

Calaveras **COUNTY**

Commercial Solid Waste Generation and Cost of Service Study

May 2, 2025

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Ms. Jennifer Casci
Director
Calaveras County Integrated Waste Management
891 Mountain Ranch Rd
San Andreas, CA 95249

Subject: **Commercial Solid Waste Generation Study and Cost of Service Study**

Dear Ms. Casci:

Raftelis is pleased to present the findings of the Commercial Solid Waste Generation and Cost of Service Study (Study) conducted on behalf of Calaveras County, California (County) Integrated Waste Management Division (IWM). The primary objectives of the Study were to:

- conduct additional evaluations of waste generation for commercial parcels to establish updated waste generation classifications aligned with the County's land use codes; and
- develop recommended commercial parcel fees by applying the resulting waste generation factors—also referred to as Equivalent Residential Units (ERUs)—to the current parcel fee adopted by the County Board of Supervisors pursuant to Government Code §25830 and Resolution No. 20240625r056, as determined in the prior Integrated Waste Management Comprehensive Review and Fee Study (2024 Cost of Service Study).

Enclosed is our summary report, which documents the study scope, background, key assumptions, and findings for your review and consideration. We appreciate the opportunity to support the County on this important initiative and thank County staff for their collaboration in the timely completion of the Study.

Sincerely,
Raftelis Financial Consultants, Inc.



Thierry A. Boveri, CGFM
Vice President



Sarah Neely
Senior Consultant

CALAVERAS COUNTY, CALIFORNIA
COMMERCIAL SOLID WASTE GENERATION STUDY
AND COST OF SERVICE STUDY
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CALAVERAS COUNTY, CALIFORNIA
COMMERCIAL SOLID WASTE GENERATION STUDY
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2	Commercial Customer Cubic Yards of Weekly Trash Collection
3	2024 Cost of Service Study

CALAVERAS COUNTY, CALIFORNIA

COMMERCIAL SOLID WASTE GENERATION AND COST OF SERVICE STUDY

General

The Calaveras County (County) Integrated Waste Management Division (IWM) operates a comprehensive solid waste management system that includes full-service, seven-day-per-week landfill operations, a municipal recycling facility, and six conveniently located transfer stations—each situated within approximately 10 miles of every community in the County. Access to this system is restricted to County residents, apart from a portion of western Alpine County, which participates through a paid contractual arrangement. The Rock Creek Landfill, which began operations in 1990, is permitted for five landfill expansion phases. As each disposal cell nears capacity, construction of a new cell is required in accordance with applicable state laws and permitting requirements.

In support of maintaining and expanding this infrastructure, the County previously commissioned a cost-of-service (COS) study for the Fiscal Year 2024 (the "2024 COS Study") to assess the need for rate adjustments that would ensure full cost recovery for operations and landfill expansion. Based on the findings of that study, the Board of Supervisors adopted increased solid waste parcel fees for both residential and commercial parcels within the County for Fiscal Year 2024. A copy of the prior 2024 COS Study is included as an appendix to this report. However, due to limitations in available commercial waste generation data at the time, the 2024 COS Study recommended that increases to commercial parcel fees be capped at the lesser of:

- 2.2 times the parcel's prior fee; or
- 5.45 ERUs (Equivalent Residential Units) of the current fee or \$1,512.29 per parcel.

As a result, the 2024 COS Study recommended further analysis of the County's commercial waste generation to support a more refined and equitable fee structure. The County subsequently commissioned Raftelis Financial Consultants, Inc. (Raftelis) to conduct a Commercial Solid Waste Generation and Cost of Service Study (Study). This report presents a summary of our analysis, assumptions, and recommendations for the County's consideration. The Study's primary objective was to evaluate the waste generation characteristics of commercial parcels and to recommend revised ERU factors to support a more accurate and equitable determination of commercial parcel fees.

Methodology and Analysis

The general approach to determining the waste generation characteristics within the County is based on the reported amount of commercial collection services, total waste generation reported in the county, and property tax records. The following illustration provides an overview of the methodology relied upon for the Study:



1. DETERMINATION OF WASTE GENERATION CATEGORIES BY LAND USE CODE:

The IWM's solid waste parcel fee is a property-related service fee applied to all parcels in accordance with Government Code §25830, as authorized by Resolution No. 20240625r056. The fee is levied on all parcels in Calaveras County containing a dwelling unit, commercial structure, or other site improvement that typically generates solid waste. The fee is collected through the County Tax Collector via the secured property tax roll. Parcels are categorized based on legally permitted land uses and the estimated volume of solid waste generated annually by each use, relative to a standard single-family residential parcel, which is defined as one Equivalent Residential Unit (ERU). Prior to the 2024 COS Study, the County's commercial parcel fees were calculated based on the following waste generation categories and associated ERU factors:

Table 1 – Prior Waste Generation Categories

Apartment (per unit)	1.00	Lumber Yard	2.00
Auto Repair	2.00	Mobile Home	1.00
Bank	1.00	Mobile Home Park (per sp) .	1.00
Bar	2.00	Motel/Hotel (per unit)	0.20
Campground (per site) . . .	0.17	Professional/Business Office	1.00
Cemetery	0.00	Residential Dwelling	1.00
Church	0.50	Restaurant	3.00
Fire Station (staffed)	1.00	Restaurant (large)	6.00
Fire Station (unstaffed) . . .	0.50	Restaurant (drive-in)	4.00
Gas Station with mini-mart .	2.50	Retail (small)	1.00
Golf Course	1.00	Retail Store (large)	2.00
Grocery (small)	2.00	School (per student)	0.03
Grocery (medium)	5.00	Theater	1.00
Guest Cottage	1.00	Unimproved property	0.00
Hardware Store	2.00	Unoccupied building	0.00
Lodge Hall	1.00		

Based on a County staff evaluation the prior waste generation use categories could not to be specifically associated with the property tax appraisers land use code. This meant revalidating and adjusting the commercial parcel fee based on the prior waste categories and ERUs would have been administratively challenging. As a result and in consultation with County staff a revised and simplified waste generation categorization system was developed:

Table 2 – Proposed Waste Generation Categories

1. General	6. Restaurant
2. Industrial	7. School
3. Land	8. Store / Retail
4. Office	9. Vacant
5. Public Space	

Appendix 1 at the end of this report provides a detailed breakdown of the assignment of the proposed waste categories as shown in Table 2 by land use code as determined by County staff.

2. DETERMINATION OF WASTE GENERATION RATIOS FROM HAULER BILLING DATA:

The County maintains a franchise agreement with the hauling company California Waste Recovery Systems, LLC (Cal-Waste) for residential and commercial collection services. The Franchise agreement provides Cal-Waste the exclusive right to perform residential and commercial waste and recyclables collections services throughout the County. In support of the Study Cal-Waste provided detailed commercial customer billing data including the customer / business name and the amount of cubic yards collected per week for each customer served as of April 2023. The following table provides a summary of the franchise hauler's reported commercial customer trash collection data.

Table 3 – Summary of Cubic Yards of Trash Collection

Parcel Category	Customer Count	Cubic Yards of Weekly Trash	Waste Generation Ratios
General	124	247.4	23.5%
Industrial	37	100.0	9.5%
Land	2	2.0	0.2%
Office	77	139.2	13.2%
Public Space	43	85.6	8.1%
Restaurant	26	52.4	5.0%
School	4	15.0	1.4%
Store/Retail	140	385.7	36.6%
Vacant	<u>9</u>	<u>27.0</u>	<u>2.6%</u>
Total	462	1,054	100%

Since the County cannot practically measure waste collection statistics for each parcel or self-haul customer, the waste generation ratios is necessary in order to apportion the total amount of reported waste generation for later determination of the revised commercial ERU factors by category. A detailed breakdown of the information presented in Table 3 can be found in Appendix 2 at the end of this report.

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3. APPORTIONMENT OF COMMERCIAL WASTE TONNAGES BY WASTE GENERATION RATIO:

The commercial class waste tonnages relied upon for the Study were derived from the prior 2024 COS Study which was based on a three year average of tonnage statistics as reported by the County. The tonnages were apportioned based on the waste generation ratios as determined in the prior step.

Table 4 – Apportionment of Commercial Tonnages

Parcel Category	Waste Generation Ratios	2024 COS Study Commercial Tonnages	Conversion to Pounds (Lbs)
Total	<u>100.0%</u>	<u>6,312</u>	<u>12,624,336</u>
General	23.5%	1,512	3,023,525
Industrial	9.5%	601	1,202,169
Land	0.2%	12	24,055
Office	13.2%	813	1,625,905
Public Space	8.1%	515	1,030,053
Restaurant	5.0%	315	630,372
School	1.4%	62	124,903
Store/Retail	36.6%	2,319	4,638,605
Vacant	2.6%	162	324,748
<i>*Note amounts may not add due to rounding.</i>			

4. CALCULATE COMMERCIAL ERU FACTOR BY WASTE GENERATION FACTOR:

The commercial ERU factor is determined by taking the apportioned waste in pounds per parcel and dividing by the amount of pounds per ERU. The ERU factor is based on the reported residential annual waste generation per unit based on data relied upon in support of the 2024 COS Study.

Table 5 – Commercial ERU Determination

Parcel Category	Commercial Waste (Lbs) ¹	Parcels ²	Lbs per Parcel	Proposed ERU Factor
Parameters	(a)	(b)	(c) = (a) / (b)	(d) = (c) / 1,814.13 ³
Total	<u>12,624,336</u>	<u>914</u>	<u>13,812</u>	<u>7.6</u>
General	3,023,525	279	10,837	6.0
Industrial	1,202,169	65	18,495	10.2
Land	24,055	27	891	0.5
Office	1,625,905	136	11,955	6.6
Public Space	1,030,053	97	10,619	5.9
Restaurant	630,372	42	15,009	8.3
School	124,903	8	15,613	8.6
Store/Retail	4,638,605	260	17,841	9.8
Vacant	324,748	0	n/a	n/a
¹ Amounts shown derived from Table 4. ² Amounts shown derived from Appendix 1. ³ An ERU is equivalent to an annual amount of 1,814.13 pounds (lbs) based on the 2024 COS Study.				

5. CALCULATE PROPOSED COMMERCIAL PARCEL FEE BASED ON REVISED ERU FACTOR

The 2024 COS Study calculated and recommended a parcel fee per ERU of \$277.30 as shown in Appendix 3. Applying this current rate to the proposed ERU factors results in the recommended commercial parcel fees as shown below in Table 6.

Table 6 – Proposed Commercial Parcel Fee Determination

Parcel Category	Proposed ERU Factor ¹	Proposed Parcel Fees	Parcels ²	Proposed Revenues
Parameters	(a)	(b) = (a) x \$277.30	(c)	(d) = (c) / 1,814.13 ³
Total	n/a	n/a	<u>914</u>	<u>\$1,880,064</u>
General	6.0	\$1,656.50	279	\$462,164
Industrial	10.2	\$2,827.05	65	\$183,758
Land	0.5	\$136.19	27	\$3,677
Office	6.6	\$1,827.42	136	\$248,529
Public Space	5.9	\$1,623.19	97	\$157,449
Restaurant	8.3	\$2,294.19	42	\$96,356
School	8.6	\$2,386.52	8	\$19,092
Store/Retail	9.8	\$2,727.07	260	\$709,038
Vacant	n/a	n/a	n/a	n/a
¹ . Amounts shown derived from Table 5. ² . Amounts shown derived from Appendix 1. ³ . An ERU is equivalent to an annual amount of 1,814.13 pounds (lbs) based on the 2024 COS Study.				

The calculated proposed revenues are consistent with the targeted revenues expected from the 2024 COS Study. The following table is an excerpt which shows the commercial Equivalent Units at 6,790 x \$277.30 = \$1,882,867.

Table 7 – 2024 COS Study Excerpt

Fiscal Year 2024 Cost of Service	Total Costs
Operating Expenses	\$7,432,458
County Capital Fund Repayment	\$500,000
Deposits to Capital Fund	\$1,155,476
Airspace Capacity Replacement	\$422,517
Landfill Closure	\$90,537
Working Capital Deposits	\$740,554
Gross Cost of Service	\$10,341,542
Less Other Revenues:	
Investments/Recycling/Rents	(\$274,742)
Tip Fees	(\$508,800)
Net Cost of Service	\$9,558,000
Equivalent Residential Units (ERU)	
SFR - Equivalent Units	25,647
MFR - Equivalent Units	2,032
Com/Other - Equivalent Units	6,790
Total ERUs	34,469
Unit Cost per ERU	\$277.30

Recommendations

- 1) To ensure the full cost recovery from the commercial class it is recommended the County Board of Supervisors consider adoption of the recommended commercial parcel fees.
- 2) The proposed fees are expected to generate approximately \$1.8 million in annual revenue which is consistent with calculations assumed in support of the 2024 COS study.
- 3) The County should periodically review the solid waste parcel fees every 3 to 5 years to ensure the appropriate cost recovery by class of customer.

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COMMERCIAL SOLID WASTE GENERATION STUDY
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LIST OF APPENDICIES

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2	Commercial Customer Cubic Yards of Weekly Trash Collection
3	2024 Cost of Service Study

Appendix 1: Land Use Code to Commercial Waste Generation Category

Land use code	Land Use Code Description	New Designation	Parcel Counts	Land use code	Land Use Code Description	New Designation	Parcel Counts
0	NON-TAXABLE CODES	General	0	7931	ORCHARD - CHERRIES	Land	1
90	FOREST SERVICE	General	0	7932	ORCHARD - OLIVES	Land	0
245	RURAL -- RESTRICTED ZONING W/IMPROVEMENTS	General	0	7970	VINEYARD - VACANT	Vacant	0
330	COMMERCIAL - MIXED USE	General	1	7971	VINEYARD - PLANTED	Land	6
700	MINING -- VACANT	Vacant	0	7990	COMPATIBLE USE - WINERY	Land	1
900	OTHER -- VACANT	Vacant	0	7992	COMPATIBLE USE - SPECIAL USE	Land	1
3000	COMMERCIAL - VACANT	Vacant	0	8000	MINERAL RIGHTS	Land	0
3100	RETAIL BUILDINGS	Store/Retail	204	8100	MINING - VACANT	Vacant	0
3200	SMALL GROCERY/CONVENIENCE STORE	Store/Retail	3	8200	MINING - IMPROVED	Industrial	5
3300	OFFICE BUILDING	Office	106	8300	QUARRY	Industrial	0
3400	MEDICAL/DENTAL OFFICE	Office	19	8400	AIRPORT	General	0
3500	FINANCIAL BUILDING	Office	9	8500	LANDFILL/TRANSFER STATION	General	0
3600	GAS STATION	Store/Retail	4	8600	TELECOMMUNICATIONS TOWER	General	0
3610	GAS STATION WITH MINI-MART	Store/Retail	16	8700	HISTORICAL BUILDING	General	3
3620	GAS STATION WITH CAR WASH	Store/Retail	1	8800	CONSERVATION EASEMENT	General	1
3630	GAS STATION WITH AUTO SERVICE	Store/Retail	1	8900	TPZ	General	13
3700	AUTO SERVICE	General	25	8999	TIMBER RIGHTS	General	0
3800	CAR WASH	General	6	9010	COMMON AREA / INDUSTRIAL	Industrial	0
3900	MIXED USE	General	104	9020	COMMON AREA / COMMERCIAL	General	0
4000	LOCAL SHOPPING CENTER	Store/Retail	23	9100	PIPELINES/CANALS	General	0
4100	NEIGHBORHOOD SHOPPING CENTER	Store/Retail	6	9200	SBE ASSESSED	General	0
4200	SUPERMARKET	Store/Retail	2	9300	UTILITIES - NOT SBE ASSESSED	Office	0
4300	MOTEL/HOTEL/B&B	General	35	9320	WATER	Office	0
4400	DRIVE-IN RESTAURANT	Restaurant	8	9330	SEWER	Office	0
4500	RESTAURANT	Restaurant	34	9340	ELECTRICITY	Office	0
4600	CONVALESCENT HOSPITAL/REST HOME	Industrial	4	9360	TELEPHONE	Office	0
4700	HOSPITAL	Industrial	1	9400	PRIVATE WATER COMPANY	Office	0
4800	MORTUARY	Office	2	9500	RESERVOIR	General	0
4900	SPECIAL PURPOSE COMMERCIAL	General	31	9600	WATER RIGHTS	General	0
4901	WINERY	General	5	9700	ROADS NOT COMMON AREA	General	1
4902	FIRE STATION	General	9	9710	ROADS PRIVATE	General	0
5000	INDUSTRIAL - VACANT	Vacant	0	9720	ROADS PUBLIC	General	0
5100	INDUSTRIAL PARK	Industrial	0	9730	RIGHT OF WAY	General	0
5200	LIGHT INDUSTRIAL	Industrial	39	9800	TAXABLE GOVERNMENT OWNED	General	1
5300	HEAVY INDUSTRIAL	Industrial	4	9801	NON TAXABLE GOVERNMENT OWNED	General	2
5301	CEMENT PLANT	Industrial	0	9930	TRA SPLIT REMAINDER - COMMERCIAL	General	0
5400	RESEARCH & DEVELOPMENT	Office	0	9950	TRA SPLIT REMAINDER - INDUSTRIAL	Industrial	0
5500	MANUFACTURING	Industrial	4	9960	TRA SPLIT REMAINDER - SPECIAL USE	General	0
5600	MINI STORAGE	General	30	9970	TRA SPLIT REMAINDER - AGRICULTURAL	General	0
5800	MISC IMPROVEMENTS ON INDUSTRIAL LAND	Industrial	2	9990	TRA SPLIT REMAINDER - MISCELLANEOUS	General	0
5900	SPECIAL PURPOSE INDUSTRIAL	Industrial	6				
6000	CEMETERY	Public Space	0				
6100	FRATERNAL/SERVICE ORGANIZATIONS	General	10				
6200	SCHOOLS	School	2				
6210	PRESCHOOLS	School	2				
6220	K-6	School	0				
6230	MIDDLE SCHOOL	School	0				
6240	HIGH SCHOOL	School	0				
6270	COLLEGE	School	0				
6280	REFORMATORY	School	3				
6290	K-12	School	1				
6300	CULTURAL USES	Public Space	1				
6400	CHURCH	Public Space	64				
6500	PARK/PLAYGROUND	Public Space	7				
6600	RECREATIONAL/HEALTH CLUB	Public Space	10				
6800	GOLF COURSE	Public Space	15				
6810	EXECUTIVE GOLF COURSE	Public Space	0				
6820	DRIVING RANGE	General	1				
6900	BOAT HARBOR	General	1				
7400	VINEYARD - POTENTIAL	Land	3				
7402	VINEYARD - PLANTED	Land	4				
7500	ORCHARD - POTENTIAL	Land	1				
7510	ORCHARD - NUT TREES	Land	2				
7520	ORCHARD - FRUIT TREES	Land	1				
7920	ORCHARD - VACANT	Vacant	0				
7922	ORCHARD - WALNUTS	Land	7				

Appendix 2: Commercial Customer Cubic Yards of Weekly Trash Collection

				Cubic Yards of Weekly Trash Collection										
Land Use Code	Class		Cust. Count		General	Industrial	Land	Office	Public Space	Restaurant	School	Store/ Retail	Vacant	Total
3700	General		11		14.0	-	-	-	-	-	-	-	-	14.0
3800	General		1		3.0	-	-	-	-	-	-	-	-	3.0
3900	General		37		64.3	-	-	-	-	-	-	-	-	64.3
4300	General		15		54.3	-	-	-	-	-	-	-	-	54.3
4900	General		13		36.0	-	-	-	-	-	-	-	-	36.0
4901	General		7		8.2	-	-	-	-	-	-	-	-	8.2
4902	General		8		11.3	-	-	-	-	-	-	-	-	11.3
5600	General		6		10.0	-	-	-	-	-	-	-	-	10.0
6100	General		3		2.9	-	-	-	-	-	-	-	-	2.9
6820	General		1		3.0	-	-	-	-	-	-	-	-	3.0
8700	General		2		6.2	-	-	-	-	-	-	-	-	6.2
9020	General		5		13.0	-	-	-	-	-	-	-	-	13.0
9700	General		1		4.0	-	-	-	-	-	-	-	-	4.0
9801	General		14		17.2	-	-	-	-	-	-	-	-	17.2
4600	Industrial		2		-	2.5	-	-	-	-	-	-	-	2.5
4700	Industrial		1		-	35.0	-	-	-	-	-	-	-	35.0
5100	Industrial		3		-	7.0	-	-	-	-	-	-	-	7.0
5200	Industrial		27		-	50.3	-	-	-	-	-	-	-	50.3
5300	Industrial		1		-	1.0	-	-	-	-	-	-	-	1.0
5500	Industrial		1		-	2.0	-	-	-	-	-	-	-	2.0
5900	Industrial		2		-	2.2	-	-	-	-	-	-	-	2.2
7520	Land		1		-	-	1.0	-	-	-	-	-	-	1.0
7971	Land		1		-	-	1.0	-	-	-	-	-	-	1.0
3300	Office		42		-	-	-	49.1	-	-	-	-	-	49.1
3400	Office		13		-	-	-	56.5	-	-	-	-	-	56.5
3500	Office		8		-	-	-	11.6	-	-	-	-	-	11.6
8400	Office		4		-	-	-	4.0	-	-	-	-	-	4.0

					Cubic Yards of Weekly Trash Collection									
Land Use Code	Class		Cust. Count		General	Industrial	Land	Office	Public Space	Restaurant	School	Store/ Retail	Vacant	Total
9300	Office		3		-	-	-	7.0	-	-	-	-	-	7.0
9320	Office		4		-	-	-	6.0	-	-	-	-	-	6.0
9330	Office		2		-	-	-	4.0	-	-	-	-	-	4.0
9400	Office		1		-	-	-	1.0	-	-	-	-	-	1.0
6000	Public Space		1		-	-	-	-	-	-	-	-	-	-
6300	Public Space		3		-	-	-	-	5.0	-	-	-	-	5.0
6400	Public Space		19		-	-	-	-	22.3	-	-	-	-	22.3
6500	Public Space		4		-	-	-	-	8.0	-	-	-	-	8.0
6600	Public Space		9		-	-	-	-	14.3	-	-	-	-	14.3
6800	Public Space		7		-	-	-	-	36.0	-	-	-	-	36.0
4400	Restaurant		5		-	-	-	-	-	8.0	-	-	-	8.0
4500	Restaurant		21		-	-	-	-	-	44.4	-	-	-	44.4
6200	School		2		-	-	-	-	-	-	9.0	-	-	9.0
6210	School		1		-	-	-	-	-	-	0.7	-	-	0.7
6290	School		1		-	-	-	-	-	-	0.7	-	-	0.7
3100	Store/Retail		89		-	-	-	-	-	-	-	205.7	-	205.7
3200	Store/Retail		1		-	-	-	-	-	-	-	2.0	-	2.0
3600	Store/Retail		2		-	-	-	-	-	-	-	6.0	-	6.0
3610	Store/Retail		12		-	-	-	-	-	-	-	52.0	-	52.0
3620	Store/Retail		2		-	-	-	-	-	-	-	4.0	-	4.0
3630	Store/Retail		2		-	-	-	-	-	-	-	13.0	-	13.0
4000	Store/Retail		27		-	-	-	-	-	-	-	81.0	-	81.0
4100	Store/Retail		2		-	-	-	-	-	-	-	4.0	-	4.0
4200	Store/Retail		3		-	-	-	-	-	-	-	18.0	-	18.0
3000	Vacant		7		-	-	-	-	-	-	-	-	24.0	24.0
5000	Vacant		2		-	-	-	-	-	-	-	-	3.0	3.0
	Total		462		247.4	100.0	2.0	139.2	85.6	52.4	10.4	385.7	27.0	1,050