disclosed in any data used in the completion of the appraisal.
19. Possession of this Report, or copy thereof, does not carry with it the right of publication, nor may it be used for any purpose by anyone except for the client without the prior written consent of the client and in any event, only in it's entirely and with proper qualification.
20. Neither all nor any part of the contents of this report shall be conveyed to the public through advertising, public relations, news, sales, or other media without the written consent and approval of the author excepting appropriate Freedom of Information Act requests.
21. All applicable agreements, customer agreements, developer agreements or other utility-related agreements are assumed to be fully disclosed or provided and therefore have been considered as part of this Report.
22. Acceptance of, and/or use of, this Report constitutes acceptance of the above conditions and assumptions.

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APPENDIX C:

Statement of Appraiser Qualifications

Steven McDonald, CVA, Chief Economist / Valuation Services, Raftelis Financial Consultants, Inc.

Mr. McDonald is an Economist, Researcher, and Strategist with nearly 30 years of experience, almost equally divided between consulting assignments and corporate roles. He specializes in quantitative and qualitative research and analysis to include Business Valuation and Appraisal (CVA©#20639), economic analyses and econometrics, cost-benefit analyses, and short- and long-term financial analyses. Over this time, Mr. McDonald has developed a high degree of technical expertise balanced with strategic management experience from high-profile, innovative projects, both domestically and internationally, focused on economic and financial issues across a broad range of industries. Altogether, corporate roles and consulting assignments, along with managing work efforts across no less than four business cycles, have provided Mr. McDonald the opportunity to develop strong expertise in the field of economics and understanding enterprise business value.

Mr. McDonald strives to maintain active participation as a member of the NACVA and is currently the President of the NACVA Florida North Chapter. In addition, he has served on the NACVA Ethics Oversight Board for three years, one of those years as Chairman. Mr. McDonald is also an Adjunct Instructor with Webster University's Orlando Campus in Economic Concepts and Managerial Economics.

Specialties:

- Business Valuation and Appraisal
- Economic Impact Analysis
- Cost-Benefit Analysis

Professional History:

- Raftelis: Chief Economist/Valuation Services (2021-present)
- GAI Consultants (2012-2021)
- The Disney Company (2008-2012)
- RERC (2004–2008)
- Burton & Associates (2002–2004)
- CHEP International (1999–2002)
- The Disney Company (1996–1999)
- Fishkind & Associates (1990–1996)

Education:

- Bachelor of Arts in Public Policy – University of Central Florida (1988)
- Master of Arts in Applied Economics
- University of Central Florida (1990)

Professional Affiliations:

- National Association of Certified Valuators and Analysts (NACVA)
- Past Chairman and member of NACVA Ethics Oversight Board (EOB)
- President, NACVA Florida North Chapter
- American Society of Appraisers, Member
- Webster University, Adjunct Instructor

Business Valuation Experience:

Business Valuation services have been provided for purposes of insurance, litigation, and purchase and sale transactions (M&A), generally resulting in a detailed, summary, or oral appraisal or value reports. A Business Valuation, as defined by Uniform Standards of Professional Appraisal Practice (USPAP) Standard 9, provides a specific value based on purpose and use of the appraisal or calculation. All valuation services provided conform with the Professional Standards of the NACVA. Professional experience with providing Business Valuation services has included the following:

- Florida Public Utility (Propane), 2023 – Asset Transaction
- Tennessee Public Utility (Water), 2023 – Asset Transaction
- Texas IOU (Water), 2023 – Asset Transaction
- Texas IOU (Service Area), 2023 – Expedited Release of CCN
- California IOU (Water), 2023 – Asset Transaction
- South Carolina Public Utility (Electric), 2023 – Asset Transaction
- South Carolina Public Utility (Water), 2023 – Asset Transaction
- South Carolina Public Utility (Wastewater), 2023 – Asset Transaction
- Texas IOU (Water), 2023 – Asset Transaction
- North Carolina IOU (Sewer), 2022 – Asset Transaction
- North Carolina IOU (Sewer), 2022 – Asset Transaction
- Florida Public Utility (Service Area Rights), 2022 – Asset Transaction
- Florida IOU (Water), 2022 – Asset Transaction
- Arizona (7 systems) Utility, 2022 (Water) – Asset Transaction
- South Carolina Utility, 2022 (Water) – Asset Transaction
- Virginia Public Utility, 2022 (Water and Sewer) – Divestiture
- South Carolina Public Utility, 2022 (Water) – Asset Transaction
- North Carolina Public Utility, 2022 (Water) – Asset Transaction
- Ohio Public Utility, 2022 (Water) – Asset Transaction
- South Carolina Public Utility, 2021 (Wastewater) – Asset Transaction
- Florida Public Utility, 2021 (Water) – Asset Transaction
- Florida Public Utility, 2021 (Natural Gas) – Asset Transaction
- Pennsylvania Public Utility, 2021 (Sewer) – Asset Transaction
- Texas IOU (Water), 2021 – Asset Transaction
- Florida Public Utility, 2021 (Service Area) – Litigation
- Pennsylvania Public Utility, 2021 (Sewer) – IOU Acquisition
- California Water Market, 2021 (Credits) – Asset Transaction
- Pennsylvania Public Utility, 2021 (Sewer) – IOU Acquisition
- Florida Public Utility, 2020 (Water) – Asset Transaction
- Florida Public Utility, 2020 (Water) – Foreclosure
- Florida Public Utility, 2019 (Water and Wastewater) –Business Damages
- Florida Public Utility, 2019 (Water and Wastewater) –Acquisition
- Florida Public Utility, 2018 (Chilled Water) – Acquisition
- California Private Discharge Capacity, 2018 (Wastewater) –Acquisition
- Tennessee Public Utility, 2018 (Electric) – Acquisition
- Florida IOU, 2017 (Water-Sewer) – Acquisition
- Florida IOU, 2017 (Electric) – Tangible Property Tax
- Ohio IOU, 2017 (Water) – Financing
- Florida Public Utility, 2017 (Water Storage) – Acquisition
- South Carolina Public Utility, 2016 (Water) – Acquisition
- Ohio Public Utility, 2016 (Water-Sewer) – Acquisition
- Mississippi Certificate of Public Conveyance and Necessity, 2016 (Water) – Acquisition
- Florida IOU, 2016 (Electric) – Tangible Property Tax
- Florida IOU, 2015 (Electric) – Acquisition

Economic and Fiscal Analysis Experience:

Economic Development as a concept is measured in jobs and income but most importantly reflects a community's overall quality of life that is only maintained with sufficient public (fiscal) resources to meet existing and future needs. Therefore, understanding economic and fiscal outcomes assists communities with assessing the potential benefits on concepts of an overall "quality of life" – cost-benefit, employment growth, the nature of jobs, economic welfare, community income and wealth, and public infrastructure and services. Economic and Fiscal Analyses and services have been provided for more than 30 years; experience has included the following (completed assignments):

- Virgin Islands Environmental User Fee Economic Impact Analysis, U.S. Virgin Islands
- Economic Impact of Protecting the Florida Manatee
- U.S. Rental Car Economic and Market Demand, National Car Rental
- Gulf War Economic Impact on Rental Car Industry, National Car Rental
- European Banana Economic and Market Demand, CHEP Europe
- Orlando Parks and Recreation Economic Benefits
- SED (Florida) Community Impacts
- St Lucie (Florida) Water Reclamation Facility Economic Impacts
- Rose Arts (Florida) Fiscal Impacts
- Miami New Drama Economic Impact Analysis
- Miami-Dade Pike Transit Oriented Development Economic Impact Analysis
- Economic and Fiscal Impact Analyses (continued)
- Apopka (Florida) Economic and Fiscal Analysis
- Marion County (Florida) Aquatics Center Economic and Fiscal Analysis
- Reunion Resort (Florida) Fiscal Impact Analysis
- Amelia Island (Florida) Development Economic and Fiscal Impact Analysis
- Neptune Road (Florida) Economic and Fiscal Impact Analysis
- IOC Pompano Beach (Florida) Economic Impact
- Sorrento Pines (Florida) Fiscal Impact Analysis
- New Smyrna (Florida) Beach Fiscal Analysis
- Downtown Daytona (Florida) Fiscal Impact Analysis
- Tohoqua (Florida) Fiscal Impact Analysis
- Albert Whitted (Florida) Airport Economic Benefit Analysis
- Gaylord Palms (Florida) Fiscal Impact Analysis
- North End Charlotte (North Carolina) Economic and Fiscal Impact Analysis
- Maitland West (Florida) Fiscal Impact Analysis
- River District (North Carolina) Fiscal Impact Analysis
- Florida Hospital Fiscal & Economic Analysis
- Kendall Town Center (Florida) Economic Analysis
- Miami (Florida) Icebox Café Economic Analysis
- Osceola (Florida) Fiscal Impact Analysis
- Melbourne (Florida) Economic Impact Analysis
- Kansas State University Economic Impact Analysis
- Miami-Dade (Florida) Fiscal Analysis
- CEMEX (Florida) Facility Economic Analysis
- University of Central Florida Downtown Economic Impact Analysis
- US 17-92 Flyover (Florida) Modification Economic Analysis
- Miami Uptown (Florida) Economic Analysis
- Ocean Cadillac (Florida) Economic Analysis
- Vizcaya (Florida) Economic Analysis
- Economic Impact of Spring Training Facility, New York Yankees (Florida)
- Biomedical Cluster Economic and Fiscal Impacts at Lake Nona, Tavistock (Florida)
- Economic Development Analysis, Piedmont Triad and City of Havelock (North Carolina)

APPENDIX D:

Site Pictures

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APPENDIX E:

Population and MSW Demand Projections

Madera County Population Projections

CY	Population	% Change	Change	Net Natural [1]	Births	Deaths	Net Migration [2]
2024	164,810	1.5%	2,380	1,180	2,370	(1,190)	1,200
2025	167,150	1.4%	2,340	1,190	2,390	(1,200)	1,150
2026	169,450	1.4%	2,300	1,200	2,410	(1,210)	1,100
2027	171,700	1.3%	2,250	1,200	2,430	(1,230)	1,050
2028	173,900	1.3%	2,200	1,200	2,440	(1,240)	1,000
2029	176,060	1.2%	2,160	1,210	2,460	(1,250)	950
2030	178,170	1.2%	2,110	1,210	2,470	(1,260)	900
2031	180,240	1.2%	2,070	1,220	2,490	(1,270)	850
2032	182,260	1.1%	2,020	1,220	2,500	(1,280)	800
2033	184,220	1.1%	1,960	1,210	2,510	(1,300)	750
2034	186,130	1.0%	1,910	1,210	2,520	(1,310)	700
2035	187,990	1.0%	1,860	1,210	2,530	(1,320)	650
2036	189,800	1.0%	1,810	1,210	2,540	(1,330)	600
2037	191,550	0.9%	1,750	1,200	2,550	(1,350)	550
2038	193,250	0.9%	1,700	1,200	2,560	(1,360)	500
2039	194,900	0.9%	1,650	1,200	2,570	(1,370)	450
2040	196,490	0.8%	1,590	1,190	2,580	(1,390)	400
2041	198,020	0.8%	1,530	1,180	2,580	(1,400)	350
2042	199,490	0.7%	1,470	1,170	2,590	(1,420)	300
2043	200,910	0.7%	1,420	1,170	2,600	(1,430)	250
2044	202,260	0.7%	1,350	1,150	2,600	(1,450)	200
2045	203,550	0.6%	1,290	1,140	2,610	(1,470)	150
2046	204,780	0.6%	1,230	1,130	2,610	(1,480)	100
2047	205,940	0.6%	1,160	1,110	2,610	(1,500)	50
2048	207,040	0.5%	1,100	1,100	2,620	(1,520)	-
2049	208,080	0.5%	1,040	1,090	2,620	(1,530)	(50)
2050	209,050	0.5%	970	1,070	2,620	(1,550)	(100)
2051	209,950	0.4%	900	1,050	2,620	(1,570)	(150)
2052	210,780	0.4%	830	1,030	2,620	(1,590)	(200)
2053	211,540	0.4%	760	1,010	2,620	(1,610)	(250)
2054	212,230	0.3%	690	990	2,620	(1,630)	(300)
2055	212,850	0.3%	620	970	2,620	(1,650)	(350)
2056	213,400	0.3%	550	950	2,620	(1,670)	(400)
2057	213,880	0.2%	480	930	2,620	(1,690)	(450)
2058	214,280	0.2%	400	900	2,610	(1,710)	(500)
2059	214,610	0.2%	330	880	2,610	(1,730)	(550)
2060	214,710	0.0%	100	850	2,600	(1,750)	(750)

Source: Raftelis. Notes: (1) Net change, births minus deaths. (2) Includes domestic and international.

MSW Demand Projections

CY	County Tons [1]	County MSW Rate [2]	Import Tons [3]	Import MSW Rate [2]	Total Landfilled Tons	Combined MSW Rate	% change
2024	144,510	5.73	84,830	3.36	229,340	9.10	1.6%
2025	147,450	5.77	85,470	3.34	232,920	9.11	1.6%
2026	150,330	5.80	86,110	3.32	236,440	9.12	1.5%
2027	153,140	5.83	86,760	3.30	239,900	9.13	1.5%
2028	155,880	5.86	87,410	3.29	243,290	9.14	1.4%
2029	158,560	5.89	88,070	3.27	246,630	9.16	1.4%
2030	161,180	5.91	88,730	3.25	249,910	9.17	1.3%
2031	163,740	5.94	89,400	3.24	253,140	9.18	1.3%
2032	166,250	5.96	90,070	3.23	256,320	9.19	1.3%
2033	168,680	5.98	90,750	3.22	259,430	9.20	1.2%
2034	171,060	6.01	91,430	3.21	262,490	9.22	1.2%
2035	173,380	6.03	92,120	3.20	265,500	9.23	1.1%
2036	175,640	6.05	92,810	3.20	268,450	9.24	1.1%
2037	177,830	6.07	93,510	3.19	271,340	9.26	1.1%
2038	179,970	6.09	94,210	3.19	274,180	9.27	1.0%
2039	182,050	6.11	94,920	3.18	276,970	9.29	1.0%
2040	184,070	6.12	95,630	3.18	279,700	9.30	1.0%
2041	186,020	6.14	96,350	3.18	282,370	9.32	1.0%
2042	187,910	6.16	97,070	3.18	284,980	9.34	0.9%
2043	189,750	6.17	97,800	3.18	287,550	9.35	0.9%
2044	191,500	6.19	98,530	3.18	290,030	9.37	0.9%
2045	193,200	6.20	99,270	3.19	292,470	9.39	0.8%
2046	194,830	6.22	100,010	3.19	294,840	9.41	0.8%
2047	196,390	6.23	100,760	3.20	297,150	9.43	0.8%
2048	197,880	6.25	101,520	3.20	299,400	9.45	0.8%
2049	199,310	6.26	102,280	3.21	301,590	9.47	0.7%
2050	200,670	6.27	103,050	3.22	303,720	9.50	0.7%
2051	201,950	6.29	103,820	3.23	305,770	9.52	0.7%
2052	203,160	6.30	104,600	3.24	307,760	9.54	0.7%
2053	204,290	6.31	105,380	3.26	309,670	9.57	0.6%
2054	205,350	6.32	106,170	3.27	311,520	9.59	0.6%
2055	206,340	6.34	106,970	3.28	313,310	9.62	0.6%
2056	207,250	6.35	107,770	3.30	315,020	9.65	0.5%
2057	208,090	6.36	108,580	3.32	316,670	9.68	0.5%
2058	208,840	6.37	109,390	3.34	318,230	9.71	0.5%
2059	209,520	6.38	110,210	3.36	319,730	9.74	0.5%
2060	209,970	6.39	111,040	3.38	321,010	9.77	0.4%

Source: Raftelis. Notes: Landfilled waste only, does not include ADC. (1) Waste Generated from within County. (2) MSW lbs/day/capita. (3) Imported waste from outside County.

Fairmead Landfill Capacity Projections

CY	MSW Tons [1]	% Change	Airspace Consumption [2]	Waste In-Place [3]	Remaining Capacity [4]	Capacity Used	Remaining Capacity
2024	229,340	1.6%	366,944	10,235,020	12,772,676	44.5%	55.5%
2025	232,920	1.6%	372,672	10,607,692	12,400,004	46.1%	53.9%
2026	236,440	1.5%	378,304	10,985,996	12,021,700	47.7%	52.3%
2027	239,900	1.5%	383,840	11,369,836	11,637,860	49.4%	50.6%
2028	243,290	1.4%	389,264	11,759,100	11,248,596	51.1%	48.9%
2029	246,630	1.4%	394,608	12,153,708	10,853,988	52.8%	47.2%
2030	249,910	1.3%	399,856	12,553,564	10,454,132	54.6%	45.4%
2031	253,140	1.3%	405,024	12,958,588	10,049,108	56.3%	43.7%
2032	256,320	1.3%	410,112	13,368,700	9,638,996	58.1%	41.9%
2033	259,430	1.2%	415,088	13,783,788	9,223,908	59.9%	40.1%
2034	262,490	1.2%	419,984	14,203,772	8,803,924	61.7%	38.3%
2035	265,500	1.1%	424,800	14,628,572	8,379,124	63.6%	36.4%
2036	268,450	1.1%	429,520	15,058,092	7,949,604	65.4%	34.6%
2037	271,340	1.1%	434,144	15,492,236	7,515,460	67.3%	32.7%
2038	274,180	1.0%	438,688	15,930,924	7,076,772	69.2%	30.8%
2039	276,970	1.0%	443,152	16,374,076	6,633,620	71.2%	28.8%
2040	279,700	1.0%	447,520	16,821,596	6,186,100	73.1%	26.9%
2041	282,370	1.0%	451,792	17,273,388	5,734,308	75.1%	24.9%
2042	284,980	0.9%	455,968	17,729,356	5,278,340	77.1%	22.9%
2043	287,550	0.9%	460,080	18,189,436	4,818,260	79.1%	20.9%
2044	290,030	0.9%	464,048	18,653,484	4,354,212	81.1%	18.9%
2045	292,470	0.8%	467,952	19,121,436	3,886,260	83.1%	16.9%
2046	294,840	0.8%	471,744	19,593,180	3,414,516	85.2%	14.8%
2047	297,150	0.8%	475,440	20,068,620	2,939,076	87.2%	12.8%
2048	299,400	0.8%	479,040	20,547,660	2,460,036	89.3%	10.7%
2049	301,590	0.7%	482,544	21,030,204	1,977,492	91.4%	8.6%
2050	303,720	0.7%	485,952	21,516,156	1,491,540	93.5%	6.5%
2051	305,770	0.7%	489,232	22,005,388	1,002,308	95.6%	4.4%
2052	307,760	0.7%	1,002,308	23,007,696	-	100.0%	0.0%
2053	309,670	0.6%	-	23,007,696	-	100.0%	0.0%
2054	311,520	0.6%	-	23,007,696	-	100.0%	0.0%
2055	313,310	0.6%	-	23,007,696	-	100.0%	0.0%
2056	315,020	0.5%	-	23,007,696	-	100.0%	0.0%
2057	316,670	0.5%	-	23,007,696	-	100.0%	0.0%
2058	318,230	0.5%	-	23,007,696	-	100.0%	0.0%
2059	319,730	0.5%	-	23,007,696	-	100.0%	0.0%
2060	321,010	0.4%	-	23,007,696	-	100.0%	0.0%

Source: Raftelis. Notes: Landfilled waste only, does not include ADC. (1) Total landfilled MSW. (2) Cubic Yards. Calculated based on MSW landfilled plus ADC and utilization factor of 1.515 CY per ton. (3) Cubic Yards. (4) Based on permitted capacity of 23,007,696 CY.

APPENDIX F:

Asset Listing and Supporting Financial Data

Asset No.	Asset Type	Category	Description	Year Installed	Cost	Years In Service	Reproduction Cost	Depreciation	RCNLD
EF00022	Equipment	Equipment	Forklift 6,000 lb	1994	25,000	29	35,607	32,046	3,561
EF00023	Equipment	Equipment	HHW Equipment	1994	47,700	29	67,938	61,144	6,794
EF00024	Equipment	Equipment	Leachate Collection Pump	2011	9,401	12	12,587	7,552	5,035
EF00027	Equipment	Equipment	Security Camera System	2014	5,262	9	6,880	3,096	3,784
EF00028	Equipment	Equipment	Security Camera System	2014	5,262	9	6,880	3,096	3,784
EF00032	Equipment	Equipment	Calibration Gas Kit for Scalehouse	2014	13,831	9	18,084	8,138	9,946
EF00035	Equipment	Equipment	Leg Tank Trailer	2017	8,743	6	11,315	3,395	7,921
EF00001	Improvement	Liner/Landfill Development	Landfill Improvements	1962	413,376	61	2,237,285	959,579	1,277,706
EF00002	Improvement	Structures	MRF Building	1994	429,000	29	611,013	322,170	288,843
EF00003	Improvement	Structures	1.5 acre Blacktop	1994	150,300	29	214,068	112,872	101,196
EF00004	Improvement	Structures	Conveyor/Workstation	1994	190,000	29	270,612	142,686	127,926
EF00005	Improvement	Structures	Scales/Scalehouse	1994	50,000	29	71,214	37,549	33,665
EF00006	Improvement	Structures	Roll-off Boxes	1994	75,000	29	106,820	56,323	50,497
EF00007	Improvement	Landfill Gas Recovery	Landfill Gas Recovery	1998	900,000	25	1,291,111	553,762	737,349
EF00008	Improvement	Liner/Landfill Development	Old Site Cover	1998	140,000	25	200,839	86,141	114,698
EF00009	Improvement	Liner/Landfill Development	Liner Unit 2/Cell 4	1998	650,000	25	932,469	399,939	532,530
EF00010	Improvement	Hazardous Waste Facility	Hazardous Waste Facility - Oil slide	2002	169,864	21	248,065	106,396	141,669
EF00011	Improvement	Hazardous Waste Facility	Hazardous Waste Facility - Oil slide	2005	266,210	18	384,366	164,856	219,510
EF00012	Improvement	Liner/Landfill Development	Liner Unit 3/Cell 1A	2006	830,516	17	1,164,310	499,376	664,934
EF00013	Improvement	Monitoring Wells	Monitoring Wells	2002	110,000	21	160,641	68,899	91,742
EF00014	Improvement	Hazardous Waste Facility	Hazardous Waste Facility - Oil slide	2006	193,246	17	270,914	116,196	154,718
EF00015	Improvement	Liner/Landfill Development	Liner Unit 3/Cell 1B	2007	1,047,750	16	1,468,854	629,996	838,858
EF00016	Improvement	Liner/Landfill Development	Liner Unit 3/Cell 2A	2008	1,624,192	15	2,214,402	949,764	1,264,638
EF00017	Improvement	Liner/Landfill Development	Liner Unit 3/Cell 2A	2009	1,285,281	14	1,750,998	751,009	999,989
EF00018	Improvement	Liner/Landfill Development	Liner unit 3/Cell 2A	2010	27,270	13	37,151	15,934	21,217
EF00019	Improvement	Liner/Landfill Development	Liner costs	2011	645,745	12	864,560	370,813	493,747
EF00026	Improvement	Liner Gas Probes	Liner Gas Probes	2012	119,327	11	158,810	68,114	90,696
EF00029	Improvement	Structures	Liner Office Trailer	2014	30,620	9	40,035	6,551	33,484
EF00030	Improvement	Liner/Landfill Development	Landfill Costs 2013	2013	250,780	10	330,555	141,776	188,779
EF00031	Improvement	Liner/Landfill Development	Liner Costs 2014	2014	233,195	9	304,901	130,773	174,128
EF00033	Improvement	Liner/Landfill Development	Liner Costs 2015	2015	2,546,608	8	3,322,378	1,424,979	1,897,399
EF00034	Improvement	Liner/Landfill Development	Landfill Costs 2016	2016	723,318	7	944,351	405,035	539,316
EF00036	Improvement	Liner/Landfill Development	Landfill Improvement Costs 2017	2017	70,549	6	91,307	39,162	52,145
EF00037	Improvement	Liner/Landfill Development	Landfill Improvement Costs 2018	2018	343,581	5	432,756	185,610	247,146
EF00037A	Improvement	Liner/Landfill Development	Landfill Improvement Costs 2019	2019	24,771	4	30,766	13,196	17,570
EF00038	Equipment	Equipment	Scale House IT Network Improvements	2021	23,293	2	26,724	2,672	24,052
EF00039	Improvement	Liner/Landfill Development	Landfill Improvement Costs 2021	2021	387,434	2	444,506	190,650	253,856
EF000xx	Improvement	Liner/Landfill Development	Landfill Improvement Costs 2022	2022	3,933,128	1	4,138,415	1,774,980	2,363,435
EF000xx	Improvement	Liner/Landfill Development	Landfill Improvement Costs 2023	2023	1,528,828	-	1,528,828	655,719	873,109
PP21439	Property	Structures	Storage Buildings	1996	35,371	27	50,059	24,574	25,485

APPENDIX G:

Sources of Data

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