2014 Generator-Based Characterization of Commercial Sector Disposal and Diversion in California

CalRecycle

California Department of Resources Recycling and Recovery

Contractor's Report
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Cascadia Consulting Group

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Executive Summary

Summary of Objectives

In 2011, California set an ambitious goal of 75 percent recycling, composting, or source reduction of solid waste by 2020. In 2006, California set ambitious goals to reduce greenhouse gas emissions. Directing waste materials that are generated in the state away from disposal and back into the economic stream, to their best and highest use, helps reach these goals. Businesses in California have diverted waste in many ways for many years and will continue to play a critical role in reaching these goals. The objective of this waste characterization project was to provide a better understanding of how discarded materials are generated, disposed, and diverted by the commercial sector, both for individual industry groups and for the commercial sector as a whole. This can help businesses, local governments, and CalRecycle better direct efforts to increase diversion and reduce disposal.

The California Department of Resources Recycling and Recovery (CalRecycle) commissioned this project to conduct an in-depth study of waste generated by California businesses. The objectives of the project were:

- To quantify what materials are generated and in what amounts. This includes all discards—both those disposed and those diverted from disposal.

- To characterize the sources of materials and to determine what materials are generated by different types of businesses, since they generate them in different ways (for example, compare restaurants to banks).

- To identify the paths or streams the discarded materials take, whether they are placed in disposal bins, recycling bins, or organics bins, or diverted though other means (such as a manufacturer selling scrap metal).

This study was accomplished by characterizing and quantifying disposal and diversion from individual commercial and multi-family generators statewide. CalRecycle conducted similar generator studies as part of the *1999 Statewide Waste Characterization Study* and the *2006 Waste Disposal and Diversion Findings for Selected Industry Groups*. The results of the present study provide CalRecycle with updated information about disposal and diversion activities among commercial and multi-family generators statewide and by industry group.

Summary of Approach

A total of 837 unique commercial generator sites and 52 unique multi-family generator sites participated in the study. Sites were recruited from the five regions of the state designed for this study: Bay Area, Coastal, Mountain, Southern, and Central Valley. Sampling occurred during four seasons in 2014. Recruitment staff gathered data from each participating site to (1) determine how to arrange and conduct visits for data collection purposes, (2) quantify and characterize disposal and diversion, and (3) correlate disposal and diversion information with other information about the generator

(such as number of employees, participation in recycling programs, number of visitors, etc.).

The study included the following 16 industry groups, as well as multi-family complexes:

- Arts, Entertainment, & Recreation

- Durable Wholesale & Trucking

- Education

- Hotels & Lodging

- Manufacturing – Electronic Equipment

- Manufacturing – Food & Nondurable Wholesale

- Manufacturing – All Other

- Medical & Health

- Public Administration

- Restaurants

- Retail Trade – Food & Beverage Stores

- Retail Trade – All Other

- Services – Management, Administrative, Support, & Social

- Services – Professional, Technical, & Financial

- Services – Repair & Personal

- Not Elsewhere Classified

Industry groups were designed according to several factors: grouping business types with similar waste generation profiles and purposes; focusing on industries that generate large amounts of organics; focusing on industries with high employment in California; combining industries with less employment or fewer diversion opportunities into a final group; and project budget. The construction industry group was not included in this study because waste associated with this industry is mainly generated at building sites rather than the site of the business office. Waste disposed from construction activities and sites was characterized in a separate CalRecycle study titled *California 2014 Waste Characterization Study*.

Disposed waste was characterized by obtaining one 200-pound sample from each disposal stream at each site and hand-sorting it into 82 material categories. Diverted materials were characterized by obtaining one sample of up to 125 pounds from each diversion stream at each site and characterizing it according to the same 82 material categories used for disposal samples. Disposal and diversion were quantified through

measurements of material accumulation in dumpsters, interviews with staff, examination of disposal and diversion records, and inspection of recycling and diversion systems during on-site visits. Generation rates for disposal and diversion streams were determined on a per employee basis for businesses and per occupied unit for multi-family complexes.

Summary of Findings

For the overall commercial sector, findings are presented in three ways:

- First, an overview of the quantity generated in each material stream: Disposed, Curbside Recycle, Curbside Organics, and Other Diversion.

- Second, a breakdown of the composition of materials in each stream, according to potential recoverability.

- Third, a summary of the total generation by recoverability group. This includes materials that were diverted as well as divertible materials that were placed in the Disposed stream.

Several additional tables and figures follow the overall commercial sector summaries. These additional tables and figures include:

- A summary of total generation for each group, broken down by stream.

- An overview of the generation rate and diversion rate for each industry group.

- Key metrics for each group, including the three most prevalent divertible materials.

Key Findings for the Overall Commercial Sector

Figure 1 presents the annual tons for each material stream in the overall commercial sector. This figure summarizes the quantity of materials placed in disposal bins, curbside recycling bins, and curbside organics bins, and materials diverted through other means such as businesses selling their own cardboard or scrap metal directly to recyclers. The Curbside Recycle and Curbside Organics quantities include the contamination—materials not typically acceptable in those streams, such as food in recycling bins or glass in organics bins. As shown, almost two-thirds of the material generated at businesses went to the Disposed stream, while the remaining one-third was in the diversion streams.

Figure 1. Annual Tons by Waste Stream: Overall Commercial Sector

Percentage reflects the proportion of overall commercial sector generation
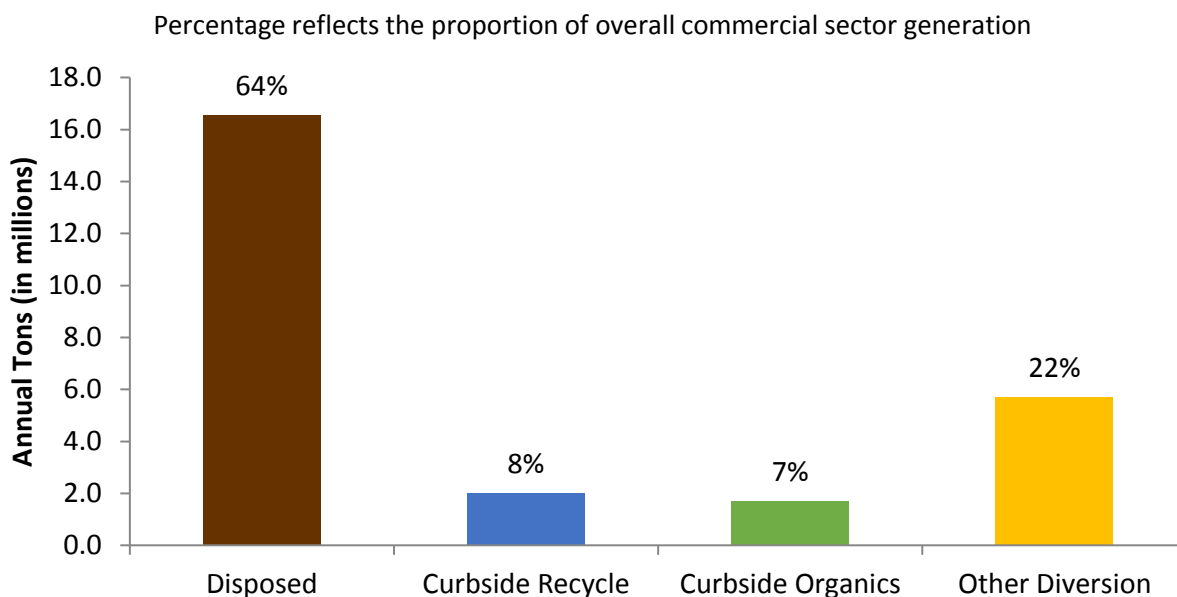
Note: Numbers may not total exactly due to rounding.

The 82 material types included in the study were aggregated into five recoverability groups: **Curbside Recyclable**, **Compost/Mulch**, **Other Recyclable**, **Recoverable Inerts**, and **Other Materials**. Materials were classified based on whether they were commonly accepted in curbside recycling programs; commonly used for compost or mulch; generally recyclable through other means (such as electronic waste or textiles); recoverable through construction and demolition programs (inerts such as concrete and asphalt), or not usually recovered. Table 95 in Appendix B: Material Definitions summarizes the assignment of material types to recoverability groups.

Each material stream was composed of many different material types and each of those material types was assigned to one of the five recoverability groups. Figure 2 breaks down the potential recoverability (by recoverability group) for each stream in the overall commercial sector. As shown, **Compost/Mulch** accounted for almost half of the Disposed stream. The Other Diversion stream was nearly evenly split among **Curbside Recyclable**, **Compost/Mulch**, and **Other Recyclable** materials. Figure 2 illustrates that recyclable materials were found in the Disposed stream and that materials not usually recovered ("**Other Materials**") were indeed recovered by some businesses. In fact, materials of all recoverability types were found in all streams.

Figure 2. Recoverability by Stream: Overall Commercial Sector

Legend: ■ Curbside Recyclable ■ Compost/Mulch ■ Other Recyclable ■ Recoverable Inerts ▨ Other Materials

Y-axis: Annual Tons (in millions)

X-axis categories: Disposed, Curbside Recycle, Curbside Organics, Other Diversion
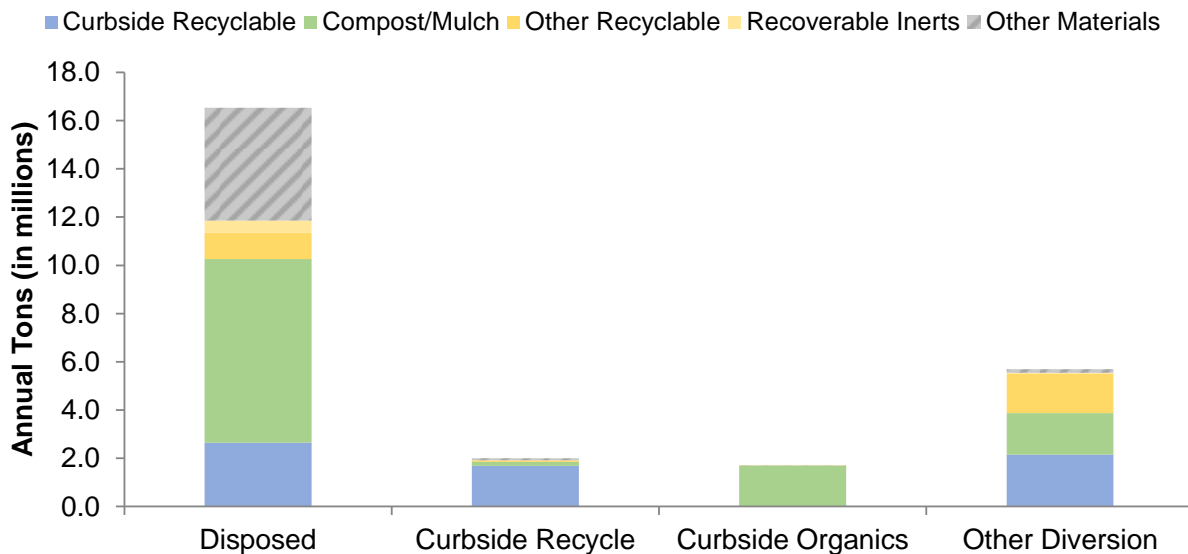
Figure 3 summarizes each recoverability group's proportion of total generation, based on the types of materials, regardless of which stream they were found in. Each bar includes materials both diverted and disposed. In this figure, the **Compost/Mulch** quantity is the sum of the **Compost/Mulch** quantities in each stream; i.e., the sum of the green bars in the previous figure equals the green bar in this figure. The same holds true for each of the other recoverability groups. As Figure 3 illustrates, approximately 43 percent of total generation in the overall commercial sector was material in the **Compost/Mulch** recoverability group, and approximately 25 percent was **Curbside Recyclable**. When combined, divertible materials accounted for roughly 81 percent of the overall commercial sector generation.

Figure 3. Recoverability of Materials Generated in the Overall Commercial Sector

Percentage reflects the proportion of overall commercial sector generation
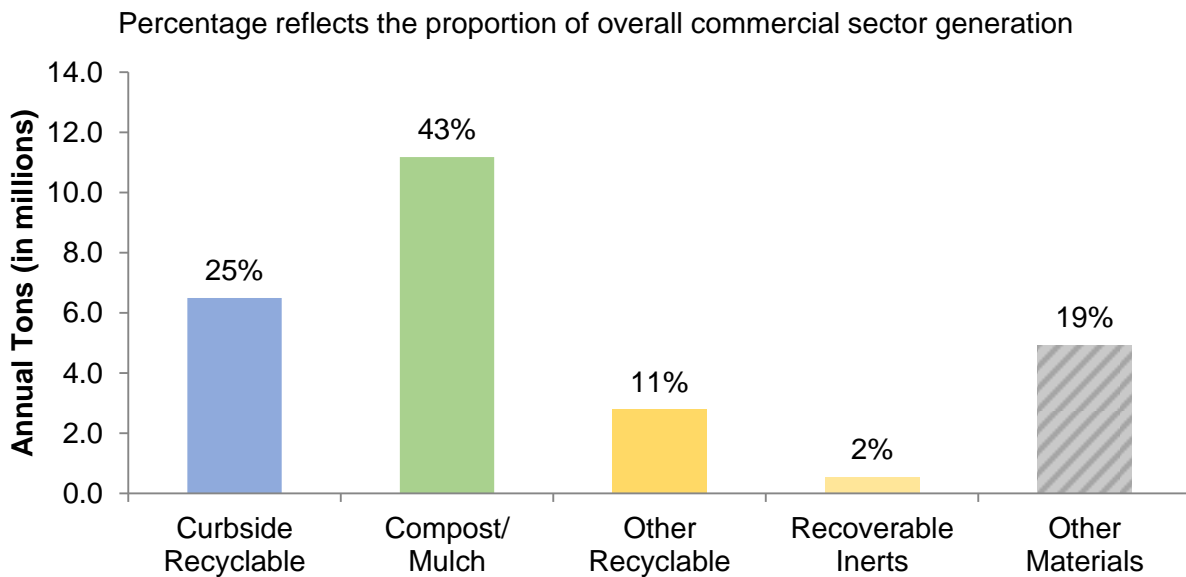
Taken together, Figures 1, 2, and 3 show that a large part of the discards generated by the commercial sector are recoverable, and there is significant potential to increase diversion of these materials from disposal. The remainder of this report provides details on the commercial waste stream to help understand industry sources for both disposed and recovered materials.

Key Findings for Industry Groups

Businesses generate waste in different ways—for example, restaurants and banks generate different types of materials. A business' waste generation pattern, its waste management practices, and the prevalence of that business type in California have an influence on the overall commercial sector waste stream. This section highlights key findings for several of the largest industry groups.

- The Services–Professional, Technical, and Financial group accounted for approximately 19 percent of overall commercial sector generation, making it the largest generator in the state. This group also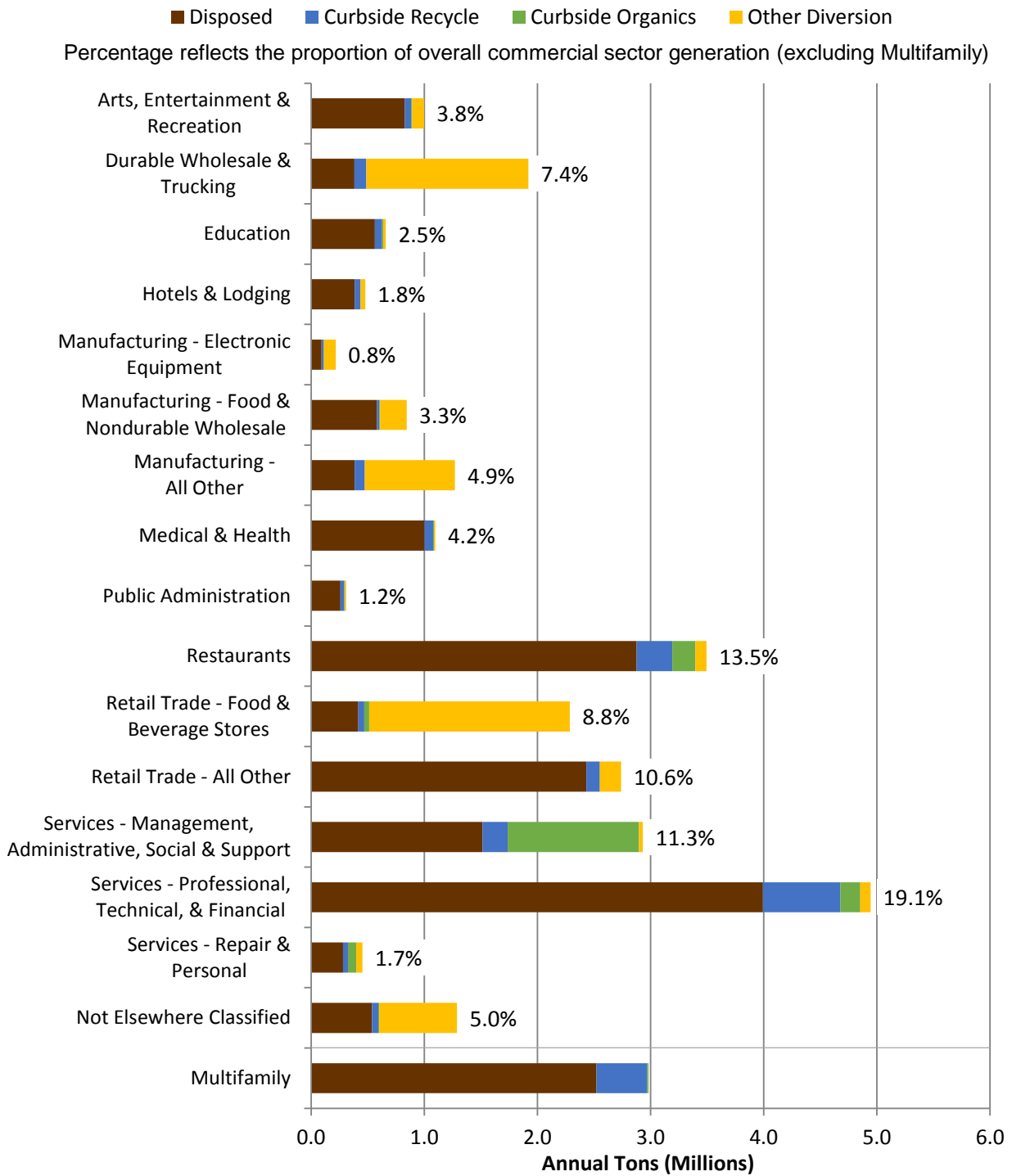 employs the most people in California. Examples of business types in this group include banks, real estate agencies, architecture firms, and engineering companies. The majority of generation in this group is in the Disposed stream: materials that are disposed directly from the businesses without further significant recovery.

- At nearly 14 percent of overall generation, Restaurants is the second-largest industry group in the study. For Restaurants, the largest portion of the material generated went to the Disposed waste stream. Although more restaurants are participating in food diversion programs, food is the most prevalent divertible material type in the Restaurants' disposed waste.

- Services–Management, Administrative, Social, and Support and Retail Trade-All Other are the only other groups to generate more than 10 percent of the overall commercial sector waste. These two groups have very different total generation composition profiles. Nearly 90 percent of the material generated by the "Retail Trade-All Other category went to the Disposed stream, but that proportion was approximately 52 percent in the Services-Management, Administrative, Social and Support group.

- Manufacturing–Electronic Equipment accounted for less than 1 percent of the overall commercial sector generation, making it the smallest group (by generation) in the state. Manufacturing-Electronic Equipment includes businesses manufacturing physical goods such as computers, radios, computing and memory chips, transformers, electrical appliances, and batteries, but it does not include software developers.

Figure 4 summarizes the annual generation by material stream for each industry group and the multi-family group. The percentages reflect that group's proportion of total commercial sector generation (nearly 26 million tons), excluding the multi-family group.

Figure 4. Annual Generation for Industry Groups, by Stream

■ Disposed ■ Curbside Recycle ■ Curbside Organics ■ Other Diversion

Percentage reflects the proportion of overall commercial sector generation (excluding Multifamily)

Industry Group	Percentage
Arts, Entertainment & Recreation	3.8%
Durable Wholesale & Trucking	7.4%
Education	2.5%
Hotels & Lodging	1.8%
Manufacturing - Electronic Equipment	0.8%
Manufacturing - Food & Nondurable Wholesale	3.3%
Manufacturing - All Other	4.9%
Medical & Health	4.2%
Public Administration	1.2%
Restaurants	13.5%
Retail Trade - Food & Beverage Stores	8.8%
Retail Trade - All Other	10.6%
Services - Management, Administrative, Social & Support	11.3%
Services - Professional, Technical, & Financial	19.1%
Services - Repair & Personal	1.7%
Not Elsewhere Classified	5.0%
Multifamily	

Annual Tons (Millions)

The industry groups addressed by this study that achieve the highest diversion rates do so mainly by implementing effective programs to divert corrugated cardboard boxes, scrap metal, food and other organics, or pallets. Of the groups addressed in this study, Durable Wholesale and Trucking and Retail–Food and Beverage Stores have the highest diversion rates. Businesses in these groups divert 80 percent and 82 percent of their total generation, respectively. These groups achieve the vast majority of their diversion outside the normal curbside collection programs, primarily through back-hauling pallets for reuse, directly selling their baled cardboard and scrap metal, or self-hauling their compostable materials to organics processors.

The Education and Multi-Family industry groups each divert an estimated 15 percent of their generation. Retail Trade–All Other and Medical and Health businesses have the lowest diversion rates, at 11 percent and 9 percent respectively.

The generation and diversion rate information, on a per employee basis, is summarized in Table 1.

Table 1. Generation Rate Summary by Weight, by Group (TPEPY)

Group Number and Name		Tons per Employee per Year					Diversion Rate
		Disposed	Curbside Recycle	Curbside Organics	Other Diversion	Generation	
Overall Commercial Sector		**1.13**	**0.14**	**0.12**	**0.39**	**1.77**	**36%**
1	Arts, Entertainment, & Recreation	2.56	0.17	0.03	0.33	**3.08**	17%
2	Durable Wholesale & Trucking	0.60	0.17	0.00	2.23	**2.99**	80%
3	Education	0.43	0.05	0.01	0.02	**0.50**	15%
4	Hotels & Lodging	1.72	0.22	0.01	0.18	**2.14**	20%
5	Manufacturing - Electronic Equipment	0.31	0.07	0.00	0.36	**0.75**	58%
6	Manufacturing - Food & Nondurable Wholesale	1.28	0.05	0.01	0.51	**1.85**	31%
7	Manufacturing - All Other	0.45	0.10	0.00	0.94	**1.50**	70%
8	Medical & Health	0.67	0.05	0.01	0.01	**0.74**	9%
9	Public Administration	0.32	0.04	0.00	0.02	**0.39**	16%
10	Restaurants	2.40	0.26	0.17	0.08	**2.92**	18%
11	Retail Trade - Food & Beverage Stores	1.21	0.15	0.13	5.15	**6.64**	82%
12	Retail Trade - All Other	2.14	0.10	0.00	0.17	**2.41**	11%
13	Services - Management, Administrative, Support, & Social	0.74	0.11	0.57	0.02	**1.44**	48%
14	Services - Professional, Technical, & Financial	1.86	0.32	0.08	0.04	**2.31**	19%
15	Services - Repair & Personal	0.94	0.15	0.24	0.18	**1.50**	38%
16	Not Elsewhere Classified	0.50	0.05	0.01	0.64	**1.20**	58%
17	**Multifamily***	**0.74**	**0.13**	**0.00**		**0.87**	**15%**

Multifamily is reported in tons per unit per year

Based on the field data collection, key findings for each industry group are presented below in Table 2 through Table 19. These key findings include disposed tons per employee per year (TPEPY), diverted TPEPY, disposed tons, diverted tons, diversion rate, and the three most prevalent divertible materials (by weight) in the Disposed stream.

In general, compostable materials such as food, leaves and grass, and lower-grade compostable papers present an opportunity to greatly increase diversion for most of the industry groups. Recyclable papers such as cardboard and mixed paper also show significant potential for further recycling, as does lumber, for several industry groups.

Table 2. Key Findings and Metrics: Overall Commercial Sector

Overall Commercial Sector				
Key Findings and Metrics				
Disposed TPEPY	Diverted TPEPY	Disposed Tons	Diverted Tons	Diversion Rate
1.13	0.64	16,536,664	9,396,087	36%
Top Three Diversion Opportunities in Disposed Stream				
- Food (24%, 4,035,748 tons) - Remainder/Composite Paper - Compostable (10%, 1,673,592 tons) - Clean Pallets & Crates (4%, 735,005 tons)				

Table 3. Key Findings and Metrics: Arts, Entertainment, & Recreation

Arts, Entertainment, & Recreation				
Key Findings and Metrics				
Disposed TPEPY	Diverted TPEPY	Disposed Tons	Diverted Tons	Diversion Rate
2.56	0.52	829,661	168,036	17%
Top Three Diversion Opportunities in Disposed Stream				
- Food (34%, 278,639 tons) - Remainder/Composite Paper - Compostable (9%, 78,350 tons) - Leaves and Grass (6%, 48,015 tons)				

Table 4. Key Findings and Metrics: Durable Wholesale & Trucking

Durable Wholesale & Trucking				
Key Findings and Metrics				
Disposed TPEPY	Diverted TPEPY	Disposed Tons	Diverted Tons	Diversion Rate
0.60	2.40	381,767	1,538,803	80%
Top Three Diversion Opportunities in Disposed Stream				
• Clean Pallets & Crates (13%, 50,937 tons) • Food (10%, 38,192 tons) • Remainder/Composite Paper - Compostable (6%, 24,689 tons)				

Table 5. Key Findings and Metrics: Education

Education				
Key Findings and Metrics				
Disposed TPEPY	Diverted TPEPY	Disposed Tons	Diverted Tons	Diversion Rate
0.43	0.07	562,442	97,926	15%
Top Three Diversion Opportunities in Disposed Stream				
• Food (34%, 189,957 tons) • Remainder/Composite Paper - Compostable (13%, 71,730 tons) • Other Miscellaneous Paper - Other (4%, 22,709 tons)				

Table 6. Key Findings and Metrics: Hotels & Lodging

Hotels & Lodging				
Key Findings and Metrics				
Disposed TPEPY	Diverted TPEPY	Disposed Tons	Diverted Tons	Diversion Rate
1.72	0.42	384,327	93,712	20%
Top Three Diversion Opportunities in Disposed Stream				
• Food (32%, 123,483 tons) • Remainder/Composite Paper - Compostable (9%, 34,549 tons) • Other Miscellaneous Paper - Other (3%, 10,188 tons)				

Table 7. Key Findings and Metrics: Manufacturing – Electronic Equipment

Manufacturing - Electronic Equipment				
Key Findings and Metrics				
Disposed TPEPY	Diverted TPEPY	Disposed Tons	Diverted Tons	Diversion Rate
0.31	0.43	91,265	125,666	58%
Top Three Diversion Opportunities in Disposed Stream				
• Remainder/Composite Paper - Compostable (13%, 11,945 tons) • Food (11%, 10,310 tons) • Clean Pallets & Crates (11%, 9,598 tons)				

Table 8. Key Findings and Metrics: Manufacturing – Food & Nondurable Wholesale

Manufacturing - Food & Nondurable Wholesale				
Key Findings and Metrics				
Disposed TPEPY	Diverted TPEPY	Disposed Tons	Diverted Tons	Diversion Rate
1.28	0.57	582,486	261,646	31%
Top Three Diversion Opportunities in Disposed Stream				
• Food (38%, 220,403 tons) • Remainder/Composite Paper - Compostable (8%, 45,184 tons) • Clean Pallets & Crates (4%, 23,205 tons)				

Table 9. Key Findings and Metrics: Manufacturing – All Other

Manufacturing - All Other				
Key Findings and Metrics				
Disposed TPEPY	Diverted TPEPY	Disposed Tons	Diverted Tons	Diversion Rate
0.45	1.05	384,292	885,586	70%
Top Three Diversion Opportunities in Disposed Stream				
• Remainder/Composite Paper - Compostable (8%, 29,777 tons) • Food (7%, 26,907 tons) • Clean Pallets & Crates (6%, 21,632 tons)				

Table 10. Key Findings and Metrics: Medical & Health

Medical & Health				
Key Findings and Metrics				
Disposed TPEPY	Diverted TPEPY	Disposed Tons	Diverted Tons	Diversion Rate
0.67	0.06	1,003,316	93,629	9%
Top Three Diversion Opportunities in Disposed Stream				
• Food (22%, 216,983 tons) • Remainder/Composite Paper - Compostable (11%, 109,841 tons) • Leaves and Grass (3%, 26,201 tons)				

Table 11. Key Findings and Metrics: Public Administration

Public Administration				
Key Findings and Metrics				
Disposed TPEPY	Diverted TPEPY	Disposed Tons	Diverted Tons	Diversion Rate
0.32	0.06	259,137	50,354	16%
Top Three Diversion Opportunities in Disposed Stream				
• Food (17%, 44,508 tons) • Remainder/Composite Paper - Compostable (14%, 37,208 tons) • Clean Pallets & Crates (5%, 13,416 tons)				

Table 12. Key Findings and Metrics: Restaurants

Restaurants				
Key Findings and Metrics				
Disposed TPEPY	Diverted TPEPY	Disposed Tons	Diverted Tons	Diversion Rate
2.40	0.52	2,876,653	617,826	18%
Top Three Diversion Opportunities in Disposed Stream				
• Food (51%, 1,461,319 tons) • Remainder/Composite Paper - Compostable (12%, 350,240 tons) • Newspaper (3%, 76,093 tons)				

Table 13. Key Findings and Metrics: Retail Trade – Food & Beverage Stores

Retail Trade - Food & Beverage Stores				
Key Findings and Metrics				
Disposed TPEPY	Diverted TPEPY	Disposed Tons	Diverted Tons	Diversion Rate
1.21	5.43	417,791	1,868,403	82%
Top Three Diversion Opportunities in Disposed Stream				
• Food (42%, 173,504 tons) • Remainder/Composite Paper - Compostable (9%, 37,501 tons) • Other Miscellaneous Paper - Other (3%, 13,492 tons)				

Table 14. Key Findings and Metrics: Retail Trade – All Other

Retail Trade - All Other				
Key Findings and Metrics				
Disposed TPEPY	Diverted TPEPY	Disposed Tons	Diverted Tons	Diversion Rate
2.14	0.27	2,433,989	306,012	11%
Top Three Diversion Opportunities in Disposed Stream				
• Food (18%, 437,469 tons) • Remainder/Composite Paper - Compostable (9%, 209,655 tons) • Clean Pallets & Crates (6%, 135,886 tons)				

Table 15. Key Findings and Metrics: Services – Management, Administrative, Support, & Social

Services - Management, Administrative, Support, & Social				
Key Findings and Metrics				
Disposed TPEPY	Diverted TPEPY	Disposed Tons	Diverted Tons	Diversion Rate
0.74	0.70	1,514,667	1,417,462	48%
Top Three Diversion Opportunities in Disposed Stream				
• Food (25%, 376,502 tons) • Remainder/Composite Paper - Compostable (11%, 164,498 tons) • Leaves and Grass (6%, 86,284 tons)				

Table 16. Key Findings and Metrics: Services – Professional, Technical, & Financial

Services - Professional, Technical, & Financial				
Key Findings and Metrics				
Disposed TPEPY	Diverted TPEPY	Disposed Tons	Diverted Tons	Diversion Rate
1.86	0.44	3,994,643	949,869	19%
Top Three Diversion Opportunities in Disposed Stream				
• Remainder/Composite Paper - Compostable (10%, 395,521 tons) • Clean Pallets & Crates (8%, 332,687 tons) • Food (8%, 330,452 tons)				

Table 17. Key Findings and Metrics: Services – Repair & Personal

Services - Repair & Personal				
Key Findings and Metrics				
Disposed TPEPY	Diverted TPEPY	Disposed Tons	Diverted Tons	Diversion Rate
0.94	0.57	281,371	170,866	38%
Top Three Diversion Opportunities in Disposed Stream				
• Remainder/Composite Paper - Compostable (9%, 24,506 tons) • Food (7%, 20,927 tons) • Uncoated Corrugated Cardboard (5%, 15,017 tons)				

Table 18. Key Findings and Metrics: Not Elsewhere Classified

Not Elsewhere Classified				
Key Findings and Metrics				
Disposed TPEPY	Diverted TPEPY	Disposed Tons	Diverted Tons	Diversion Rate
0.50	0.70	538,858	750,291	58%
Top Three Diversion Opportunities in Disposed Stream				
• Food (16%, 86,197 tons) • Remainder/Composite Paper - Compostable (9%, 48,398 tons) • Leaves and Grass (6%, 30,678 tons)				

Table 19. Key Findings and Metrics: Multi-Family

Multifamily				
Key Findings and Metrics				
Disposed TPUPY	Diverted TPUPY	Disposed Tons	Diverted Tons	Diversion Rate
0.74	0.13	2,524,183	460,083	15%
Top Three Diversion Opportunities in Disposed Stream				
• Food (25%, 625,274 tons) • Textiles (7%, 188,044 tons) • Remainder/Composite Paper - Compostable (7%, 170,875 tons)				

Additional Analysis – Assessment of Commercial Curbside Diversion

In 2012, California's Mandatory Commercial Recycling (MCR) law went into effect, requiring businesses to take actions to divert materials from disposal. Businesses can comply by source-separating materials and having them delivered for recycling or composting. They can also comply by subscribing to a service that may include mixed-waste processing (i.e., recyclables are not separated and the entire waste stream is processed), as long as the results are comparable to source separation. In order to determine what's comparable to source separation, an assessment of that source separation is needed. This part of the study provides one assessment of source separation.

This special analysis aimed to assess the performance of curbside programs by focusing on curbside diversion by businesses and multi-family sites. Curbside programs capture the materials that would be processed by a "clean" material recovery facility (MRF) or an organics processing facility. The generator sites used for this task were a subset of those used for the whole study. They were selected to represent the make-up of California's overall commercial and multi-family sector as a whole, not by industry group. To be included, the business site must have curbside recycling and/or organics service. Since the Mandatory Commercial Recycling law includes multi-family sites, the multi-family sector was included in the analysis. The analysis excluded Other Diversion—the items diverted through other methods such as back-hauling, self-hauling, take-back programs, and other means.

For this analysis the field crew performed a more detailed sort of Disposed, Curbside Recycle, and Curbside Organics samples from the subset of generators selected to participate in this part of the study. The field crew collected additional details on the level and the source of contamination for certain materials in these samples. The purpose of the contamination subsort was to estimate the fraction of the sorted materials that a MRF or organics processor could recover, recognizing some "recoverable" material arriving at a facility is too contaminated to be recovered.

As shown in Table 20, approximately 21 percent of the material placed in bins at businesses and multi-family complexes is recovered through curbside diversion programs capturing the standard recoverable materials.

Table 20. Recovery Rate for Commercial Curbside Diversion

	Disposed Tons			Curbside Recycle Tons			Curbside Organics Tons			Recovered Tons	Generated Tons	Percent Recovered
	Clean	Bin Contaminated	Source Contaminated	Clean	Bin Contaminated	Source Contaminated	Clean	Bin Contaminated	Source Contaminated			
Uncoated Corrugated Cardboard	155,292	71,482	8,253	1,035,182	17,201	58,076	3,116	63	18	1,038,380	1,348,685	77.0%
Paper Bags	19,268	21,988	6,714	15,945	62	485	39	0	0	15,984	64,502	24.8%
Newspaper	104,316	120,611	19,708	89,170	34,772	0	45	812	0	90,027	369,434	24.4%
White Ledger Paper	119,029	43,706	8,382	133,712	1,867	1,123	0	48	0	133,760	307,867	43.4%
Other Office Paper	116,385	57,112	6,007	103,406	3,071	1,733	45	369	0	103,821	288,130	36.0%
Magazines and Catalogs	44,032	8,720	23,621	79,857	1,540	2,018	0	0	0	79,857	159,788	50.0%
Phone Books and Directories	2,097	377	1,597	2,025	417	151	0	0	0	2,025	6,664	30.4%
Other Miscellaneous Paper - Compostable	14,048	14,805	16,727	47,765	1,779	13,277	6,065	397	1,756	8,218	116,618	7.0%
Other Miscellaneous Paper - Other	174,951	175,361	45,380	118,719	1,496	4,950	420	202	0	119,341	521,479	22.9%
Remainder/Composite Paper - Compostable	194,629	7,396	1,098,247	14,581	51	4,250	0	3,954	23	3,978	1,323,132	0.3%
Clear Glass Bottles and Containers - CRV*	54,505	N/A	N/A	29,604	N/A	N/A	424	N/A	N/A	29,604	84,533	35.0%
Clear Glass Bottles and Containers - Non-CRV*	48,486	N/A	N/A	41,179	N/A	N/A	4,628	N/A	N/A	41,179	94,292	43.7%
Green Glass Bottles and Containers - CRV*	12,200	N/A	N/A	9,563	N/A	N/A	0	N/A	N/A	9,563	21,762	43.9%
Green Glass Bottles and Containers - Non-CRV*	36,110	N/A	N/A	45,811	N/A	N/A	7,325	N/A	N/A	45,811	89,246	51.3%
Brown Glass Bottles and Containers - CRV*	32,698	N/A	N/A	20,823	N/A	N/A	397	N/A	N/A	20,823	53,918	38.6%
Brown Glass Bottles and Containers - Non-CRV*	5,293	N/A	N/A	6,551	N/A	N/A	1,125	N/A	N/A	6,551	12,969	50.5%
Other Colored Glass Bottles and Containers - CRV*	297	N/A	N/A	0	N/A	N/A	0	N/A	N/A	0	297	0.0%
Other Colored Glass Bottles and Containers - Non-CRV*	667	N/A	N/A	349	N/A	N/A	0	N/A	N/A	349	1,016	34.3%
Tin/Steel Cans - CRV Bimetal Containers	1,104	0	4,345	1,260	0	39	22	0	0	1,260	6,770	18.6%
Tin/Steel Cans - Other	20,125	6,214	46,215	13,466	0	8,870	0	617	0	13,466	95,507	14.1%
Aluminum Cans - CRV	13,151	1,261	3,879	4,610	0	0	62	20	2	4,610	22,984	20.1%
Aluminum Cans - Non-CRV	2,787	161	3,126	2,151	0	936	0	0	0	2,151	9,161	23.5%
PETE Containers - CRV	31,151	1,258	12,569	20,186	0	564	373	59	0	20,186	66,159	30.5%
PETE Containers - Non-CRV	6,092	1,098	26,843	18,511	487	12,689	32	152	13	18,511	65,918	28.1%
HDPE Containers - CRV	3,863	0	3,487	1,318	0	13	0	0	0	1,318	8,681	15.2%
HDPE Containers - Non-CRV	10,182	1,333	47,174	20,752	1,561	4,710	23	56	0	20,752	85,790	24.2%
Miscellaneous Plastic Containers - CRV	1,229	256	3,713	282	0	17	0	0	0	282	5,497	5.1%
Miscellaneous Plastic Containers - Non-CRV	9,717	1,032	35,081	28,259	0	5,916	197	50	52	28,259	80,303	35.2%
Food*	3,320,900	N/A	N/A	65,473	N/A	N/A	275,510	N/A	N/A	275,510	3,661,883	7.5%
Leaves and Grass*	432,571	N/A	N/A	416	N/A	N/A	1,373,674	N/A	N/A	1,373,674	1,806,661	76.0%
Prunings and Trimmings*	259,666	N/A	N/A	6,269	N/A	N/A	28,603	N/A	N/A	28,603	294,538	9.7%
Standard Recoverable Materials Subtotal	*5,246,840*	*534,172*	*1,421,068*	*1,977,196*	*64,305*	*119,817*	*1,702,125*	*6,800*	*1,863*	*3,537,852*	*11,074,185*	*31.9%*
All Other Materials**	N/A	N/A	5,330,706	N/A	N/A	288,020	N/A	N/A	5,121	0	5,623,847	0%
Statewide Total for Businesses and Multifamily Complexes with Curbside Diversion	5,246,840	534,172	6,751,774	1,977,196	64,305	407,836	1,702,125	6,800	6,984	3,537,852	16,698,032	21.2%

* These materials were not subsorted for contamination. All glass containers, food, leave and grass, and prunings and trimmings are assumed to be recovered if in the appropriate bin.

**These are materials that are not typically recoverable and most of these materials were not subsorted for contamination.