

# Appendix A

## Needs Assessment for the Integrated Waste Management Zero Waste Strategic Plan Development



**Presented to:**

**City of San José  
Environmental Services Department**



**November 3, 2008**



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## Section 1

# Executive Summary

## Background

In 2007, the City Council of San José (“City”) requested staff to develop an Integrated Waste Management (“IWM”) Zero Waste Strategic Plan that will establish policy as it relates to the City’s waste management program through the year 2040. The City’s objectives are to provide resource conservation, waste reduction, pollution prevention, and a sustainable economy. The IWM Zero Waste Strategic Plan addresses the following key components for achieving Zero Waste:

- Strengthening recycling programs;
- Identifying infrastructure requirements for reuse, recycling and composting;
- Establishing effective waste prevention programs, incentives and fee structures; and,
- Identifying economic development opportunities from expanding solid waste processing facilities and industries using recycled materials as feedstock.

The City has passed a resolution establishing a goal of 75 percent waste diversion by 2013, and a goal of Zero Waste by 2022. Staff has reviewed Zero Waste plans from other cities and found that many of the initiatives under development by Zero Waste cities are already being implemented or planned for the City.

R3 Consulting Group Inc., (“R3”) along with our subcontractor Environmental Planning Consultants (“EPC,”) were retained by the City of San José to prepare this Needs Assessment to project generation, disposal and diversion tonnages through the year 2040, including flow estimates and characterization by generator sector.

In order to meet proposed waste reduction goals, the IWM Zero Waste Strategic Plan will consider key strategies such as food waste composting, reducing packaging, extended producer responsibility, the commercial solid waste system design, improved services for multi-family dwellings, and many others. Staff will also evaluate opportunities for generating energy from selected waste materials as a component of the City’s IWM Zero Waste Strategic Plan.

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# Executive Summary

## Relationship to Other Studies Being Conducted for the City's IWM Zero Waste Strategic Plan

This Needs Assessment is only one portion of a suite of studies that are being conducted to gather information for the City's IWM Zero Waste Strategic Plan. The various studies include:

- A review of the Construction and Demolition Debris Deposit Program ("CDDD");
- Commercial Solid Waste System Redesign and Enhancement Options Study;
- Waste Characterization Study for Single-Family waste, MRF residuals and Commercial Waste;
- An Assessment of Infrastructure, Planning and Land Use Issues; and
- An Analysis for the IWM Zero Waste Strategic Plan of Alternative Financing and Revenue-Generating Mechanisms.

## Goals

The Needs Assessment gathered and consolidated waste characterization and tonnage data from a variety of City and non-City sources in order to meet the following goals:

- Determine the volume of material generated, disposed, and recycled from the residents and businesses of the City, with waste projections through 2040;
- Identify significant material not currently being diverted, by generator sector, and material type, with waste projections through 2040;
- Provide waste characterization data by generator sector;
- Provide recommendations regarding portions of the waste stream that could be targeted with new or improved programs; and
- Provide recommendations on increasing waste diversion through the CDDD program.

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## Objectives of This Study

The objectives of this Needs Assessment are to:

- (1) Provide the project team with background to develop the IWM Zero Waste Strategic Plan;
- (2) Document significant waste materials generated in the City which are not currently being diverted; and
- (3) Develop recommendations on portions of the waste stream to target for new or expanded diversion programs.

This Needs Assessment utilized the following information which was available for both calendar and fiscal periods between 2002 and 2007:

- City demographics;
- Demographic projections;
- Waste stream generation and trends;
- Disposal tonnage;
- Diversion tonnage;
- Material flows; and
- Waste characterization data.

The above information was analyzed by the following sectors of generators, and to the extent feasible, the waste characterization (by sector) of materials types that are currently disposed and could potentially be diverted from the landfills. The following sectors of waste and recyclables generation have been reviewed:

- Single-Family Dwellings (“SFD”);
- Multi-family Dwellings (“MFD”);
- Commercial Sector (from franchisees only);
- City Facilities;
- Construction and Demolition debris (“C&D”) (from franchisees only);
- Non-franchised Hauler waste (“Self-haul”) material; and,
- Alternative Daily Cover (“ADC”).

### **City of San José Diversion Rate, as Calculated by the California Integrated Waste Management Board (“CIWMB”)**

The City’s 2006 Reporting Year unofficial diversion rate, as calculated by the CIWMB, is 60 percent, and was 59 percent in

## Executive Summary

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# Executive Summary

2005 and 62 percent in 2004. Those diversion rates have been calculated using a projection methodology called the “Adjustment Methodology.” In the case of the City, the waste generation diversion rate estimates were calculated using data collected in the City’s 1999 New Base Year study, and projections were made to calculate a waste generation figure for the year 2006. The Adjustment Methodology differs greatly from the methodology used to summarize disposal and diversion in this report. This report’s emphasis was on gathering measured tonnage data for major programs operated by the City in 2006/07, as well as other readily-available tonnage data from landfills.

This study was NOT conducted using the same procedures as a New Base Year Study, and it does not contain a high level of detail on non-City-operated diversion programs and source reduction activities conducted by residents, businesses, and others in the City. Some of the diversion tonnages that are not included in this study are: diversion from the CDDD program, diversion by private recyclers that are not required to be franchised, backyard composting, reuse, etc. These additional diversion activities are expected to continue in the future.

We used the CIWMB’s 2006 disposal total in this report, as well as the CIWMB’s 2006 calendar year total for generation for the City of San José, as the 2007 data has not yet been published on the CIWMB’s web site. The City provided disposal and diversion totals for the 2006/07 fiscal year, and we used those data to summarize the tonnage from each program. There were tonnage differences between 2006 and 2006/07, and based on disposal totals, we estimate those differences to be under 3 percent.

## Project Approach

### Description of Data Received

We utilized several sources in gathering data for this report. The table below summarizes the data sources.

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**TABLE 1A**

**Data Sources**

<b>Waste Stream</b>	<b>Data Source for Tonnage</b>	<b>Data Source for Waste Composition</b>
Single-Family	City data for Fiscal Year 2006/07, including disposal, recycling, and yard trimmings collection	Cascadia Consulting Group's City of San José Waste Characterization Study, May 2008
Multi-Family	City data for Fiscal Year 2006/07, including disposal and composting collection	CIWMB 2004 Statewide Waste Characterization Study for Multi-Family Waste
Commercial (1)	City data for Fiscal Year 2006/07 and HF&H Consultants' Commercial Redesign White Paper of November, 2007, including disposal, recycling and yard trimmings collection	Cascadia Consulting Group's City of San José Waste Characterization Study, May 2008
City Facilities	City data for Fiscal Year 2006/07, for both disposal and recycling	CIWMB 2006 Statewide Waste Characterization Study for Commercial Waste
Construction and Demolition Debris	City data for Fiscal Year 2006/07 and HF&H Consultants' Commercial Redesign White Paper, for both disposal and recycling	CIWMB 2006 Statewide Waste Characterization Study for Construction and Demolition Debris Waste

# Executive Summary

Waste Stream	Data Source for Tonnage	Data Source for Waste Composition
Non-Franchised Hauler Waste	Calculated, based on subtracting all other known waste quantities from the total waste quantity delivered to landfills in 2006, for disposal quantity only (no data available for non-franchised diversion)	CIWMB 2004 Statewide Waste Characterization Study for Self-haul Waste
Alternative Daily Cover and other "Beneficial Use" at disposal facilities	CIWMB web site totals for ADC, as well as more detailed data on AIC, cover material, and inerts from Santa Clara County	All ADC was reported by waste type, so there was no need to use additional studies to estimate waste composition
Overall, City-wide Waste Stream	Tonnage data was a calculated sum of all of the waste streams. CIWMB official disposal data for calendar year (CY) 2006 was used for total disposal, and CIWMB official generation total for CY 2006 was used for generation.	Composition data for the overall waste stream was calculated as a weighted average of all of the individual sector waste streams combined.

(1) Commercial waste composition was based on the weighted average of the Front-Loader, Compactor and Debris Box waste composition data.

## Calculations and Projection Methodology

In order to prepare this report, it was necessary to complete several types of calculations.

- Most figures presented in this report were based on actual tonnage values that were either reported to various entities, including the City, Santa Clara County, or the CIWMB, or included in various reports which are cited.
- The overall waste stream was calculated by adding up the individual sector waste streams. Non-franchised hauler

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waste disposal is not reported to the City; therefore, we calculated non-franchised hauler disposal by subtracting all of the other waste streams from the total disposal that is summarized on the CIWMB's web site.

- The tons of remaining waste, by waste material type, were calculated by multiplying individual waste material composition percentages by the total tonnage for that waste stream sector.
- Diversion tonnage totals were included in this report exactly as they were reported to us by the City, by material type. No additional calculations were performed.
- Projections were made based on population growth rates. The Association of Bay Area Governments ("ABAG") has made population projections for the City through 2035. We used the annual growth rate for 2030 through 2035 for the years 2036 through 2040. *Note: the CIWMB uses three factors to project waste quantities: population, taxable sales (adjusted for inflation), and employment. ABAG projects population data thirty years into the future, and also makes projections of employment, which are based on population growth rates. ABAG does not project taxable sales figures more than two years into the future.*
- We calculated the percentages of each waste sector's disposal that were (1) recyclable, (2) compostable, (3) potentially recyclable, and (4) non-recyclable, based on assigning the individual waste categories in the waste composition analysis into one of those four groups. The single family residential section of this report lists the material types that are in each group.

### Recommendations

Our recommendations are listed in each section of this report, so that the recommendations for a particular sector are grouped with the rest of the data for that sector. Our recommendations focus on portions of the waste stream to target for new or expanded diversion programs, materials that represent a significant portion of the waste stream, possess a strong potential market demand, and/or economic advantages associated with recycling or waste prevention. Our initial recommendations are at a high level as the IWM Zero Waste Strategic Plan stakeholders' meetings have not yet been conducted and new and improved programs have not been evaluated or selected.

## Executive Summary

### Report Organization

Data in this report is organized into the following sections:

Section 1. Executive Summary

Section 2. Overall City-Wide Waste Stream Review

Section 3. Single-Family Sector

Section 4. Multi-Family Sector

Section 5. Commercial Sector – Franchised Collection

Section 6. City Facilities Sector

Section 7. Construction and Demolition Sector – Franchised Collection

Section 8. Non-Franchised Hauler Sector

Section 9. Alternative Daily Cover

Within each section, the report addresses and summarizes the following information:

- Introduction and Summary of Current Diversion Programs;
- Waste Generation, Characterization and Projections Through 2040;
- Summary of Total Tons Disposed and Diverted;
- Waste Characterization Study Summary;
- Summary of Major Waste Types;
- Summary of Minor Waste Types to Target for New or Expanded Programs; and
- Recommendations.

### Limitations

The availability of data varies greatly by sector, ranging from very complete and consistent data for the single-family sector to almost no tonnage data for non-franchised hauler waste.

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## **Recent Changes to the Multi-Family Program and City Facilities Program**

The data used in preparing the Multi-Family Dwellings (MFD) and City Facilities sections of this report were developed just before the City approved expansion of the Multi-Family mixed waste composting program and implementation of a mixed waste composting program for City Facilities. Implementation of the new programs will cause significant changes to the tonnage projections and future waste composition portions of the MFD and City Facilities sections of this report; however, new data are not yet available, as the programs are just beginning.

## **Waste Composition Data**

For some sectors, such as single-family and commercial, the City had recently completed a new waste composition study. For the remainder of the sectors, Statewide waste composition data was used.

The two waste composition studies used different waste type categories. The statewide waste composition study used approximately 20 more waste categories than the study conducted for the City. In this report, we combined data to present composition data for the City overall.

## **Tonnage Data**

Some waste sectors are very closely monitored, such as the single-family, multi-family, and City Facility sectors. The data that is available for these sectors is much more complete than the data for some of the other sectors.

This study does not analyze materials for suitability with energy or conversion technologies, though such an analysis is certainly possible, using the data provided herein.

## **Diversions Rates for Each Sector**

Single Family Diversion. The Large Item collection, Neighborhood Clean-up, and Yard Trimmings programs collect materials from both the single-family and multi-family sectors, and some small civic facilities (such as fire stations). The materials disposed and diverted through these programs are all reported in the single-family sector. Therefore, the tonnages in the single-family sector are overstated by the inclusion of these materials and the tonnages in the multi-family and City sectors are understated by the exclusion of these materials. Due to the manner in which these materials are tracked and reported it was not possible to reclassify materials collected from multi-family and small civic units into those sectors.

# Executive Summary

Non-Franchised Hauler Diversion. As a result of the manner in which data for Non-Franchised Hauler (self-haul) material is reported to the City, this sector shows a diversion percentage of zero. Section 8 of this report contains recommendations related to changes in reporting requirements for this sector.

## **Material Type Growth Projections**

Growth of material by types is projected using a straight line methodology with no consideration given to changes which might occur to the waste stream over time as certain materials are replaced with other materials.

## **Rounding**

In this report, tonnages are rounded to the nearest ton, and waste composition percentages are rounded to either the nearest whole percent (in the text) or nearest tenth of a percent (in the tables). Due to this rounding, the tonnages and percentages presented in this report, when added together, may not exactly match the subtotals and totals shown.

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## Demographics

The City has franchised waste collection and diversion programs that serve:

- Approximately 200,000 single-family units;
- Approximately 93,000 Multi-Family Dwellings in 3,200 MFD complexes;
- All City Facilities, including administrative buildings, the airport, parks, convention center, fire and police stations and libraries; and
- Approximately 8,000 – 10,000 commercial businesses.

In addition, non-franchised haulers, contractors, landscapers, clean-up companies and self-hauler vehicles (residential and commercial) collect material from C&D projects, individual residents, businesses and many other types of projects throughout the City.

### Summary of Total Tons Disposed and Diverted

The City's total waste generation is 1,869,203 tons, and the City's overall diversion rate is 60 percent, according to the Adjustment Methodology calculation provided on the California Integrated Waste Management Board's website for 2006.

City-wide disposal amounts to 753,749 tons for 2006, according to the official statistic provided by the CIWMB. The City-wide diversion total for 2006 is 1,115,454 as estimated by the CIWMB Adjustment Method. For the purposes of this report, this tonnage total can be split into two parts:

1. City-tracked diversion programs, such as recycling and yard trimmings collection programs, including ADC, amount to 568,713 tons. (These diverted tons are listed by sector in table 2A as "single family dwelling, diverted," "multi-family dwelling, diverted," etc.);
2. Other diversion activities for which no regular tonnage tracking exists, are estimated to be 546,741 tons using the CIWMB Adjustment Methodology. (The Executive Summary discusses these tons under the heading, "City of San José Diversion Rate, as Calculated by the CIWMB.")

## Section 2

### Overall City-wide Waste Stream Review

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## Overall City-wide Waste Stream Review

The first step in the analysis of the City's waste stream was to document the total waste generated, landfilled, and diverted for each of the following sectors, using tonnage data provided by the City:

- Single-family;
- Multi-family;
- Commercial (from franchisees only);
- City Facilities;
- Construction & Demolition Debris (from franchisees only);
- Non-franchised haulers (including self-haul); and,
- Alternative Daily Cover ("ADC.")

That information, which is summarized in Table 2A and illustrated in Figure 2A.1 – Figure 2A.3, provides a number of insights. Future waste generation is projected in Table 2A using the ABAG population growth multiplier, 1.21 percent per year, or 48.4 percent by 2040. These projections describe what will happen if the City continues with current program and processing options, i.e., if the City does not implement new zero waste policies and programs. These numbers provide a baseline for future planning and comparison purposes.

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**TABLE 2A**  
**Summary Projections of Landfilled and Diverted Tons**

Waste Stream	Actual 06/07	% of Total Generated	Projected			
			2010	2020	2030	2040
<b>Single Family Dwelling</b>						
Landfilled	183,132	9.8%	190,427	218,007	242,973	271,776
Diverted	230,721	12.3%	239,911	274,658	306,112	342,400
<b>Total</b>	<b>413,853</b>	<b>22.1%</b>	<b>430,338</b>	<b>492,665</b>	<b>549,084</b>	<b>614,175</b>
<b>Diversion Rate</b>	<b>55.7%</b>		<b>55.7%</b>	<b>55.7%</b>	<b>55.7%</b>	<b>55.7%</b>
<b>Multi Family Dwelling</b>						
Landfilled	59,938	3.2%	62,326	71,352	79,523	88,951
Diverted	30,188	1.6%	31,390	35,937	40,052	44,800
<b>Total</b>	<b>90,126</b>	<b>4.8%</b>	<b>93,716</b>	<b>107,289</b>	<b>119,576</b>	<b>133,751</b>
<b>Diversion Rate*</b>	<b>33.5%</b>		<b>33.5%</b>	<b>33.5%</b>	<b>33.5%</b>	<b>33.5%</b>
<b>Commercial - Franchised Collection</b>						
Landfilled	243,407	13.0%	253,102	289,760	322,943	361,226
Diverted	40,117	2.1%	41,715	47,757	53,226	59,535
<b>Total</b>	<b>283,524</b>	<b>15.2%</b>	<b>294,817</b>	<b>337,516</b>	<b>376,169</b>	<b>420,761</b>
<b>Diversion Rate</b>	<b>14.1%</b>		<b>14.1%</b>	<b>14.1%</b>	<b>14.1%</b>	<b>14.1%</b>
<b>City Facilities</b>						
Landfilled	6,236	0.3%	6,484	7,423	8,273	9,254
Diverted	1,591	0.1%	1,654	1,894	2,111	2,361
<b>Total</b>	<b>7,827</b>	<b>0.4%</b>	<b>8,138</b>	<b>9,317</b>	<b>10,384</b>	<b>11,615</b>
<b>Diversion Rate</b>	<b>20.3%</b>		<b>20.3%</b>	<b>20.3%</b>	<b>20.3%</b>	<b>20.3%</b>
<b>C &amp; D - Franchised Collection</b>						
Landfilled	4,278	0.2%	4,448	5,092	5,676	6,348
Diverted	101,010	5.4%	105,033	120,245	134,016	149,903
<b>Total</b>	<b>105,287</b>	<b>5.6%</b>	<b>109,481</b>	<b>125,338</b>	<b>139,691</b>	<b>156,251</b>
<b>Diversion Rate</b>	<b>95.9%</b>		<b>95.9%</b>	<b>95.9%</b>	<b>95.9%</b>	<b>95.9%</b>
<b>Non-Franchised Haulers</b>						
Landfilled	256,759	13.7%	266,986	305,655	340,658	381,041
Diverted	-	0.0%	-	-	-	-
<b>Total</b>	<b>256,759</b>	<b>13.7%</b>	<b>266,986</b>	<b>305,655</b>	<b>340,658</b>	<b>381,041</b>
<b>Diversion Rate</b>	<b>0.0%</b>		<b>0.0%</b>	<b>0.0%</b>	<b>0.0%</b>	<b>0.0%</b>
<b>ADC</b>						
Landfilled	-	0.0%	-	-	-	-
Diverted	165,086	8.8%	171,662	196,524	219,030	244,995
<b>Total</b>	<b>165,086</b>	<b>8.8%</b>	<b>171,662</b>	<b>196,524</b>	<b>219,030</b>	<b>244,995</b>
<b>Diversion Rate</b>	<b>100.0%</b>		<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>
<b>Totals</b>						
Landfilled (per CIWMB web site for CY 2006)	753,749	40.3%	783,773	897,289	1,000,046	1,118,596
Diverted	568,713	30.4%	591,366	677,015	754,546	843,994
<b>Additional Diversion not tracked by this Study</b>	<b>546,741</b>	<b>29.2%</b>	<b>568,520</b>	<b>650,860</b>	<b>725,396</b>	<b>811,388</b>
<b>CIWMB Total Generation (2006 Value used for 06/07 FY)</b>	<b>1,869,203</b>	<b>100.0%</b>	<b>1,943,659</b>	<b>2,225,164</b>	<b>2,479,988</b>	<b>2,773,978</b>
<b>Diversion Rate</b>	<b>59.7%</b>		<b>59.7%</b>	<b>59.7%</b>	<b>59.7%</b>	<b>59.7%</b>
<b>Growth Rate vs. 06/07</b>			<b>3.98%</b>	<b>19.04%</b>	<b>32.68%</b>	<b>48.40%</b>

\* The overall MFD diversion rate is 33.5%, however, the MFD contractor achieved a 35% diversion rate on categories of material that are subject to the minimum diversion rate guarantee.

## Overall City-wide Waste Stream Review

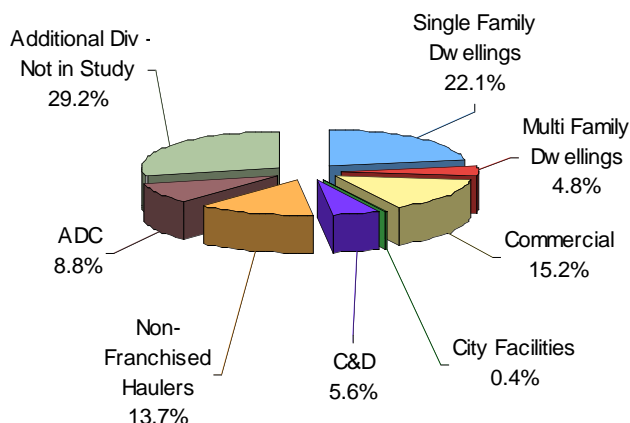
R3

# Overall City-wide Waste Stream Review

## Generation

As shown in Table 2A, the Single-Family sector accounts for approximately one-fourth (22.1 percent) of the total material generated in the City followed by the Commercial sector (15.2 percent) and the Non-Franchised Hauler sector (which includes self-haul material) (13.7 percent). As defined by the CIWMB, the amount generated in the City in 2006 was 1,869,203 tons, as shown in Table 2A. The Multi-Family sector is 4.8 percent and C&D is 5.6 percent, while the City Facilities waste stream is very small, representing less than 1 percent of the overall total. However, it is important that this waste stream achieve high diversion rates as a way for City government to present a good example to the community. "Additional diversion not in this study" amounts to approximately 29 percent, and may include: diversion from the CDDD program, diversion by private recyclers that are not required to be franchised, backyard composting, reuse, etc.

**FIGURE 2A.1**  
**Total Generated**



## Disposal

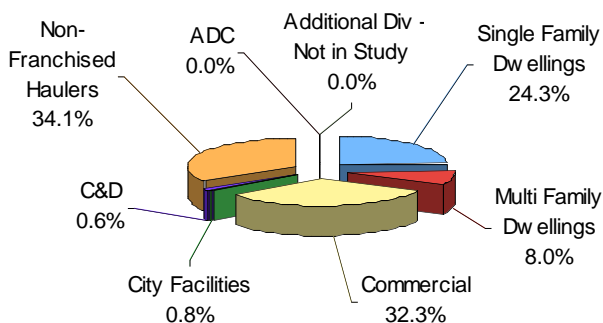
Analysis of the landfilled tonnage figures in Table 2A shows that the disposal portion of the Non-franchised Hauler waste stream, at 256,759 tons, comprises approximately one-third (34.1 percent) of the material currently disposed (landfilled) in the City. The second largest portion of disposal was the Commercial sector, with disposal of 243,407 tons, or 32.3 percent of the City's disposal total. The Single-Family Dwelling Residential sector was the third largest disposal portion, with 183,132 tons, or 24.3 percent of total disposal. ADC is shown as 0.0 percent since materials used for ADC are not counted as disposed using the CIWMB methodology.

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## Overall City-wide Waste Stream Review

**FIGURE 2A.2**

**Total Landfilled**

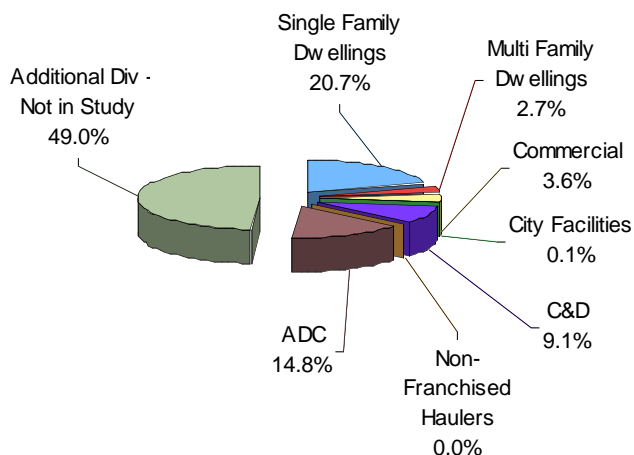


### Diversion

- The overall diversion rate for the waste streams listed in Table 2A above is 59.7 percent.
- The diversion rates for the Single-Family, Multi-family, Commercial, and Non-franchised Hauler sectors are 55.7 percent, 33.5 percent, 14.1 percent, and 0.0 percent respectively.
- ADC materials account for approximately 14.8 percent of the material currently diverted.
- The recovery rate for City Facilities (per the City's tonnage tracking system) was 20.3 percent for FY 2006/07. In 2008, a new system was implemented, bringing the City Facilities recovery rate to over 70 percent.
- Figure 2A.3 presents all of the sector components of diversion. The City's total diversion for 2006 is 1,115,454 tons, according to the CIWMB Adjustment Methodology.
- "Additional diversion not in this study" amounts to approximately 49 percent of overall diversion, and may include: diversion from the CDDD program, diversion by private recyclers that are not required to be franchised, backyard composting, reuse, etc.

## Overall City-wide Waste Stream Review

**FIGURE 2A.3**  
**Total Diverted**



## Waste Generation, Characterization and Projections through 2040

Table 2A is the Summary Projection of Landfilled and Diverted Tons, and it shows the City's overall waste generation for FY 2006/07. Table 2A shows that the largest waste sector in the City is the Single-family sector, which comprises 22.1 percent of the overall waste stream. The City has implemented several diversion programs in this sector, and the sector's diversion rate is well above 50%.

The next largest sector is the Commercial sector at 15.2 percent of the overall waste stream, followed by the Non-Franchised Hauler sector, at 13.7 percent of the overall waste stream. The Commercial sector represents the greatest opportunity for increased recycling, because its diversion rate is currently only 14.1%. Table 2A only includes the major programs that the City operates and tracks (through its contractors and franchised haulers).

Tonnages for all categories have been projected in 5-year increments through 2040 using population adjustments for the City which have been developed by the ABAG Study, *Projections 2007*. Population assumptions for 2006 thru 2008 were interpolated using actual 2005 population totals and 2010 projections. The 2040 population growth figure was assumed to be equal to the 2035 growth figure. The overall, city-wide waste stream is projected to grow by approximately 1.21 percent per year; or by 48.4 percent by 2040.

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# Overall City-wide Waste Stream Review

Using the FY 06/07 tonnages as the starting point for waste generation, disposal and diversion tonnages were projected for each waste stream through 2040. Details are provided in Sections 3 through 9 of this report.

The projections in Table 2A have not been adjusted to account for the impact of new or expanded diversion programs since FY 2006/07. As those program plans are developed, they can be incorporated into the projections to show the impact on both overall diverted and disposed tonnages and the resulting composition of the remaining disposal waste stream. Overall, with an approximate disposal rate of 700,000 tons per year, the City of San José will have to reduce its waste stream by approximately 50,000 new tons per year, each year, in order to reach Zero Waste by 2022.

## Waste Characterization Summary

Having established the relative size of each of the waste streams and the portion of each waste stream that is landfilled and diverted, the composition of the landfilled material was then documented based on available waste composition data. For purposes of that analysis, the following waste composition data sources were used:

**TABLE 2A.1**

**Waste Composition Data**

Waste Stream	Sample Origin	Source Document
Single Family Dwellings	San Jose	Cascadia 2008 Waste Composition Study for City of San Jose
Multi-Family Dwellings <sup>(1)</sup>	Statewide Data	CIWMB 2004 Statewide Waste Characterization Study
Commercial <sup>(2)</sup>	San Jose	Cascadia 2008 Waste Composition Study for City of San Jose
City Facilities	San Jose	Cascadia 2008 Waste Composition Study for City of San Jose - Commercial Waste Composition
Construction & Demolition	Statewide Data	CIWMB 2006 Statewide Waste Characterization Study
Self Haul	Statewide Data	CIWMB 2004 Statewide Waste Characterization Study
ADC	NA	NA

<sup>(1)</sup> The data for the multi-family sector describes the multi-family program as it was in FY 2006/07. However, major program changes were implemented in mid-2008 to increase the program diversion rate and new program data are not yet available.

<sup>(2)</sup> Commercial waste composition based on the weighted average of the Front-Loader, Compactor and Debris Box

# Overall City-wide Waste Stream Review

## Remaining Diversion Potential

Table 2B focuses on recoverable material types only, in order to illustrate new potential diversion opportunities and provides information for all material type / waste stream combinations for the top 50 percent of the waste stream. As shown, there are a total of 30 recoverable material types by waste stream with more than 27 of them exceeding 2,000 tons. In addition, it should be noted that what is considered recoverable in the current programs will change as the City moves towards its goal of Zero Waste.

**TABLE 2B**  
**Remaining Diversion Potential**

Waste Stream	Rank by Waste Stream	Recoverable Material Type	Annual Tons	Percent of Total Landfilled	Cumulative Percent	Percent of Total Generated	Cumulative Percent of Total Generation
Single Family	1	Food Waste	70,572	9.4%	9.4%	3.8%	3.8%
Non-Franchised Haulers	1	Lumber	55,301	7.3%	16.7%	3.0%	6.7%
Commercial	1	Food Wastes	38,594	5.1%	21.8%	2.1%	8.8%
Commercial	2	Compostable Paper	24,533	3.3%	25.1%	1.3%	10.1%
Commercial	3	OCC/Kraft	22,078	2.9%	28.0%	1.2%	11.3%
Commercial	4	Leaves/Grass/Brush/Stumps	16,250	2.2%	30.2%	0.9%	12.2%
Non-Franchised Haulers	2	Concrete	15,829	2.1%	32.3%	0.8%	13.0%
Commercial	5	Mixed Recyclable Paper	15,546	2.1%	34.3%	0.8%	13.8%
Non-Franchised Haulers	3	Gypsum Board	13,505	1.8%	36.1%	0.7%	14.6%
Non-Franchised Haulers	4	Rock, Soil, & Fines	12,827	1.7%	37.8%	0.7%	15.2%
Single Family	2	Mixed Papers	11,246	1.5%	39.3%	0.6%	15.9%
Single Family	3	Compostable Paper	10,920	1.4%	40.8%	0.6%	16.4%
Multi-Family	1	Food	10,430	1.4%	42.1%	0.6%	17.0%
Non-Franchised Haulers	5	Other Ferrous Metal	9,373	1.2%	43.4%	0.5%	17.5%
Commercial	6	Textiles/Leather/Rubber	8,642	1.1%	44.5%	0.5%	18.0%
Non-Franchised Haulers	6	Remainder/Composite Metal	7,375	1.0%	45.5%	0.4%	18.4%
Non-Franchised Haulers	7	Leaves and Grass	7,262	1.0%	46.5%	0.4%	18.7%
Commercial	7	High Grade Paper	5,581	0.7%	47.2%	0.3%	19.0%
Commercial	8	Glass Bottles and Jars (all colors)	3,707	0.5%	47.7%	0.2%	19.2%
Multi-Family	2	Remainder/Composite Organics	3,628	0.5%	48.2%	0.2%	19.4%
Multi-Family	3	Remainder/Composite Paper	3,561	0.5%	48.7%	0.2%	19.6%
Multi-Family	4	Prunings and Trimmings	3,185	0.4%	49.1%	0.2%	19.8%
Single Family	4	Newspaper	2,934	0.4%	49.5%	0.2%	19.9%
Single Family	5	Yard Waste	2,934	0.4%	49.9%	0.2%	20.1%
Multi-Family	5	Lumber	2,746	0.4%	50.2%	0.1%	20.3%
Multi-Family	6	Newspaper	2,644	0.4%	50.6%	0.1%	20.4%
Single Family	6	Recyclable Glass	2,608	0.3%	50.9%	0.1%	20.5%
C&D	1	Lg Asphalt without re-Bar	346	0.0%	51.0%	0.0%	20.6%
C&D	2	Dirt & Sand	282	0.0%	51.0%	0.0%	20.6%
C&D	3	Clean Dimensional Lumber	253	0.0%	51.0%	0.0%	20.6%
			384,690	51.0%			20.6%

Table 2B provides a number of key insights including:

- Residential Food Waste (10.8 percent) is the single largest component of the City's waste stream and along with Residential Compostable Paper (1.4 percent) comprise 12.2 percent of total disposal;
- Commercial Food Waste (5.1 percent) is the third largest component of the City's waste stream and along with

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## Overall City-wide Waste Stream Review

Commercial Compostable Paper (3.3 percent) comprises 8.4 percent of total disposal;

- Non-franchised Hauler Lumber (7.3 percent) is the second largest component of the City's total disposal;
- Commercial OCC/Kraft (2.9 percent), Mixed Recyclable Paper (2.1 percent) and High Grade Paper (0.7 percent) comprise 5.7 percent of the City's total disposal; and
- Residential Mixed Paper comprises 1.5 percent of total disposal.
- The column, "Rank by Waste Stream" gives each waste category's rank within its waste sector. For example, in the first row of data, the "1" indicates that "food waste" is the largest component of waste, by weight, in the Single Family waste stream.
- Note that the items in Table 2B are the waste stream categories that, taken together, add up to more than 50% of the City's remaining waste to landfill. The table begins with the largest single item (at 9.4% of the City's total waste stream) and includes the top 30 items in the City's waste stream. Other items, which are not listed in this table, comprise the other 50% of waste that is currently sent to landfills, and the waste categories in the last 50% are each less than 1% of the City's waste stream.

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# Overall City-wide Waste Stream Review

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# Introduction and Summary of Current Programs

The City has approximately 200,000 single-family units that receive weekly solid waste, recycling, and yard trimmings collection services.

## Available Diversion Programs

Single-family residents in the City have access to the following diversion programs:

- Weekly Curbside Recycling Collection
- Unlimited Weekly Curbside Yard trimmings Collection
- On-call Large Item Collection
- Periodic Neighborhood Clean-up Events
- Back Yard Composting Subsidies
- Buy-Back/Drop-Off Centers for Recyclables
- Household Hazardous Waste Drop-off

## Solid Waste Collection Services

Single family solid waste collection services are provided by two companies, Garden City Sanitation (GCS) and GreenTeam. These companies have exclusive contracts to operate in three separate service districts of the City, as shown in Table 3A. Container sizes range from twenty (20) gallon containers up to ninety-six (96) gallons.

**TABLE 3A  
Residential Service Providers**

Material Stream	District		
	A	B	C
<b>Single Family Dwellings</b>			
Solid Waste	Garden City Sanitation	GreenTeam	Garden City Sanitation
Recycling	California Waste Solutions	GreenTeam	California Waste Solutions
Yard Trimmings	GreenWaste Recovery		

# Section 3

## Single Family Dwellings (SFD)

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## Single Family Dwellings (SFD)

### **Curbside Recycling Services**

Single family recycling collection services are provided by two companies, California Waste Solutions (CWS) and GreenTeam of San José. These companies have exclusive contracts to operate in three separate districts of the City. Under the terms of the recycling collection agreements, the companies are required to divert at least 30 percent of the total residential solid waste and recyclable material collected. The City's program accepts over 40 different items for recycling, including all commonly accepted recyclables, as well as some hard-to-recycle items, such as expanded polystyrene foam, textiles, and other materials.

### **Yard Trimmings and Residential Street Sweeping Collection**

Green Waste Recovery (GWR), provides Yard Trimmings collection service under exclusive agreements to provide loose in the street collection or cart service to all residents of the City. GWR also provides residential street sweeping services.

Under its agreement, Green Waste Recovery must divert at least 95 percent of all the yard trimmings material collected. Collected material is recycled into high quality soil amendments including compost, mulch, or wood chips. Some of the material is then used in City parks and community gardens, while the balance is sold for agricultural uses or co-generation fuel.

### **Large Item Collection**

The City offers residents on-call curbside collection of Large Items such as furniture that cannot fit into the regular collection cart. Residents are charged an additional fee for this service. The two collection companies providing this service are required to divert at least 50 percent of the material collected through this program. The tonnage data for material collected through this program is tracked separately and included in the residential waste and recycling statistics provided in this section.

### **Neighborhood Clean-up Events**

The City also offers residents access to periodic "free" Neighborhood Clean-up (NCU) events to discard their Large Items. NCU events require the resident to haul their material to a pre-determined location on a specific date. The City currently requires the companies that provide these services to divert a minimum of 50 percent of the material collected through this program. Beginning January 2009, the hauler for the NCU program for most of the City (Recycle Plus collection districts A and C) will be required to achieve 75% minimum diversion for this

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program. The tonnage data for material collected through this program is separately tracked and included in this report.

### **Other Solid Waste Diversion Programs**

The City participates in other, lower-volume, solid waste diversion programs for the single-family sector that have not been included in this report. These programs include the back yard composting program, household hazardous waste drop-off, buy-back and drop-off centers, and others.

### **Residential Rate Structure**

The rates charged to customers include volume based garbage, unlimited curbside recycling, unlimited yard trimmings collection and monthly street sweeping services. Yard trimmings cart service is available by subscription at an additional cost. The rate structure is set to provide an incentive for residents to recycle and divert material from the solid waste container. The rates are structured such that a 96 gallon container rate is three times (triple) the amount of the 32 gallon waste container rate. If residents have more waste than can fit in their garbage container, they are required to purchase extra garbage stickers to place on extra bags for collection. On-premise service is available at an additional cost. Reduced rates are available to customers who qualify in the categories of: low-income, medical exemption, and persons with disabilities.

## **Summary of Total Tons Disposed and Diverted**

The reported Single Family Sector waste stream totaled 413,853 tons for FY 2006/07. Of that amount 230,721 tons were diverted through recycling, yard trimmings collection, and diversion of street sweepings, large items, and neighborhood clean-up items.

### **Current Diversion Rate**

The single-family diversion rate, for the programs summarized in this report is 55.7 percent for FY 2006/07.

## **Single Family Dwellings (SFD)**



## Single Family Dwellings (SFD)

### Waste Characterization Summary

#### Single-Family Solid Waste

The single-family solid waste characterization data was based on Cascadia Consulting Group's March 17 – March 28, 2008 "City of San José Waste Characterization Study, Final Report – DRAFT, May 2008." For that study, single-family waste was defined as the material placed in designated solid waste (garbage) containers originating from households that have individual, curbside collection service.

Table 3B provides the composition of the SFD waste stream based on Cascadia's Waste Characterization Study.

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**TABLE 3B**  
**Single-Family Waste Composition Analysis**

<u>Waste Category</u>	<u>Percentage</u>	<u>Amount</u>	
		<u>06/07</u>	<u>Projected 2040</u>
Recyclable Paper	9.8%	15,972	23,704
Mixed Papers	6.9%	11,246	16,689
Newspaper	1.8%	2,934	4,354
OCC	0.6%	978	1,451
Other Paper	0.5%	815	1,209
Plastic	4.0%	6,519	9,675
#1 PET Bottles and Containers	0.6%	978	1,451
#2 HDPE Bottles and Containers	0.5%	815	1,209
#3, #4, #5 and #7 Bottles and Containers	0.6%	978	1,451
Durable Plastic	0.6%	978	1,451
Plastic Bags and Other Film	0.1%	163	242
Polystyrene	0.7%	1,141	1,693
Other Plastic	0.9%	1,467	2,177
Metal	2.3%	3,749	5,563
Aluminum Beverage Cans	0.2%	326	484
Aluminum Foil	0.3%	489	726
Steel (Tin) Cans	0.8%	1,222	1,814
Other Scrap Metal	0.5%	815	1,209
Other Metal	0.6%	896	1,330
Glass	1.9%	3,097	4,596
Recyclable Glass	1.6%	2,608	3,870
Other Glass	0.3%	489	726
Organic Materials	51.8%	84,426	125,291
Compostable Paper	6.7%	10,920	16,206
Food Waste	43.3%	70,572	104,732
Yard Waste	1.8%	2,934	4,354
Textiles	1.6%	2,608	3,870
Other Potentially Recyclable Materials	1.6%	2,608	3,870
Automotive Batteries	0.1%	163	242
Electronics	0.1%	163	242
Oil Filters	0.0%	-	-
Tanks	0.0%	-	-
Tires	0.0%	-	-
TVs and CRT Monitors	0.0%	-	-
Wood	0.9%	1,467	2,177
Other Universal Waste	0.5%	815	1,209
Non-Recyclable Materials	27.0%	44,006	65,306
<b>Sub Total</b>	<b>100.0%</b>	<b>162,984</b>	<b>241,875</b>
<b>Residual</b>			
Recycling		18,455	27,388
Yard Trimmings		1	1
Neighborhood Clean Up		950	1,410
Large Items		742	1,101
<b>Total Residual</b>		<b>20,148</b>	<b>29,900</b>
<b>Total Landfill</b>		<b>183,132</b>	<b>271,776</b>

## Single Family Dwellings (SFD)

### Single-family Recyclables and Residuals

In this report, single-family recyclables are presented in the same way that they were included in the sales data provided by the City. This characterization of single-family recyclables differs, therefore,



## Single Family Dwellings (SFD)

from the Cascadia Waste Characterization Study for single-family recyclables.

The Cascadia study also includes additional information on the characterization of residual material from the sorting of recyclables from single-family residences. One of the findings of the Cascadia study was that 90 percent of the MRF residual materials are actually recoverable through MRF or energy conversion. MRF residuals are the materials that are not recovered after single-family recyclables are sorted. Due to technology enhancements at the CWS MRF in January 2008, increased diversion potential is anticipated which would reduce this residual tonnage in the future.

### Summary of Major Waste Types

Table 3C provides a ranking of the major waste categories, as presented in the Cascadia study, based on disposal tonnages. “Major” categories are the names of groups of materials, and “minor” categories are the sub-groups, or individual material types. This information is also presented graphically in Figure 3C. As shown in Table 3C, the top 4 major waste stream categories are:

- Organic wastes comprise the majority of the material from single-family dwellings that is still being disposed, at over 51.8 percent of the single-family waste stream;
- Non-recyclable materials at 27.0 percent. According to the Cascadia study, this includes other glass, other metal, other paper, other plastic and “non-recyclable.” For example, “other paper” may include paper with other materials attached in sufficient quantities to be considered contaminated; “other glass” may include glass that is combined with other materials such as mirrors, light bulbs, or candle holders; “other metal” may include small non-electronic appliances or metal window blinds, etc. “Other plastic” may include disposable razors, pens, and other plastic items. “Non-recyclable items” may include disposable diapers, contaminated textiles, ash, etc.
- Recyclable paper, at 9.8 percent; and
- Plastic, at 4.0 percent.

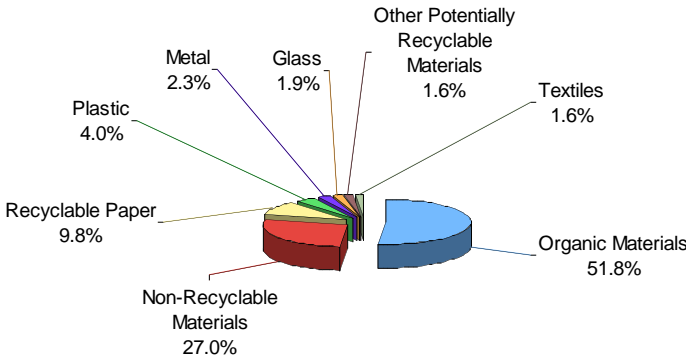
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# Single Family Dwellings (SFD)

**TABLE 3C**  
**Single-Family Waste Composition**  
**Major Category Ranking**

Major Waste Category	Percentage	Amount	
		06/07	Projected 2040
Organic Materials	51.8%	84,426	125,291
Non-Recyclable Materials	27.0%	44,006	65,306
Recyclable Paper	9.8%	15,972	23,704
Plastic	4.0%	6,519	9,675
Metal	2.3%	3,749	5,563
Glass	1.9%	3,097	4,596
Other Potentially Recyclable Materials	1.6%	2,608	3,870
Textiles	1.6%	2,608	3,870
<b>Sub Totals</b>	<b>100.0%</b>	<b>162,984</b>	<b>241,875</b>
Total Residual		20,148	29,900
		<b>183,132</b>	<b>271,776</b>

**FIGURE 3C**  
**Single-Family Waste Composition**  
**Major Category Ranking**



## Summary of Minor Waste Types to Target for New or Expanded Programs

Table 3D provides a ranking of the individual waste categories sampled in the Cascadia study. This information is also presented graphically in Figure 3D.



# Single Family Dwellings (SFD)

As shown in Figure 3D, the top 5 minor recoverable waste categories are:

- Food Waste represents the largest material type in the SFD waste stream at 43.3 percent;
- Mixed Paper at approximately 6.9 percent;
- Compostable Paper at 6.7 percent;
- Newspaper at 1.8 percent; and
- Yard trimmings at 1.8 percent.

**TABLE 3D**  
**Single-Family Waste Composition**  
**Minor Category Ranking**

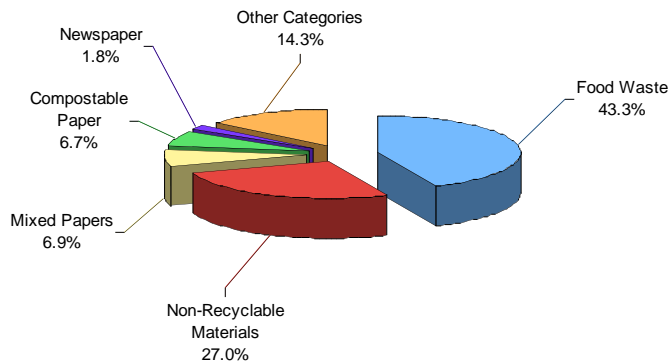
<u>Minor Waste Category</u>	Percentage <u>w/o residuals</u>	Percentage with <u>residuals</u>	Amount <u>06/07</u>	Projected <u>2040</u>
Food Waste	43.3%	38.5%	70,572	104,732
Non-Recyclable Materials	27.0%	24.0%	44,006	65,306
Mixed Papers	6.9%	6.1%	11,246	16,689
Compostable Paper	6.7%	6.0%	10,920	16,206
Newspaper	1.8%	1.6%	2,934	4,354
Yard Waste	1.8%	1.6%	2,934	4,354
Recyclable Glass	1.6%	1.4%	2,608	3,870
Textiles	1.6%	1.4%	2,608	3,870
Other Plastic	0.9%	0.8%	1,467	2,177
Wood	0.9%	0.8%	1,467	2,177
Steel (Tin) Cans	0.8%	0.7%	1,222	1,814
Polystyrene	0.7%	0.6%	1,141	1,693
#1 PET Bottles and Containers	0.6%	0.5%	978	1,451
Durable Plastic	0.6%	0.5%	978	1,451
OCC	0.6%	0.5%	978	1,451
#3, #4, #5 and #7 Bottles and Containers	0.6%	0.5%	978	1,451
Other Metal	0.6%	0.5%	896	1,330
Other Paper	0.5%	0.4%	815	1,209
#2 HDPE Bottles and Containers	0.5%	0.4%	815	1,209
Other Scrap Metal	0.5%	0.4%	815	1,209
Other Universal Waste	0.5%	0.4%	815	1,209
Other Glass	0.3%	0.3%	489	726
Aluminum Foil	0.3%	0.3%	489	726
Aluminum Beverage Cans	0.2%	0.2%	326	484
Plastic Bags and Other Film	0.1%	0.1%	163	242
Automotive Batteries	0.1%	0.1%	163	242
Electronics	0.1%	0.1%	163	242
Sub Totals	<u>100.0%</u>	<u>89.0%</u>	<u>162,984</u>	<u>241,875</u>
Residual:				
Recycling		10.1%	18,455	27,388
Neighborhood Clean Up		0.5%	950	1,410
Large Items		0.4%	742	1,101
Yard Trimmings		0.0%	1	1
		<u>11.0%</u>	<u>20,148</u>	<u>29,900</u>
Total Landfill		<u>100.0%</u>	<u>183,132</u>	<u>271,776</u>

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## Single Family Dwellings (SFD)

**FIGURE 3D**

### Single-Family Waste Composition Minor Category Ranking



The Cascadia Waste Characterization Study classified the minor waste types into four “major” groups: 1) Recyclable, 2) Compostable, 3) Potentially Recyclable, and 4) Non-recyclable. For consistency, we have used those same groupings throughout this report.

For single-family waste, using the City recyclable categories, the profile of recoverable and non-recoverable materials in the single-family waste stream is as follows:

- Compostable categories (yard trimmings, food waste and compostable paper) represent 52 percent of the single-family waste stream;
- Recyclable materials are 17 percent;
- Non-recyclable items are 30 percent; and
- Potentially recyclable materials (those that may be recycled if new markets are found, or changes are made to current contracts) amount to one percent.

The Cascadia study listed the following materials into the categories given above:

- Recyclable: #1 PET bottles and containers, #2 HDPE bottles and containers, #3, #4, #5 and #7 bottles and containers, aluminum beverage cans, aluminum foil, durable plastic, mixed papers, newspaper, OCC, other scrap metal, plastic bags and other film, polystyrene, recyclable glass, steel (tin) cans, and textiles;
- Compostable: compostable paper, food waste, and yard waste;
- Potentially recyclable: automotive batteries, electronics, oil filters, tanks, tires, TV’s and CRT monitors, and wood; and

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## Single Family Dwellings (SFD)

- Non-recyclable: other glass, other metal, other paper, other plastic, and non-recyclables.

### **Material Recovery Facility (MRF) Residuals**

Residuals from the sorting process at the MRF were examined as part of Cascadia's Waste Characterization Study. Residuals from the residential recycling program amounted to 18,455 tons in FY 2006/07, making residuals one of the largest categories of single-family waste. The Cascadia study found that "approximately 10 percent of the materials currently being discarded as residuals from the MRF processing operations would likely still be landfilled."

Some of the MRF residuals could be recovered for recycling; the Cascadia study specifically mentions scrap metal and textiles. The study also finds that 80 percent of the MRF residuals have energy value.

## Recommendations

### **Maximize Yield from Existing Programs**

The results of the single-family waste characterization study show that the yard trimmings collection program is very effective at capturing that material, with yard trimmings comprising only 2 percent of the material in the single-family disposal stream.

In contrast, the recycling program can be improved to capture more material. As shown in Tables 3B through 3D, many items are still being disposed that could be recycled. Items such as mixed paper, newspaper, cardboard, plastic bottles, plastic bags, and aluminum, steel and glass containers, can be added to the existing curbside recycling program. These materials comprise approximately 17 percent of the existing single-family waste that is currently being sent to landfills.

### **MRF Residuals**

Since MRF residuals are a large remaining percentage of the waste stream, the City could study the potential of increased recycling of these materials through increased requirements on its contractors.

### **Begin a Compostables Diversion Program**

Food waste and other compostable material represents over 43 percent of the single-family waste stream, which makes it the

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single largest component of that waste stream currently being landfilled.

## Single Family Dwellings (SFD)

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# Single Family Dwellings (SFD)

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## Introduction and Summary of Current Programs

The City has approximately 93,000 Multi-Family Dwellings (MFD). MFD collection service is made available to 3,200 MFD complexes, defined by type of service (bin or cart), by GreenTeam of San José, under an exclusive agreement with the City.

GreenTeam provides solid waste and recyclable collection service to MFD complexes using 96 gallon carts, roll-off compactors, and metal bins ranging in size from 1 to 8 cubic yards. The collection frequency is required to be a minimum of one time per week and up to five times per week.

The rates charged to MFD complexes include the provision of recyclable and loose in the street yard trimmings collection service. The rate structure is designed to provide an incentive for residents to recycle and divert material from the solid waste container.

Under the terms of the Agreement between the City and GreenTeam, the company must divert at least 35 percent of the material collected and that requirement has been met.

### **Weekly Recyclable Collection**

The MFD recycling collection program collects separated recyclables from participating multi-family complexes in the City. The separate collection program collects the same list of items included in the SFD recycling collection program. Through the separate collection of recyclables, GreenTeam diverted 17 percent of the multi-family material collected in FY 2006/07.

### **Mixed Waste Recycling and Composting**

Given constraints and difficulties to comply with the recycle program guidelines for some property owners, GreenTeam has struggled with increasing recycling at many multi-family dwellings. In May 2008, the City and GreenTeam implemented a new program to collect and recycle all MFD garbage in order to significantly increase the recycling and composting rate for this sector. All apartment waste is now delivered to a transfer station in San Jose where most of the recyclables are pulled out and the compostable fraction is separated. The compostable waste is then hauled to a facility in Gilroy for composting. Based on preliminary reports, GreenTeam expects to achieve a 75 percent recovery rate from the mixed waste recycling and composting program.

## Section 4

### Multi-Family Dwellings (MFD)

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## Multi-Family Dwellings (MFD)

### **Yard Trimmings Collection**

The City offers collection of yard trimmings for multi-family complexes. As previously discussed, the amount of material collected from these complexes is included in the statistics for the single-family yard trimmings program.

### **Large Item Collection**

The City offers MFD residents on-call collection of Large Items, such as furniture, at a rate that is dependent on the number of items to be collected. There is a fixed base rate that covers up to 3 items; then, there is a separate charge for each additional item. Green Team, the collection company, is required to divert at least 50 percent of the material collected through this program. As previously discussed, the amount of material collected through this program is included in the statistics for the single-family Large Item collection program.

### **Neighborhood Clean Up Events**

The City also offers MFD residents access to periodic “free” Neighborhood Clean-up events to discard their Large Items. These collection events provide residents with the opportunity to dispose of Large Items and many other types of solid waste not allowed in weekly collection service, such as lumber, scrap metal, e-waste, and other rubbish. The events require the residents to haul their material to a pre-determined location on a specific date. The City currently requires the companies that provide these services to divert a minimum of 50 percent of the material collected through this program. Beginning January 2009, the hauler for the NCU program for most of the City (Recycle Plus collection districts A and C) will be required to achieve 75% minimum diversion for this program.

As previously discussed, the amount of material collected through this program is included in the statistics for the single-family Neighborhood Clean-up events.

### **MFD Rate Structure**

The rates charged to customers include unlimited recycling and unlimited yard trimmings collection at no additional charge. The rate structure is set to provide an incentive for residents to recycle and divert material from the solid waste container.

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# Summary of Total Tons Disposed and Diverted

The reported Multi-Family Sector waste stream totaled 90,124 tons for FY 2006/07. Of that amount 30,186 tons were diverted.

## Multi-Family Dwellings (MFD)

### Waste Characterization Summary

Table 4A provides the composition of the entire multi-family waste stream based on waste composition percentages compiled by the CIWMB in the 2004 Statewide Waste Characterization Study.

**TABLE 4A**  
**Multi-Family Waste Composition Analysis**

Waste Category	Percentage	Amount 06/07	Projected 2040	Waste Category	Percentage	Amount 06/07	Projected 2040
Paper	24.6%	13,557	20,120	Organic	39.3%	21,651	32,132
Uncoated Corrugated Cardboard	3.8%	2,109	3,129	Food Waste	18.9%	10,430	15,478
Paper Bags	0.8%	443	658	Leaves and Grass	3.3%	1,833	2,720
Newspaper	4.8%	2,644	3,923	Prunings and Trimmings	5.8%	3,185	4,727
White Ledger	2.8%	1,533	2,275	Branches and Stumps	0.2%	128	191
Colored Ledger	0.1%	44	65	Agricultural Crop Residues	0.0%	-	-
Computer Paper	0.0%	3	4	Manures	1.0%	553	821
Other Office Paper	0.6%	317	470	Textiles	2.8%	1,526	2,265
Magazines and Catalogs	1.5%	852	1,264	Carpet	0.7%	368	546
Phone Books and Directories	0.5%	251	373	Remainder/Composite Organics	6.6%	3,628	5,384
Other Miscellaneous Paper	3.3%	1,801	2,673	Construction & Demolition	11.5%	6,354	9,429
Remainder/Composite Paper	6.5%	3,561	5,285	Concrete	1.8%	980	1,454
Glass	6.5%	3,598	5,340	Asphalt Paving	0.0%	-	-
Clear Glass Bottles and Containers	2.6%	1,457	2,162	Asphalt Roofing	0.1%	32	47
Green Glass Bottles and Containers	1.9%	1,038	1,540	Lumber	5.0%	2,746	4,075
Brown Bottles and Containers	1.4%	758	1,125	Gypsum Board	1.3%	741	1,100
Other Glass Bottles and Containers	0.0%	4	6	Rock, Soil, and Fines	0.1%	36	53
Flat Glass	0.0%	10	16	Remainder/Composite Construction & Demolition	3.3%	1,819	2,700
Remainder/Composite Glass	0.6%	331	491	Household Hazardous Waste	0.6%	353	523
Metal	4.9%	2,683	3,981	Paint	0.1%	35	52
Tin/Steel Cans	1.0%	528	784	Vehicle and Equipment Fluids	0.0%	-	-
Major Appliances	0.0%	-	-	Used Oil	0.0%	-	-
Used Oil Filters	0.0%	-	-	Batteries	0.4%	213	316
Other Ferrous Metal	0.7%	407	603	Remainder/Composite Household Hazardous Waste	0.2%	105	155
Aluminum Cans	0.5%	289	429	Special Waste	1.7%	953	1,414
Other Non-Ferrous Metal	0.1%	40	60	Ash	0.0%	0	0
Remainder/Composite Metal	2.6%	1,418	2,104	Sewage Solids	0.0%	-	-
Electronics	0.1%	64	94	Industrial Sludge	0.0%	-	-
Brown Goods	0.0%	8	13	Treated Medical Waste	0.0%	1	2
Computer-related Electronics	0.1%	41	62	Bulky Items	1.7%	934	1,386
Other Small Consumer Electronics	0.0%	13	20	Tires	0.0%	8	12
Television and Other Items with CRTs	0.0%	0	0	Remainder/Composite Special Waste	0.0%	10	15
Plastic	8.5%	4,669	6,929	Mixed Residue	2.3%	1,251	1,856
PE TE Containers	1.1%	617	916	Sub Total	100.0%	55,132	81,818
HDPE Containers	1.2%	637	945	Residual			
Miscellaneous Plastic Containers	0.6%	335	497	Recycling		815	1,209
Plastic Trash Bags	1.0%	529	786	Mixed Waste Composting		3,991	5,923
Plastic Grocery and Other Merchandise Bags	0.7%	392	582	Total Landfill from Diversion Residual		4,806	7,132
Non-Bag Com. And Indus. Packaging Film	0.0%	5	7	Total Landfill		59,938	88,951
Film Products	0.0%	0	0				
Other Film	1.1%	587	870				
Durable Plastic Items	1.2%	666	989				
Remainder/Composite Plastic	1.6%	902	1,338				

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## Multi-Family Dwellings (MFD)

### Summary of Major Waste Types

As shown in Table 4B, based on statewide averages, the top 4 major waste stream categories are:

- Organic waste represents 39.3 percent of the multi-family waste stream;
- Paper at 24.6 percent;
- C&D materials at 11.5 percent; and
- Plastics at 8.5 percent.

**TABLE 4B**

**Multi-Family Waste Composition  
Major Category Ranking**

<u>Major Waste Category</u>	<u>Percentage</u>	<u>Amount 06/07</u>	<u>Projected 2040</u>
Organic	39.3%	21,651	32,132
Paper	24.6%	13,557	20,120
Construction & Demolition	11.5%	6,354	9,429
Plastic	8.5%	4,669	6,929
Glass	6.5%	3,598	5,340
Metal	4.9%	2,683	3,981
Mixed Residue	2.3%	1,251	1,856
Special Waste	1.7%	953	1,414
Household Hazardous Waste	0.6%	353	523
Electronics	0.1%	64	94
Residual	0.0%	-	-
Sub Totals	<u>100.0%</u>	<u>55,132</u>	<u>81,818</u>
Total Residual		<u>4,806</u>	<u>7,132</u>
		<u>59,938</u>	<u>88,951</u>

### Summary of Minor Waste Types to Target for New or Expanded Programs

Table 4C provides a ranking of the top 5 minor waste categories. This information is also presented graphically in Figure 4C:

- Food waste, represent 18.9 percent of the multi-family waste stream;

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- Remainder/composite organics, at 6.6 percent;
- Remainder/composite paper, at 6.5 percent;
- Prunings and trimmings, at 5.8 percent; and
- Lumber, at 5.2 percent.

For the multi-family waste stream, using recyclable categories for the City, the profile of recoverable and non-recoverable materials in the multi-family waste stream is as follows:

- Recyclable materials amount to 33 percent of the multi-family waste stream (using current City recycling categories);
- Compostable categories (yard trimmings, food waste and compostable paper) amount to 33 percent;
- Potentially recyclable materials (those that may be recycled if new markets are found, or changes made to current contracts) amount to 8 percent; and
- Non-recyclable items amount to 25 percent.

## Multi-Family Dwellings (MFD)

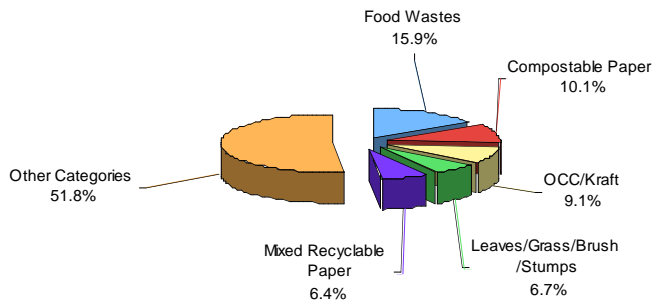
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# Multi-Family Dwellings (MFD)

**TABLE 4C**  
**Multi-Family Waste Composition**  
**Minor Category Ranking**

Minor Waste Category	Percentage	Amount		Minor Waste Category	Percentage	Amount	
		06/07	2040			06/07	2040
Food Waste	18.9%	10,430	15,478	Batteries	0.4%	213	316
Remainder/Composite Organics	6.6%	3,628	5,384	Branches and Stumps	0.2%	128	191
Remainder/Composite Paper	6.5%	3,561	5,285	Remainder/Composite Household Hazardous Wa:	0.2%	105	155
Prunings and Trimmings	5.8%	3,185	4,727	Colored Ledger	0.1%	44	65
Lumber	5.0%	2,746	4,075	Computer-related Electronics	0.1%	41	62
Newspaper	4.8%	2,644	3,923	Other Non-Ferrous Metal	0.1%	40	60
Uncoated Corrugated Cardboard	3.8%	2,109	3,129	Rock, Soil, and Fines	0.1%	36	53
Leaves and Grass	3.3%	1,833	2,720	Paint	0.1%	35	52
Remainder/Composite Construction & Demolitic	3.3%	1,819	2,700	Asphalt Roofing	0.1%	32	47
Other Miscellaneous Paper	3.3%	1,801	2,673	Other Small Consumer Electronics	0.0%	13	20
White Ledger	2.8%	1,533	2,275	Flat Glass	0.0%	10	16
Textiles	2.8%	1,526	2,265	Remainder/Composite Special Waste	0.0%	10	15
Clear Glass Bottles and Containers	2.6%	1,457	2,162	Brown Goods	0.0%	8	13
Remainder/Composite Metal	2.6%	1,418	2,104	Tires	0.0%	8	12
Mixed Residue	2.3%	1,251	1,856	Non-Bag Com. And Indus. Packaging Film	0.0%	5	7
Green Glass Bottles and Containers	1.9%	1,038	1,540	Other Glass Bottles and Containers	0.0%	4	6
Concrete	1.8%	980	1,454	Computer Paper	0.0%	3	4
Bulky Items	1.7%	934	1,386	Treated Medical Waste	0.0%	1	2
Remainder/Composite Plastic	1.6%	902	1,338	Television and Other Items with CRTs	0.0%	0	0
Magazines and Catalogs	1.5%	852	1,264	Film Products	0.0%	0	0
Brown Bottles and Containers	1.4%	758	1,125	Ash	0.0%	0	0
Gypsum Board	1.3%	741	1,100	Agricultural Crop Residues	0.0%	-	-
Durable Plastic Items	1.2%	666	989	Asphalt Paving	0.0%	-	-
HDPE Containers	1.2%	637	945	Industrial Sludge	0.0%	-	-
PETE Containers	1.1%	617	916	Major Appliances	0.0%	-	-
Other Film	1.1%	587	870	Sewage Solids	0.0%	-	-
Manures	1.0%	553	821	Used Oil	0.0%	-	-
Plastic Trash Bags	1.0%	529	786	Used Oil Filters	0.0%	-	-
Tin/Steel Cans	1.0%	528	784	Vehicle and Equipment Fluids	0.0%	-	-
Paper Bags	0.8%	443	658				
Other Ferrous Metal	0.7%	407	603	Sub Totals	100.0%	55,132	81,818
Plastic Grocery and Other Merchandise Bags	0.7%	392	582				
Carpet	0.7%	368	546	Residual:			
Miscellaneous Plastic Containers	0.6%	335	497	Mixed Waste Composting		3,991	5,923
Remainder/Composite Glass	0.6%	331	491	Recycling		815	1,209
Other Office Paper	0.6%	317	470			4,806	7,132
Aluminum Cans	0.5%	289	429				
Phone Books and Directories	0.5%	251	373	Total Landfill		59,938	88,951

**FIGURE 4C**  
**Multi-Family Waste Composition**  
**Minor Category Ranking**



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## Recommendations

A major change has already been made in the multi-family sector, with the 2008 expansion of the multi-family mixed waste recycling and composting program. This program change is a good fit with the sector's waste composition, with nearly 40 percent organics and 25 percent paper. This program expansion will likely lead to significant improvements in the multi-family sector's diversion rate. With this program change in mind, our recommendations include:

- Because of the establishment of the new mixed waste recycling program, the data in this section, especially the projections of future waste composition, will change dramatically; however, the new program data will not be available for several months. We recommend that the City revise the waste composition and tonnage estimates as soon as it receives sufficient, reliable new program data.
- Closely monitor the results of the program expansion to determine the multi-family sector's new diversion rate; and
- Continue attempts at getting new multi-family complexes to join the weekly recyclable collection program.

As the City continues to expand and improve programs for the single-family sector, those programs should continue to be offered to the multi-family sector as well, as is the current practice.

## Multi-Family Dwellings (MFD)

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## Multi-Family Dwellings (MFD)

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## Introduction and Summary of Current Programs

The City has approximately 8,000 – 10,000 businesses that receive solid waste collection services and thousands of businesses also receive recycling services from the franchised haulers. These figures do not include businesses that do not use a franchised hauler because of other collection arrangements, including company-owned vehicles hauling the material to a disposal facility, central distribution facility or to a recycling center.

In 1995, the City approved changes to the Municipal Code to establish the non-exclusive Commercial Solid Waste and Recyclables Collection Franchises. In the new franchise agreements, franchised haulers were required to provide reports on the material collected and pay certain fees. The Franchise agreements do not require the companies to divert material collected from business in the City.

The City has more than 20 non-exclusive franchised solid waste and recycling collection companies in 2008. Commercial businesses in the City can choose from the lists of recycling companies and non-exclusive franchised haulers to select the company that is able to provide the solid waste and recycling services that each business desires.

Under the current program, franchised hauler agreements for services with businesses cannot exceed 6 months, and the hauler is required to provide 30 days written notice prior to the automatic renewal of an agreement. This was intended to give businesses the opportunity to shop around for a franchised hauler that will provide the best services at the best prices.

The City is currently working on a comprehensive redesign of the Commercial Franchised Collection system, and the redesigned system will have a goal of reaching a much higher diversion rate.

### Summary of Current City Diversion Programs

- Recyclables Collection
- Yard Trimmings Collection
- School Recyclables Collection
- Other Programs

## Section 5

### Commercial – Franchised Collection

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## Commercial – Franchised Collection

### **Recyclables Collection**

Materials collected by the franchised haulers and Recyclers include:

- C&D;
- Food and beverage containers;
- Office (anything that tears, plus food and beverage containers);
- Organics;
- Processed MSW;
- Single-stream recyclables;
- Cardboard;
- Food waste;
- Glass;
- Green waste;
- Inerts;
- Metal;
- Mixed Paper;
- Plastic; and
- Wood.

The collection of most commercial recyclables is conducted through programs that require the customers to separate material by type. Some franchised haulers offer commingled recycling programs where recyclable materials are mixed into one bin to be collected and then hauled to a processing facility where the materials are separated.

### **Yard Trimmings Collection**

In FY 2006/07, the franchise haulers reported over 21,000 tons of organic waste diversion.

### **School Recyclables Collection**

In 2005, the City implemented the San José Go Green Schools Program. Through this program, schools are provided recycling containers for paper items and beverage containers. The City employs one full time position dedicated to promoting school recycling programs. The program also supports food waste diversion through pilot collection programs and mixed waste composting at selected schools. The City also offers Go Green

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mini-grants to develop school-wide and in-classroom recycling, composting, and other environmental education programs.

The City provided fiscal year 2006/07 information identifying the schools in the city. The report identified over 200 schools in 20 School Districts, including San José State University and the San José Evergreen Community College District. The total student population in the City in FY 2006/07 was approximately 198,000 students.

The City conducted a diversion analysis for the San José Unified School District for FY 2006/07. Based on the analysis, the San José Unified School District is diverting approximately 18 percent of the material generated through the school recycling collection program.

The amounts collected and recycled from the schools are not identified and reported separately. Most materials collected for disposal and recycling for the City schools are included in the information provided by the franchised haulers.

## Summary Total Tons Disposed and Diverted

The reported Commercial Sector waste stream totaled 283,524 tons for FY 2006/07. Of that amount 40,117 tons or 14.1 percent were diverted.

### **Waste Characterization Summary**

Table 5A provides the composition of the entire commercial waste stream.

## Commercial – Franchised Collection

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# Commercial – Franchised Collection

**TABLE 5A**  
**Commercial – Franchised Collection Waste Composition**  
**Analysis**

<u>Waste Category</u>	<u>Percentage</u>	<u>Amount</u> <u>06/07</u>	<u>Projected</u> <u>2040</u>	<u>Waste Category</u>	<u>Percentage</u>	<u>Amount</u> <u>06/07</u>	<u>Projected</u> <u>2040</u>
Paper	30.6%	74,383	110,388	Construction & Demolition	15.0%	36,534	54,219
OCC/Kraft	9.1%	22,078	32,765	Asphalt Composition Shingles	0.3%	758	1,124
Wax Coated OCC	1.4%	3,326	4,936	Other Asphalt Roofing	0.2%	421	624
Books	0.3%	722	1,071	Concrete/Brick/Asphalt	0.6%	1,516	2,250
Mixed Recyclable Paper	6.4%	15,546	23,072	Untreated/Unpainted Lumber	3.0%	7,261	10,775
High Grade Paper	2.3%	5,581	8,282	Painted/Stained Lumber	6.2%	14,944	22,178
Compostable Paper	10.1%	24,533	36,408	Wood Shingles	0.0%	-	-
Remainder/Composite Paper	1.1%	2,597	3,855	Clean Gypsum Board	0.0%	26	39
Plastic	15.1%	36,680	54,435	Ceramics	0.3%	679	1,008
#1 PET Bottles/Jars	0.6%	1,416	2,101	Carpet and Carpet Padding	2.1%	5,090	7,554
#2 HDPE Bottles/Jars	0.8%	1,906	2,828	Other Rock/Soil/Fines	0.8%	1,926	2,858
#3 - #7 Bottles/Containers	0.2%	595	882	Remainder/Composite C&D	1.6%	3,914	5,809
Food Service Exp. Polystyrene	0.8%	1,930	2,864	Hazardous Materials	0.2%	530	786
Other Food Service Plastics	1.3%	3,047	4,522	HHW	0.1%	312	463
Non-Food Service Exp. Polystyrene	0.8%	1,983	2,942	Pharmaceuticals/Household Medical	0.1%	153	227
Recoverable Film	1.0%	2,325	3,451	Other Remainder Composite HHW	0.0%	65	97
Other Film	5.6%	13,571	20,140	Universal Waste	0.5%	1,304	1,935
Other Rigid Plastic	2.7%	6,615	9,817	Compact Fluorescent Bulbs (CFLs)	0.0%	8	12
Remainder/Composite Plastic	1.4%	3,293	4,886	Fluorescent Tubes	0.0%	17	26
Metal	4.8%	11,677	17,329	Car and Other Lead Acid Batteries	0.0%	1	1
Ferrous/Bimetal Cans	0.6%	1,390	2,063	Household & Other Small Batteries	0.0%	56	84
Other Ferrous	3.1%	7,577	11,244	CRTs	0.0%	10	15
Appliances	0.4%	868	1,288	Electronic Devices	0.5%	1,211	1,798
Aluminum Cans	0.2%	441	654	Special Waste	7.4%	17,997	26,708
Other Non-Ferrous Metal	0.6%	1,401	2,079	Ash	0.0%	1	2
Glass	1.9%	4,733	7,024	Treated Medical Waste	0.9%	2,148	3,188
Glass Bottles and Jars (all colors)	1.5%	3,707	5,502	Mattresses and Box Springs	0.0%	55	82
Flat Glass	0.3%	699	1,037	Furniture	1.1%	2,786	4,135
Other Glass	0.1%	327	485	Tires	0.3%	675	1,001
Organic	24.3%	58,926	87,449	Mixed Residue	1.5%	3,689	5,475
Food Waste	15.9%	38,594	57,274	Textiles/Leather/Rubber	3.6%	8,642	12,825
Leaves/Grass/Brush/Stumps	6.7%	16,250	24,115	Sub Total	100.0%	242,764	360,273
Cooking Grease	0.0%	74	109	Residual			
Disposable Diapers	1.2%	2,796	4,149	Recycling		642	953
Remainder/Composite Organics	0.5%	1,214	1,801	Total Landfill		243,407	361,226

The commercial waste composition analysis provided in Table 5A is based on Cascadia Consulting Group's "City of San José Waste Characterization Study, Final Report – DRAFT, May 2008." Commercial waste was defined as waste collected from a business by one of the larger hauling companies that have a franchise approved by the City. The commercial waste stream was divided into three sub streams corresponding to the type of vehicle or container used for collection:

- Waste collected in debris boxes;
- Waste collected in stand-alone roll-off compactors; and,

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- Waste collected as part of front-loader truck routes.

## Summary of Major Waste Types

As shown in Table 5B, the top four major waste stream categories are:

- Paper, represents 30.6 percent of the commercial waste stream;
- Organic waste, at 24.3 percent;
- C&D materials, at 15.1 percent; and
- Plastics, at 15.0 percent.

**TABLE 5B**

**Commercial – Franchised Collection Waste Composition  
Major Category Ranking**

<u>Major Waste Category</u>	<u>Percentage</u>	<u>Amount</u>	
		<u>06/07</u>	<u>2040</u>
Paper	30.6%	74,383	110,388
Organic	24.3%	58,926	87,449
Plastic	15.1%	36,680	54,435
Construction & Demolition	15.0%	36,534	54,219
Other Materials	7.4%	17,997	26,708
Metal	4.8%	11,677	17,329
Glass	1.9%	4,733	7,024
Universal Waste	0.5%	1,304	1,935
Hazardous Materials	0.2%	530	786
Total Residual	100.0%	242,764	360,273

## Summary of Minor Waste Types to Target for New or Expanded Programs

Table 5C provides a ranking of the individual waste categories sampled in the Cascadia study. This information is also presented graphically in Figure 5C.

As shown in Figure 5C, the top 5 recoverable minor waste categories are:

- Food waste, represents 15.9 percent of the commercial waste stream;
- Compostable paper, at 10.1 percent;
- OCC/Kraft, at 9.1 percent;

## Commercial – Franchised Collection



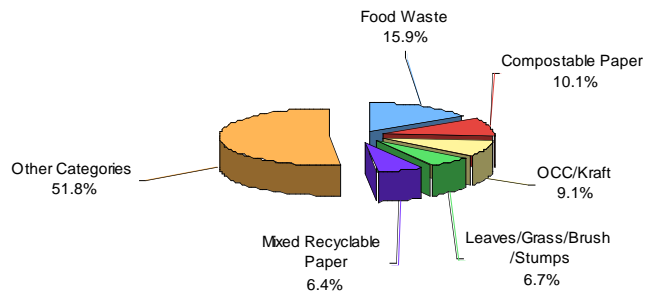
# Commercial – Franchised Collection

- Leaves/grass/brush/stumps, at 6.7 percent; and
- Mixed recyclable paper, at 6.4 percent.

**TABLE 5C**  
**Commercial – Franchised Collection Waste Composition**  
**Minor Category Ranking**

Minor Waste Category	Percentage	Amount		Minor Waste Category	Percentage	Amount	
		06/07	Projected 2040			06/07	Projected 2040
Food Waste	15.9%	38,594	57,274	#1 PET Bottles/Jars	0.6%	1,416	2,101
Compostable Paper	10.1%	24,533	36,408	Ferrous/Bimetal Cans	0.6%	1,390	2,063
OCC/Kraft	9.1%	22,078	32,765	Remainder/Composite Organics	0.5%	1,214	1,801
Leaves/Grass/Brush/Stumps	6.7%	16,250	24,115	Electronic Devices	0.5%	1,211	1,798
Mixed Recyclable Paper	6.4%	15,546	23,072	Appliances	0.4%	868	1,288
Painted/Stained Lumber	6.2%	14,944	22,178	Asphalt Composition Shingles	0.3%	758	1,124
Other Film	5.6%	13,571	20,140	Books	0.3%	722	1,071
Textiles/Leather/Rubber	3.6%	8,642	12,825	Flat Glass	0.3%	699	1,037
Other Ferrous	3.1%	7,577	11,244	Ceramics	0.3%	679	1,008
Untreated/Unpainted Lumber	3.0%	7,261	10,775	Tires	0.3%	675	1,001
Other Rigid Plastic	2.7%	6,615	9,817	#3 - #7 Bottles/Containers	0.2%	595	882
High Grade Paper	2.3%	5,581	8,282	Aluminum Cans	0.2%	441	654
Carpet and Carpet Padding	2.1%	5,090	7,554	Other Asphalt Roofing	0.2%	421	624
Remainder/Composite C&D	1.6%	3,914	5,809	Other Glass	0.1%	327	485
Glass Bottles and Jars (all colors)	1.5%	3,707	5,502	HHW	0.1%	312	463
Mixed Residue	1.5%	3,689	5,475	Pharmaceuticals/Houshold Medical	0.1%	153	227
Wax Coated OCC	1.4%	3,326	4,936	Cooking Grease	0.0%	74	109
Remainder/Composite Plastic	1.4%	3,293	4,886	Other Remainder Composite HHW	0.0%	65	97
Other Food Service Plastics	1.3%	3,047	4,522	Household & Other Small Batteries	0.0%	56	84
Disposable Diapers	1.2%	2,796	4,149	Mattresses and Box Springs	0.0%	55	82
Furniture	1.1%	2,786	4,135	Clean Gypsum Board	0.0%	26	39
Remainder/Composite Paper	1.1%	2,597	3,855	Fluorescent Tubes	0.0%	17	26
Recoverable Film	1.0%	2,325	3,451	CRTs	0.0%	10	15
Treated Medical Waste	0.9%	2,148	3,188	Compact Fluorescent Bulbs (CFLs)	0.0%	8	12
Non-Food Service Exp. Polystyrene	0.8%	1,983	2,942	Ash	0.0%	1	2
Food Service Exp. Polystyrene	0.8%	1,930	2,864	Car and Other Lead Acid Batteries	0.0%	1	1
Other Rock/Soil/Fines	0.8%	1,926	2,858	Wood Shingles	0.0%	-	-
#2 HDPE Bottles/Jars	0.8%	1,906	2,828				
Concrete/Brick/Ashpalt	0.6%	1,516	2,250	Sub Totals	100.0%	242,764	360,273
Other Non-Ferrous Metal	0.6%	1,401	2,079				
				Residual:			
				Recycling		642	953
						243,407	361,226

**FIGURE 5C**  
**Commercial – Franchised Collection Top 5 Materials**  
**Landfilled**



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For the commercial waste stream, using City standard recycling categories, the profile of recoverable and non-recoverable materials in the commercial waste stream is as follows:

- Recyclable materials amount to 46 percent of the commercial waste stream;
- Compostable categories (yard trimmings, food waste and compostable paper) amount to 33 percent;
- Potentially recyclable materials (those that may be recycled if new markets are found, or changes made to current contracts) amount to 12 percent; and
- Non-recyclable items amount to 9 percent.

## Recommendations

The City is working with HF&H Consultants to evaluate various options for improving the commercial waste collection and recycling system in the City. The City has conducted stakeholder outreach, and presented recommendations for commercial system re-design to the City Council in September 2008. Council approved the following recommendations::

1. Prepare a procurement strategy for Council consideration to solicit proposals for commercial solid waste collection, with two to three haulers awarded exclusive franchise agreements for services within geographical districts.
2. Approve the scope of the franchise system, with certain exemptions, to include collection of solid waste, recyclables, and organics, in bags, carts, front-load bins, roll-off boxes, and compactors; and,
3. Return to the Transportation and Environment Committee in December 2008 with final recommendation for the commercial solid waste system redesign including an implementation plan, terms of an exclusive franchise, an implementation plan for securing processing and disposal capacity, and related policy issues for Council consideration.

We noted from the data presented in Table 5A that a large portion of the commercial disposed waste stream, 46 percent, could be diverted through a traditional commingled recycling collection program, using standard City recycling categories.

The next largest opportunity in the commercial sector is composting, with 33 percent of commercial waste disposal consisting of compostable materials. It is important to note that

## Commercial – Franchised Collection

there would be challenges with collecting food waste in the City, due to the diversity of types of businesses, as well as a relatively small restaurant sector, at approximately 12 percent of the commercial waste stream.

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## Introduction and Summary of Current Programs

The City promotes and coordinates solid waste, recycling, and yard trimmings collection programs for the City facilities including all City office buildings, City parks, City public litter containers, the Convention Center, and the Norman Y. Mineta San José International Airport. These programs do not address most of the wastes generated in the City's field operations, including street and sewer repairs and landscape maintenance, which are either delivered to the City's corporation yards by City staff or are the responsibility of construction and maintenance contractors.

The City also develops and promotes several programs to address source reduction and procurement policies to reduce the amount of waste generated within the City. The City adopted an Environmentally Preferable Purchasing policy in 2001, and updated the policy in 2007. The policy calls for waste reduction in the manufacture and use of products and packaging purchased by the City and other waste reduction and recycled content measures in the City's purchasing activities. The City also recently adopted a work plan to establish Extended Producer Responsibility as a legislative, procurement and regulatory priority.

### Summary of Current City Diversion Programs

#### City Facilities Solid Waste and Recyclables Collection

The solid waste and recyclable material generated from the City facilities and public containers throughout the City are collected and processed under a collection agreement between the City and GreenTeam. Under this agreement, two haulers, GreenTeam and Greenwaste Recovery, collect segregated material and provide mixed waste processing and composting services.

GreenTeam does all the waste collection for all City facilities, including parks, though they do not collect recycling at parks. Since early 2007, GreenTeam has been collecting mixed recyclables, including mixed paper, cardboard and beverage containers, from City facilities and the airport. The second hauler, Greenwaste Recovery, does all the processing for what GreenTeam collects, as well as collects waste from the over 800 public litter containers ("PLCs") found on City streets. The agreement for City facilities waste collection specifies a required minimum diversion rate of 70 percent.

## Section 6

### City Facilities

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## City Facilities

Beginning in May 2008, all waste from City operations and PLC's is now being taken to a processing facility in San Jose where the recyclables and non-processable wastes are pulled out and the organic fraction is separated and taken to a composting facility south of Gilroy. This mixed waste processing program is performed in conjunction with the existing source separated recyclables collection. The combined program results in the City achieving a minimum of 75 percent diversion for its operations.

### **City Facilities and Parks Recycling**

A third organization, the San José Conservation Corps ("SJCC") also provides some collection services at City facilities, specifically beverage containers from recycling bins at over 150 parks and the airport. SJCC uses proceeds from their beverage container redemption program to help defray costs of their job training and other educational programs.

### **City Facilities Yard Trimmings Collection**

Yard Trimmings collection is provided on a limited basis for parks and small sites, including fire stations and libraries. GreenWaste Recovery provides Yard Trimmings collection to these small civic facilities as part of the single-family Yard Trimmings program.

## Summary Total Tons Disposed and Diverted

The reported City Facilities Sector waste stream totaled 7,827 tons for FY 2006/07. Of that amount 1,591 tons were diverted.

## Waste Characterization Summary

There has not been a waste characterization study conducted that specifically targeted City facility waste. For this report, we used the commercial waste stream data from the Cascadia Waste Characterization Study to develop the characterization of City Facility waste. See Table 6A for the complete waste characterization data.

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**TABLE 6A**  
**City Facility Waste Composition Analysis**

# City Facilities

<u>Waste Category</u>	<u>Percentage</u>	<u>Amount</u> <u>06/07</u>	<u>Projected</u> <u>2040</u>	<u>Waste Category</u>	<u>Percentage</u>	<u>Amount</u> <u>06/07</u>	<u>Projected</u> <u>2040</u>
Paper	30.6%	1,911	2,835	Construction & Demolition	15.0%	938	1,393
OCC/Kraft	9.1%	567	842	Asphalt Composition Shingles	0.3%	19	29
Wax Coated OCC	1.4%	85	127	Other Asphalt Roofing	0.2%	11	16
Books	0.3%	19	28	Concrete/Brick/Ashpalt	0.6%	39	58
Mixed Recyclable Paper	6.4%	399	593	Untreated/Unpainted Lumber	3.0%	187	277
High Grade Paper	2.3%	143	213	Painted/Stained Lumber	6.2%	384	570
Compostable Paper	10.1%	630	935	Wood Shingles	0.0%	-	-
Remainder/Composite Paper	1.1%	67	99	Clean Gypsum Board	0.0%	1	1
Plastic	15.1%	942	1,398	Ceramics	0.3%	17	26
#1 PET Bottles/Jars	0.6%	36	54	Carpet and Carpet Padding	2.1%	131	194
#2 HDPE Bottles/Jars	0.8%	49	73	Other Rock/Soil/Fines	0.8%	49	73
#3 - #7 Bottles/Containers	0.2%	15	23	Remainder/Composite C&D	1.6%	101	149
Food Service Exp. Polystyrene	0.8%	50	74	Hazardous Materials	0.2%	14	20
Other Food Service Plastics	1.3%	78	116	HHW	0.1%	8	12
Non-Food Service Exp. Polystyrene	0.8%	51	76	Pharmaceuticals/Houshold Medical	0.1%	4	6
Recoverable Film	1.0%	60	89	Other Remainder Composite HHW	0.0%	2	2
Other Film	5.6%	349	517	Universal Waste	0.5%	33	50
Other Rigid Plastic	2.7%	170	252	Compact Fluorescent Bulbs (CFLs)	0.0%	0	0
Remainder/Composite Plastic	1.4%	85	126	Fluorescent Tubes	0.0%	0	1
Metal	4.8%	300	445	Car and Other Lead Acid Batteries	0.0%	0	0
Ferrous/Bimetal Cans	0.6%	36	53	Household & Other Small Batteries	0.0%	1	2
Other Ferrous	3.1%	195	289	CRTs	0.0%	0	0
Appliances	0.4%	22	33	Electronic Devices	0.5%	31	46
Aluminum Cans	0.2%	11	17	Special Waste	7.4%	462	686
Other Non-Ferrous Metal	0.6%	36	53	Ash	0.0%	0	0
Glass	1.9%	122	180	Treated Medical Waste	0.9%	55	82
Glass Bottles and Jars (all colors)	1.5%	95	141	Mattresses and Box Springs	0.0%	1	2
Flat Glass	0.3%	18	27	Furniture	1.1%	72	106
Other Glass	0.1%	8	12	Tires	0.3%	17	26
Organic	24.3%	1,514	2,246	Mixed Residue	1.5%	95	141
Food Waste	15.9%	991	1,471	Textiles/Leather/Rubber	3.6%	222	329
Leaves/Grass/Brush/Stumps	6.7%	417	619	Total Landfill	100.0%	6,236	9,254
Cooking Grease	0.0%	2	3				
Disposable Diapers	1.2%	72	107				
Remainder/Composite Organics	0.5%	31	46				

Uses Commercial Tonnage figures to establish percentage allocation.

If City facilities waste were to be characterized, we would expect significant differences from the overall commercial waste stream. For example, waste from certain City facilities, such as office buildings, will be very similar to the commercial waste stream; much of the waste from the airport may resemble the waste composition of restaurants, while waste from the City's parks will be predominantly from public litter containers, since landscape wastes are hauled to City corporation yards by staff for collection by GreenWaste Recovery.

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## City Facilities

### Summary of Major Waste Types

As shown in Table 6B, the top 4 major waste stream categories are:

- Paper, represents 30.6 percent of the City Facility waste stream;
- Organic waste, at 24.3 percent;
- C&D materials, at 15.1 percent; and
- Plastics, at 15.0 percent.

**TABLE 6B**  
**City Facility Waste Composition**  
**Major Category Ranking**

<u>Major Waste Category</u>	<u>Percentage</u>	<u>Amount</u>	
		<u>06/07</u>	<u>2040</u>
Paper	30.6%	1,911	2,835
Organic	24.3%	1,514	2,246
Plastic	15.1%	942	1,398
Construction & Demolition	15.0%	938	1,393
Special Waste	7.4%	462	686
Metal	4.8%	300	445
Glass	1.9%	122	180
Universal Waste	0.5%	33	50
Hazardous Materials	0.2%	14	20
Total Residual	100.0%	6,236	9,254

### Summary of Minor Waste Types to Target for New or Expanded Programs

Table 6C provides a ranking of the individual waste categories sampled in the Cascadia study for commercial waste. This information is also presented graphically in Figure 6C.

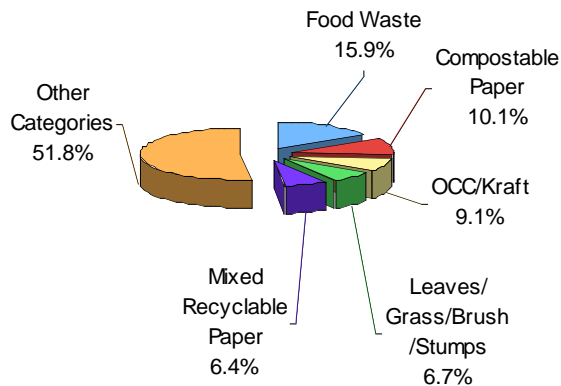
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**TABLE 6C**  
**City Facility Waste Composition**  
**Minor Category Ranking**

City Facilities

Minor Waste Category	Percentage	Amount		Minor Waste Category	Percentage	Amount	
		06/07	Projected 2040			06/07	Projected 2040
Food Waste	15.9%	991	1,471	#1 PET Bottles/Jars	0.6%	36	54
Compostable Paper	10.1%	630	935	Ferrous/Bimetal Cans	0.6%	36	53
OCC/Kraft	9.1%	567	842	Remainder/Composite Organics	0.5%	31	46
Leaves/Grass/Brush/Stumps	6.7%	417	619	Electronic Devices	0.5%	31	46
Mixed Recyclable Paper	6.4%	399	593	Appliances	0.4%	22	33
Painted/Stained Lumber	6.2%	384	570	Asphalt Composition Shingles	0.3%	19	29
Other Film	5.6%	349	517	Books	0.3%	19	28
Textiles/Leather/Rubber	3.6%	222	329	Flat Glass	0.3%	18	27
Other Ferrous	3.1%	195	289	Ceramics	0.3%	17	26
Untreated/Unpainted Lumber	3.0%	187	277	Tires	0.3%	17	26
Other Rigid Plastic	2.7%	170	252	#3 - #7 Bottles/Containers	0.2%	15	23
High Grade Paper	2.3%	143	213	Aluminum Cans	0.2%	11	17
Carpet and Carpet Padding	2.1%	131	194	Other Asphalt Roofing	0.2%	11	16
Remainder/Composite C&D	1.6%	101	149	Other Glass	0.1%	8	12
Glass Bottles and Jars (all colors)	1.5%	95	141	HHW	0.1%	8	12
Mixed Residue	1.5%	95	141	Pharmaceuticals/Houshold Medical	0.1%	4	6
Wax Coated OCC	1.4%	85	127	Cooking Grease	0.0%	2	3
Remainder/Composite Plastic	1.4%	85	126	Other Remainder Composite HHW	0.0%	2	2
Other Food Service Plastics	1.3%	78	116	Household & Other Small Batteries	0.0%	1	2
Disposable Diapers	1.2%	72	107	Mattresses and Box Springs	0.0%	1	2
Furniture	1.1%	72	106	Clean Gypsum Board	0.0%	1	1
Remainder/Composite Paper	1.1%	67	99	Fluorescent Tubes	0.0%	0	1
Recoverable Film	1.0%	60	89	CRTs	0.0%	0	0
Treated Medical Waste	0.9%	55	82	Compact Fluorescent Bulbs (CFLs)	0.0%	0	0
Non-Food Service Exp. Polystyrene	0.8%	51	76	Ash	0.0%	0	0
Food Service Exp. Polystyrene	0.8%	50	74	Car and Other Lead Acid Batteries	0.0%	0	0
Other Rock/Soil/Fines	0.8%	49	73	Wood Shingles	0.0%	-	-
#2 HDPE Bottles/Jars	0.8%	49	73				
Concrete/Brick/Ashpalt	0.6%	39	58				
Other Non-Ferrous Metal	0.6%	36	53	Sub Totals	100.0%	6,236	9,254

**FIGURE 6C**  
**City Facility Waste Composition**  
**Major Category Ranking**



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## City Facilities

As shown in Figure 6C, the top 5 recoverable minor waste categories are:

- Food waste represents 15.9 percent of the City Facility waste stream;
- Compostable paper at 10.1 percent;
- OCC/Kraft at 9.1 percent ;
- Leaves/grass/brush/stumps at 6.7 percent; and
- Mixed recyclable paper at 6.4 percent.

For the City Facility waste stream, using recyclable categories for the City, the profile of recoverable and non-recoverable materials in the City Facility waste stream is as follows:

- Recyclable materials amount to 46 percent of the City Facility waste stream (using City standard recycling categories);
- Compostable categories (yard trimmings, food waste and compostable paper) amount to 33 percent;
- Potentially recyclable materials (those that may be recycled if new markets are found, or changes made to current contracts) amount to 12 percent; and
- Non-recyclable items amount to 9 percent.

## Recommendations

The City Facilities sector is the smallest waste sector in the City which was evaluated; however, it represents an opportunity to use innovative waste reduction and recycling practices to serve as an example to residents and businesses throughout the City. Also, because it is such a small waste stream, this sector can be used to conduct pilot programs.

Implementing a visible source-separated composting program, including food waste, may be difficult in this sector, it may be beneficial to do so, both as a smaller-scale pilot program before expanding to the commercial sector, and to serve as an example to the community.

Beginning in May 2008, all waste from City operations and PLC's is now being taken to a processing facility in San Jose where the recyclables and non-processable wastes are pulled out and the organic fraction is separated and taken to a composting facility south of Gilroy. This mixed waste processing program is performed in addition to the existing source separated recyclables

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collection. The combined program results in the City achieving a minimum of 75 percent diversion for its operations.

## City Facilities

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## City Facilities

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## Introduction and Summary of Current Programs

This section summarizes three separate but related components for the collection and recycling of C&D. They are 1) C&D collected by the City's franchised haulers, 2) the CDDD program, and 3) City certified facilities for C&D processing.

### **C&D Collected by Franchised Haulers**

Franchised haulers are required to report tons collected as either recycling or garbage. A portion of the recycled tons reported to the City are described as C&D. Non-franchised haulers, which include contractors, landscapers, and homeowners, are categorized as self-haul and are not required to report to the City.

### **CDDD Program**

The City adopted an ordinance on March 1, 2001 that amended the Municipal Code to establish the CDDD program. The goal of the CDDD program is to encourage the diversion of C&D debris from landfills. The City collects a deposit based on square footage and type of project that is planned, and fully refunds the deposit if the permittee either reuses C&D material or takes it to one of the City-certified recovery facilities

Many projects requiring a building permit under chapter 24.02 of the City Municipal Code also require a CDDD deposit (some exemptions apply). Projects which require CDDD deposits include:

- New residential construction projects over \$115,000 in value;
- New non-residential construction projects over \$135,000 in value;
- Residential alterations over \$2,000 in value; and,
- Non-residential alterations over \$5,000 in value.

The deposit program was implemented to help ensure that the person or business applying for a building permit develop a plan to divert or reuse C&D debris generated from the project. Qualified compliance options include bringing materials to a CDDD Certified Facility, donating or reusing materials, or some combination of the two.

Deposits are refunded when at least 50 percent of the material is diverted from landfills. Partial refunds are made based on the

## Section 7

### Construction and Demolition – Franchised Collection

# Construction and Demolition – Franchised Collection

actual diversion percentage when the diversion is less 50 percent of the material disposed.

## **Certified Facilities**

The City has developed a public/private partnership with various types of recycling facilities through the CDDD program. The City has established criteria to identify certified facilities which may include the following:

- Recycling facilities;
- Composting facilities;
- Landfills;
- Material recovery facilities; or,
- Re-use facilities.

A number of certified facilities are required to track all incoming and out-going C& D material and must report activity on a monthly basis in a format prescribed by the City.

## **Reporting CDDD Data**

In order to understand C&D as part of the City's overall waste percentage, some details of the CDDD program must be given. The percentage of commercial solid waste reported as C&D is 5.6 percent, as shown in Table 2A. This is the C&D reported by franchised haulers. However since self-haulers, and other haulers referred to as non-franchised haulers, are not required to report their tons to the City, their tons are not included in the 5.6 percent.

Some, but not all, self-haulers and other non-franchised haulers are part of the CDDD program. The CDDD tonnages cannot act as a proxy for overall C&D however because some self-haulers and other non-franchised haulers do not register themselves in the CDDD program. Their tonnages are not captured as C&D, although the facility may evaluate the haul at the gatehouse, and the facility may report it as C&D. CDDD facilities collectively report diverting approximately 1,000,000 tons of material per year. (CDDD program statistics and an analysis of self-haul tonnages are being reviewed outside of this study, as part of the overall CDDD program evaluation). The CDDD program can provide an estimate of the C&D waste stream from data reported by the four landfills participating in the program. However, the CDDD program may represent only a portion of the C&D activity that occurs in the City. Over the past five years (FY 2002/03 to 2006/07) the City has issued over 157,000 building permits. Of that 157,000, approximately 28,000 or 18 percent were subject to the CDDD program requirements.

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## Construction and Demolition – Franchised Collection

CDDD and C&D statistics are further complicated by other factors such as:

- In the CDDD program, facilities are certified, and provide regular reporting to the City to show that the facility is diverting at least 50 percent of incoming material. However, the incoming material comes from both inside the City and outside of the City. City of origin data for CDDD and C&D is not currently reported.
- Also, facilities receive material from projects that must meet CDDD requirements and have registered themselves as CDDD, from projects that do not have to meet CDDD requirements, but that are bringing in C&D, and from projects that are not even “construction and demolition” projects, but that are bringing in C&D material.

Thus CDDD facility recycling totals do not provide a complete picture of C&D diversion activities occurring in the City. The C&D figure of 5.6 percent of the waste stream is what is reported by franchised haulers, and does not currently describe all C&D activity.

The C&D materials that are diverted by certified facilities are also used as ADC and Alternative Intermediate Cover (“AIC”). Those materials are reported by facility and material type.

Those materials were summarized in Section 9 of this report, and the tonnage data was found to be reliable and useable. We did not assign any of that tonnage data to this sector, Construction and Demolition.

CDDD facilities sometimes send outgoing material to another CDDD facility, where that same quantity of material is reported again as incoming material. Therefore, the total material tonnages can not be used for analysis without finding and eliminating “double-counted” tonnages.

### **Waste Generation, Characterization and Projections through 2040**

This section summarizes only the C&D that is hauled by franchised haulers and reported to the City. As shown in Table 2A, Summary Projection of Landfilled and Diverted Tons (Section 2), the C&D waste stream (both disposal and recycling) comprises 5.6 percent of the City’s overall waste generation for FY 2006/07, though for reasons described above, these figures are not an accurate estimate of the C&D waste stream.. Rather, they represent that portion of the C&D waste stream that we were able to gather through the available records.

The logo consists of the letters 'R' and '3' in a stylized, blue, handwritten font. The 'R' is on the left and the '3' is on the right, both rendered in a consistent blue color.

## Construction and Demolition – Franchised Collection

### Summary of Total Tons Disposed and Diverted

Disposal amounts to 4,278 tons in the C&D sector for FY 2006/07. Diversion from recycling of C&D collected by franchised haulers amounts to 101,010 tons for FY 2006/07. The diversion rate for the C&D material collected by franchise haulers is reported as 95.9 percent.

### Waste Characterization Summary

Table 7A provides the composition of the C&D waste stream based on waste composition percentages compiled by the CIWMB in the 2006 Statewide Waste Characterization Study.

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# Construction and Demolition – Franchised Collection

**TABLE 7A**  
**Construction and Demolition– Franchised Collection**  
**Waste Composition Analysis**

Waste Category	Percentage	Amount		Waste Category	Percentage	Amount	
		06/07	Projected 2040			06/07	Projected 2040
Paper	3.2%	139	206	Branches and Stumps	0.1%	3	5
Uncoated Corrugated Cardboard	0.8%	33	49	Agricultural Crop Residues	0.0%	-	-
Paper Bags	0.1%	5	8	Manures	0.0%	-	-
Newspaper	0.2%	8	11	Textiles	0.2%	6	10
White Ledger	0.1%	4	5	Carpet	1.0%	44	65
Colored Ledger	0.1%	4	6	Carpet Padding	0.2%	9	14
Computer Paper	0.0%	-	-	Remainder/Composite Organics	0.5%	20	30
Other Office Paper	0.0%	0	1	Construction & Demolition	86.7%	3,709	5,505
Magazines and Catalogs	0.0%	1	1	Lg Concrete with re-Bar	0.6%	26	39
Phone Books and Directories	0.0%	0	0	Lg Concrete without re-Bar	5.2%	223	331
Other Miscellaneous Paper	0.7%	31	45	Sm Concrete with re-Bar	0.7%	32	47
Remainder/Composite Paper	1.2%	53	79	Sm Concrete without re-Bar	4.3%	184	273
Glass	1.1%	47	69	Lg Asphalt with re-Bar	0.0%	1	1
Clear Glass Bottles and Containers	0.1%	2	4	Lg Asphalt without re-Bar	8.1%	346	514
Green Glass Bottles and Containers	0.0%	1	1	Sm Asphalt with re-Bar	0.7%	30	45
Brown Bottles and Containers	0.0%	1	2	Sm Asphalt without re-Bar	1.2%	49	73
Other Glass Bottles and Containers	0.0%	0	0	Composition Roofing	10.2%	435	646
Flat Glass	0.6%	27	40	Other Asphalt Roofing	4.4%	187	277
Remainder/Composite Glass	0.4%	15	22	Other Aggregates	6.4%	273	405
Metal	4.0%	170	253	Clean Dimensional Lumber	5.9%	253	376
Tin/Steel Cans	0.0%	1	1	Clean Engineered Lumber	4.5%	191	284
Major Appliances	0.7%	28	42	Pallets and Crates	1.8%	76	112
Used Oil Filters	0.0%	-	-	Other Recyclable Wood	3.1%	131	194
HVAC Ducting	0.1%	5	7	Painted/Stained Wood	4.6%	199	295
Other Ferrous Metal	2.4%	103	152	Treated Wood	0.3%	11	17
Aluminum Cans	0.0%	0	0	Clean Gypsum Board	4.5%	192	285
Other Non-Ferrous Metal	0.4%	16	24	Painted/Demolition Gypsum Board	3.6%	153	227
Remainder/Composite Metal	0.4%	18	27	Large Rock	0.9%	38	57
Electronics	0.2%	8	11	Small Rock/Gravel	0.7%	32	47
Brown Goods	0.0%	1	1	Dirt & Sand	6.6%	282	419
Computer-related Electronics	0.0%	1	2	Fiberglass Insulation	0.2%	8	12
Other Small Consumer Electronics	0.0%	2	3	Remainder/Composite Construction & Demolition	8.3%	357	530
Television and Other Items with CRTs	0.1%	4	6	Household Hazardous Waste	0.4%	16	23
Plastic	0.8%	34	50	Paint	0.1%	3	4
PETE Containers	0.0%	0	1	Vehicle and Equipment Fluids	0.0%	-	-
HDPE Containers	0.0%	2	2	Used Oil	0.0%	-	-
Miscellaneous Plastic Containers	0.0%	0	0	Batteries	0.3%	13	19
Plastic Trash Bags	0.0%	1	2	Remainder/Composite Household Hazardous Wast	0.0%	0	0
Plastic Grocery and Other Merchandise Bag	0.0%	0	0	Special Waste	0.6%	27	39
Non-Bag Com. And Indus. Packaging Film	0.1%	3	5	Ash	0.0%	-	-
Film Products	0.1%	4	5	Sewage Solids	0.0%	-	-
Other Film	0.0%	1	1	Industrial Sludge	0.0%	-	-
Durable Plastic Items	0.2%	10	15	Treated Medical Waste	0.0%	-	-
Expnd. Polystyr. Packaging/Insulation	0.1%	3	4	Bulky Items	0.6%	25	36
Remainder/Composite Plastic	0.2%	10	15	Tires	0.0%	2	2
Organic	3.0%	126	188	Remainder/Composite Special Waste	0.0%	0	1
Food Waste	0.0%	1	1	Mixed Residue	0.1%	3	4
Leaves and Grass	0.5%	23	35	Total Landfill	100.0%	4,278	6,348
Prunings and Trimmings	0.4%	19	28				

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# Construction and Demolition – Franchised Collection

## Summary of Major Waste Types

As shown in Table 7B, the top 4 major waste stream categories are:

- C&D materials, represents 86.7 percent of the C&D waste stream;
- Metal, at 4.0 percent;
- Paper, at 3.2 percent; and
- Organic waste, at 3.0 percent.

**TABLE 7B**

### Construction and Demolition – Franchised Collection Waste Composition Major Category Ranking

<u>Major Waste Category</u>	<u>Percentage</u>	<u>Amount 06/07</u>	<u>Projected 2040</u>
Construction & Demolition	86.7%	3,709	5,505
Metal	4.0%	170	253
Paper	3.2%	139	206
Organic	3.0%	126	188
Glass	1.1%	47	69
Plastic	0.8%	34	50
Special Waste	0.6%	27	39
Household Hazardous Waste	0.4%	16	23
Electronics	0.2%	8	11
Mixed Residue	0.1%	3	4
Total Residual	100.0%	4,278	6,348

## Summary of Minor Waste Types to Target for New or Expanded Programs

Table 7C provides a ranking of the top 5 minor waste categories. This information is also presented graphically in Figure 7C are:

- Composite Roofing, represents 10.2 percent of the C&D waste stream;
- Remainder/composite C&D, at 8.3 percent;
- Large Asphalt without re-Bar, at 8.1 percent;
- Dirt and Sand, at 6.6 percent; and
- Other Aggregates, at 6.4 percent.

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# Construction and Demolition – Franchised Collection

**TABLE 7C**  
**Construction and Demolition – Franchised Collection**  
**Waste Composition Minor Category Ranking**

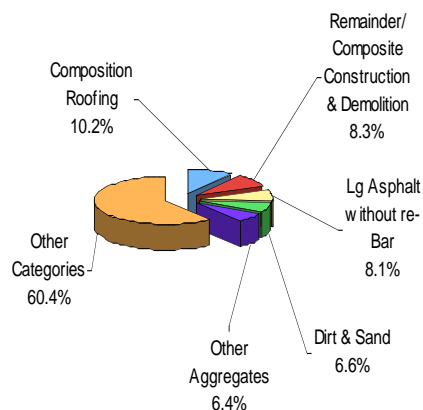
Minor Waste Category	Percentage	Amount 06/07	Projected 2040	Minor Waste Category	Percentage	Amount 06/07	Projected 2040
Composition Roofing	10.2%	435	646	Television and Other Items with CRTs	0.1%	4	6
Remainder/Composite Construction & Demolitic	8.3%	357	530	Colored Ledger	0.1%	4	6
Lg Asphalt without re-Bar	8.1%	346	514	White Ledger	0.1%	4	5
Dirt & Sand	6.6%	282	419	Film Products	0.1%	4	5
Other Aggregates	6.4%	273	405	Branches and Stumps	0.1%	3	5
Clean Dimensional Lumber	5.9%	253	376	Non-Bag Com. And Indus. Packaging Film	0.1%	3	5
Lg Concrete without re-Bar	5.2%	223	331	Exprd. Polystyr. Packaging/Insulation	0.1%	3	4
Painted/Stained Wood	4.6%	199	295	Paint	0.1%	3	4
Clean Gypsum Board	4.5%	192	285	Mixed Residue	0.1%	3	4
Clean Engineered Lumber	4.5%	191	284	Clear Glass Bottles and Containers	0.1%	2	4
Other Asphalt Roofing	4.4%	187	277	Other Small Consumer Electronics	0.0%	2	3
Sm Concrete without re-Bar	4.3%	184	273	Tires	0.0%	2	2
Painted/Demolition Gypsum Board	3.6%	153	227	HDPE Containers	0.0%	2	2
Other Recyclable Wood	3.1%	131	194	Plastic Trash Bags	0.0%	1	2
Other Ferrous Metal	2.4%	103	152	Brown Bottles and Containers	0.0%	1	2
Pallets and Crates	1.8%	76	112	Computer-related Electronics	0.0%	1	2
Remainder/Composite Paper	1.2%	53	79	Green Glass Bottles and Containers	0.0%	1	1
Sm Asphalt without re-Bar	1.2%	49	73	Lg Asphalt with re-Bar	0.0%	1	1
Carpet	1.0%	44	65	Food Waste	0.0%	1	1
Large Rock	0.9%	38	57	Tin/Steel Cans	0.0%	1	1
Uncoated Corrugated Cardboard	0.8%	33	49	Magazines and Catalogs	0.0%	1	1
Small Rock/Gravel	0.7%	32	47	Other Film	0.0%	1	1
Sm Concrete with re-Bar	0.7%	32	47	Brown Goods	0.0%	1	1
Other Miscellaneous Paper	0.7%	31	45	PETE Containers	0.0%	0	1
Sm Asphalt with re-Bar	0.7%	30	45	Other Office Paper	0.0%	0	1
Major Appliances	0.7%	28	42	Remainder/Composite Special Waste	0.0%	0	1
Flat Glass	0.6%	27	40	Miscellaneous Plastic Containers	0.0%	0	0
Lg Concrete with re-Bar	0.6%	26	39	Aluminum Cans	0.0%	0	0
Bulky Items	0.6%	25	36	Plastic Grocery and Other Merchandise Bags	0.0%	0	0
Leaves and Grass	0.5%	23	35	Phone Books and Directories	0.0%	0	0
Remainder/Composite Organics	0.5%	20	30	Remainder/Composite Household Hazardous Was	0.0%	0	0
Prunings and Trimmings	0.4%	19	28	Other Glass Bottles and Containers	0.0%	0	0
Remainder/Composite Metal	0.4%	18	27	Computer Paper	0.0%	-	-
Other Non-Ferrous Metal	0.4%	16	24	Used Oil Filters	0.0%	-	-
Remainder/Composite Glass	0.4%	15	22	Agricultural Crop Residues	0.0%	-	-
Batteries	0.3%	13	19	Manures	0.0%	-	-
Treated Wood	0.3%	11	17	Vehicle and Equipment Fluids	0.0%	-	-
Durable Plastic Items	0.2%	10	15	Used Oil	0.0%	-	-
Remainder/Composite Plastic	0.2%	10	15	Ash	0.0%	-	-
Carpet Padding	0.2%	9	14	Sewage Solids	0.0%	-	-
Fiberglass Insulation	0.2%	8	12	Industrial Sludge	0.0%	-	-
Newspaper	0.2%	8	11	Treated Medical Waste	0.0%	-	-
Textiles	0.2%	6	10				
Paper Bags	0.1%	5	8	Total Landfill	100.0%	4,278	6,348
HVAC Ducting	0.1%	5	7				

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## Construction and Demolition – Franchised Collection

**FIGURE 7C**

### Construction and Demolition – Franchised Collection Top 5 Materials Landfilled



For the C&D waste stream, using recyclable categories for the City, the profile of recoverable and non-recoverable materials in the C&D waste stream is as follows:

- Recyclable materials amount to 45 percent of the C&D waste stream;
- Compostable categories (yard trimmings, food waste and compostable paper) amount to 1 percent;
- Potentially recyclable materials (those that may be recycled if new markets are found, or changes made to current contracts) amount to 23 percent; and
- Non-recyclable items amount to 30 percent.

## Recommendations

### Gather Additional Data to Quantify C&D Sector and Non-Franchised Hauler Sector

In this report, the C&D sector appears small, representing only 5.6 percent of the City's overall waste generation for 2006. However, when combined with the "Non-franchised Hauler" sector, the two sectors amount to 19.3 percent of the City's overall waste generation. It will be very difficult for the City to effectively plan to divert wastes from these sectors without knowing how much waste is generated, who handles the waste, where it originates (construction, demolition versus other sources), and what the material types are. Because the quantity of the material in these two sectors (C&D and Non-Franchised Haulers) is so large, comprising 34.6 percent of the City's remaining disposal, and

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because so little is known about this waste stream, we recommend that the City conduct a thorough and comprehensive review of the waste types, waste sources, types of projects, and waste haulers of this material. The City is already planning to study a portion of these materials in the upcoming CDDD Program Review, and we recommend that the City expand the scope of that project to more completely study these waste sectors.

In addition, that review should also include an analysis of the facility needs and facility capacity for these materials.

## Construction and Demolition – Franchised Collection

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Construction and  
Demolition –  
Franchised  
Collection

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## Introduction and Summary of Current Programs

In Sections 3 through 7 of this report, we have summarized the waste disposal and waste diversion tonnages that are tracked by the City. For fiscal year 2006/07 the total amount of waste disposal tracked by the City was 496,990 tons. However, the CIWMB web site, which reports data on a calendar year basis, indicated that a total 753,749 tons of waste was delivered to City landfills in 2006. The difference of 256,759 tons, or 13.7 percent of the total waste generated was not tracked by the City and the City has no information regarding this waste. It has been classified in this report as “Non-Franchised Hauler” material.

This is a common situation in jurisdictions throughout the State. This unaccounted-for waste is typically called “self-haul” material. In this report, we use the term “Non-Franchised Hauler” waste, to indicate that the waste may be coming from a variety of sources. The sources of the waste might include non-franchised haulers, illegal haulers, clean-up or junk removal companies, businesses or residents self-hauling their own waste, landscapers, gardeners, and C&D contractors.

### **Waste Generation, Characterization, and Projections through 2040**

As shown in Table 2A (Summary Projection of Landfilled and Diverted Tons), the non-franchised waste stream comprises the third largest percentage of the waste stream in the City, accounting for 13.7 percent of the total waste generated.

The figures in these tables include the solid waste disposed in landfills that are not accounted for in the other sectors (SFD, MFD, Commercial, City Facilities, and C&D).

## Summary of Total Tons Disposed and Diverted

Disposal from Non-franchised haulers was estimated to be 256,759 tons in FY 2006/07.

## Section 8

### Non-Franchised Hauler

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## Non-Franchised Hauler

### Current Diversion Rate

The diversion rate for this sector is unknown for FY 2006/07, as no diversion data are reported to the City by these haulers.

## Waste Characterization Summary

### Non-Franchised Solid Waste

Non-Franchised solid waste characterization data was based on the California Integrated Waste Management Boards' Characterization Study conducted in 2004. For that study, non-franchise waste was defined as "waste that is transported to the disposal site by someone other than a contracted or franchised hauler."

Table 8A provides the composition of the Non-Franchised waste stream based on the Waste Characterization Study.

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**TABLE 8A**  
**Non-Franchised Waste Composition Analysis**

# Non-Franchised Hauler

Waste Category	Percentage	Amount		Waste Category	Percentage	Amount	
		06/07	Projected 2040			06/07	Projected 2040
Paper	7.1%	18,235	27,062	Organic	14.0%	35,914	53,298
Uncoated Corrugated Cardboard	3.3%	8,569	12,717	Food Waste	1.0%	2,686	3,986
Paper Bags	0.1%	280	415	Leaves and Grass	2.8%	7,262	10,777
Newspaper	0.2%	625	928	Prunings and Trimmings	1.2%	3,197	4,744
White Ledger	0.6%	1,621	2,405	Branches and Stumps	0.8%	2,033	3,017
Colored Ledger	0.0%	41	61	Agricultural Crop Residues	0.0%	-	-
Computer Paper	0.0%	21	31	Manures	0.0%	-	-
Other Office Paper	0.3%	713	1,058	Textiles	0.8%	2,011	2,984
Magazines and Catalogs	0.2%	631	937	Carpet	4.5%	11,483	17,042
Phone Books and Directories	0.1%	262	389	Carpet Padding	0.0%	-	-
Other Miscellaneous Paper	1.0%	2,482	3,683	Remainder/Composite Organics	2.8%	7,243	10,749
Remainder/Composite Paper	1.2%	2,990	4,438				
Glass	1.0%	2,575	3,821	Construction & Demolition	54.6%	140,099	207,913
Clear Glass Bottles and Containers	0.4%	918	1,362	Concrete	6.2%	15,829	23,491
Green Glass Bottles and Containers	0.1%	192	285	Asphalt Paving	0.0%	101	150
Brown Bottles and Containers	0.0%	77	114	Asphalt Roofing	7.1%	18,138	26,917
Other Glass Bottles and Containers	0.0%	38	56	Lumber	21.5%	55,301	82,069
Flat Glass	0.0%	98	145	Gypsum Board	5.3%	13,505	20,042
Remainder/Composite Glass	0.5%	1,252	1,857	Rock, Soil, & Fines	5.0%	12,827	19,036
Metal	8.0%	20,585	30,549	Remainder/Composite Construction & Demolition	9.5%	24,398	36,208
Tin/Steel Cans	0.3%	727	1,079	Household Hazardous Waste	0.1%	258	383
Major Appliances	1.0%	2,454	3,642	Paint	0.0%	39	57
Used Oil Filters	0.0%	-	-	Vehicle and Equipment Fluids	0.0%	30	44
HVAC Ducting	0.0%	-	-	Used Oil	0.0%	2	4
Other Ferrous Metal	3.7%	9,373	13,910	Batteries	0.0%	69	102
Aluminum Cans	0.0%	77	114	Remainder/Composite Household Hazardous Waste	0.0%	118	175
Other Non-Ferrous Metal	0.2%	579	859	Special Waste	10.6%	27,108	40,229
Remainder/Composite Metal	2.9%	7,375	10,945	Ash	0.3%	771	1,145
Electronics	0.6%	1,494	2,218	Sewage Solids	0.0%	-	-
Brown Goods	0.1%	240	356	Industrial Sludge	0.0%	-	-
Computer-related Electronics	0.2%	400	594	Treated Medical Waste	0.0%	-	-
Other Small Consumer Electronics	0.3%	849	1,260	Bulky Items	10.2%	26,219	38,910
Television and Other Items with CRTs	0.0%	5	7	Tires	0.0%	77	115
Plastic	3.9%	10,033	14,890	Remainder/Composite Special Waste	0.0%	40	59
PETE Containers	0.1%	275	407	Mixed Residue	0.2%	458	679
HDPE Containers	0.1%	192	285				
Miscellaneous Plastic Containers	0.0%	98	145	Total Landfill	100.0%	256,759	381,041
Plastic Trash Bags	0.1%	252	374				
Plastic Grocery and Other Merchandise Bags	0.0%	96	143				
Non-Bag Com. And Indus. Packaging Film	1.2%	2,953	4,383				
Film Products	0.1%	137	203				
Other Film	0.2%	462	686				
Durable Plastic Items	1.3%	3,228	4,791				
Expnd. Polystyr. Packaging/Insulation	0.0%	-	-				
Remainder/Composite Plastic	0.9%	2,340	3,472				

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# Non-Franchised Hauler

## Summary of Major Waste Types

Table 8B provides a ranking of the major waste categories, as presented in the CIWMB study, based on disposal tonnages. “Major” categories are the names of groups of materials, and “minor” categories are the sub-groups, or individual material types. This information is also presented graphically in Figure 8B. As shown in Table 8B, the top 5 major waste stream categories are:

- C&D wastes comprise the majority of the material from non-franchise haulers that is still being disposed, at 54.6 percent of the non-franchise waste stream;
- Organic waste at 14.0 percent;
- Special Waste at 10.6 percent;
- Metal at 8 percent; and
- Recyclable paper at 7.1 percent.

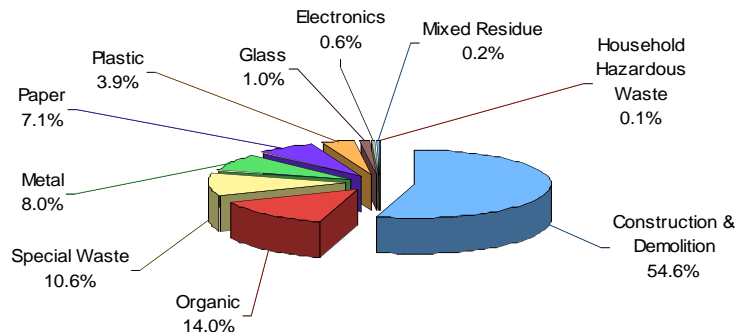
**TABLE 8B**

**Non-Franchised Waste Composition  
Major Category Ranking**

<u>Major Waste Category</u>	<u>Percentage</u>	<u>Amount 06/07</u>	<u>Projected 2040</u>
Construction & Demolition	54.6%	140,099	207,913
Organic	14.0%	35,914	53,298
Special Waste	10.6%	27,108	40,229
Metal	8.0%	20,585	30,549
Paper	7.1%	18,235	27,062
Plastic	3.9%	10,033	14,890
Glass	1.0%	2,575	3,821
Electronics	0.6%	1,494	2,218
Mixed Residue	0.2%	458	679
Household Hazardous Waste	0.1%	258	383
<b>Total Residual</b>	<b>100.0%</b>	<b>256,759</b>	<b>381,041</b>

**FIGURE 8B**

**Non-Franchised Waste Composition  
Major Category Ranking**



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# Summary of Minor Waste Types to Target for New or Expanded Programs

## Non-Franchised Hauler

Table 8C provides a ranking of the individual waste categories sampled in the Cascadia study. This information is also presented graphically in Figure 8C.

As shown in Figure 8C, the top 5 minor recoverable waste categories are:

- Lumber represents the largest material type in the non-franchise waste stream at approximately 21.5 percent,
- Bulky Items at approximately 10.2 percent;
- Asphalt roofing at 7.1 percent
- Concrete at 6.2 percent; and
- Gypsum Board at 5.3 percent.

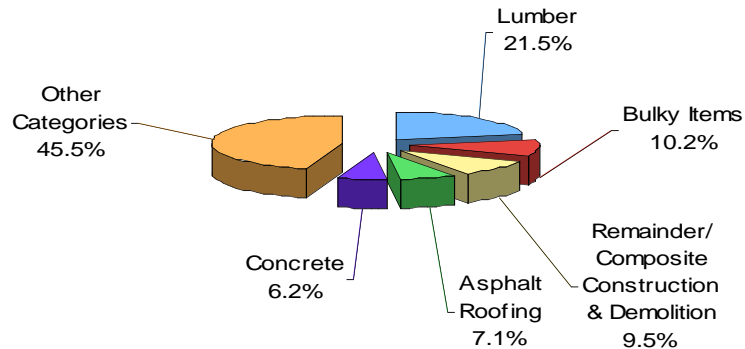
**TABLE 8C**  
**Non-Franchised Waste Composition**  
**Minor Category Ranking**

Minor Waste Category	Percentage	Amount 06/07	Projected 2040	Minor Waste Category	Percentage	Amount 06/07	Projected 2040
Lumber	21.5%	55,301	82,069	Phone Books and Directories	0.1%	262	389
Bulky Items	10.2%	26,219	38,910	Plastic Trash Bags	0.1%	252	374
Remainder/Composite Construction & Demolition	9.5%	24,398	36,208	Brown Goods	0.1%	240	356
Asphalt Roofing	7.1%	18,138	26,917	Green Glass Bottles and Containers	0.1%	192	285
Concrete	6.2%	15,829	23,491	HDPE Containers	0.1%	192	285
Gypsum Board	5.3%	13,505	20,042	Film Products	0.1%	137	203
Rock, Soil, & Fines	5.0%	12,827	19,036	Remainder/Composite Household Hazardous Waste	0.0%	118	175
Carpet	4.5%	11,483	17,042	Asphalt Paving	0.0%	101	150
Other Ferrous Metal	3.7%	9,373	13,910	Flat Glass	0.0%	98	145
Uncoated Corrugated Cardboard	3.3%	8,569	12,717	Miscellaneous Plastic Containers	0.0%	98	145
Remainder/Composite Metal	2.9%	7,375	10,945	Plastic Grocery and Other Merchandise Bags	0.0%	96	143
Leaves and Grass	2.8%	7,262	10,777	Tires	0.0%	77	115
Remainder/Composite Organics	2.8%	7,243	10,749	Aluminum Cans	0.0%	77	114
Durable Plastic Items	1.3%	3,228	4,791	Brown Bottles and Containers	0.0%	77	114
Prunings and Trimmings	1.2%	3,197	4,744	Batteries	0.0%	69	102
Remainder/Composite Paper	1.2%	2,990	4,438	Colored Ledger	0.0%	41	61
Non-Bag Com. And Indus. Packaging Film	1.2%	2,953	4,383	Remainder/Composite Special Waste	0.0%	40	59
Food Waste	1.0%	2,686	3,986	Paint	0.0%	39	57
Other Miscellaneous Paper	1.0%	2,482	3,683	Other Glass Bottles and Containers	0.0%	38	56
Major Appliances	1.0%	2,454	3,642	Vehicle and Equipment Fluids	0.0%	30	44
Remainder/Composite Plastic	0.9%	2,340	3,472	Computer Paper	0.0%	21	31
Branches and Stumps	0.8%	2,033	3,017	Television and Other Items with CRTs	0.0%	5	7
Textiles	0.8%	2,011	2,984	Used Oil	0.0%	2	4
White Ledger	0.6%	1,621	2,405	Agricultural Crop Residues	0.0%	-	-
Remainder/Composite Glass	0.5%	1,252	1,857	Carpet Padding	0.0%	-	-
Clear Glass Bottles and Containers	0.4%	918	1,362	Expend. Polystyr. Packaging/Insulation	0.0%	-	-
Other Small Consumer Electronics	0.3%	849	1,260	HVAC Ducting	0.0%	-	-
Ash	0.3%	771	1,145	Industrial Sludge	0.0%	-	-
Tin/Steel Cans	0.3%	727	1,079	Manures	0.0%	-	-
Other Office Paper	0.3%	713	1,058	Sewage Solids	0.0%	-	-
Magazines and Catalogs	0.2%	631	937	Treated Medical Waste	0.0%	-	-
Newspaper	0.2%	625	928	Used Oil Filters	0.0%	-	-
Other Non-Ferrous Metal	0.2%	579	859				
Other Film	0.2%	462	686				
Mixed Residue	0.2%	458	679	Total Landfill			
Computer-related Electronics	0.2%	400	594		100.0%	256,759	381,041
Paper Bags	0.1%	280	415				
PETE Containers	0.1%	275	407				

## Non-Franchised Hauler

**FIGURE 8C**

**Non-Franchised  
Top 5 Materials Landfilled**



We categorized the minor waste types into four groups: Recyclable, Compostable, Potentially Recyclable, and Non-recyclable.

For Non-Franchised waste, using recyclable categories for the City, the profile of recoverable and non-recoverable materials in the non-franchised waste stream is as follows:

- Recyclable materials amount to 45 percent of the Non-Franchised waste stream (using the City's standard recycling categories);
- Compostable categories (yard trimmings, food waste and compostable paper) amount to 6 percent;
- Potentially recyclable materials (those that may be recycled if new markets are found, or changes made to current contracts) amount to 23 percent; and,
- Non-recyclable items amount to 26 percent.

## Recommendations

- Establish reporting requirements for certified CDDD and solid waste facilities to identify non-franchise tonnage and diversion amounts. These new reporting requirements should be developed as part of the overall CDDD program review.
- Require certified facilities to report inbound and diverted tons based on Franchise haulers, CDDD material, the City's non-franchise (non-CDDD) material, and all material originating outside of the City; and
- Adopt a policy that defines best management practices and end use markets for diverted material.

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## Introduction and Summary of Data Collection

Materials that are recycled at a landfill, or used as soil cover material, Alternative Daily Cover (ADC) and Alternative Intermediate Cover (AIC), or inert construction material for tipping pads and road beds are not considered “disposal,” and therefore have a beneficial effect on diversion rates. Some materials that are not designated as disposal are also not subject to the City’s Disposal Facility Tax, and none are currently subject to City or County AB 939 fees, or the state fee on landfilled waste. We have included ADC in this report as a separate sector, though ADC materials may actually come from all of the other sectors in the City. In particular, much ADC waste may have originated from the Construction and Demolition and Non-Franchised Hauler sectors, but there is no reliable data to document this.

Several material types can be used as ADC. The types of materials from the City that were used as ADC in 2006 included:

- Yard Trimmings;
- Mixed C&D;
- Auto Shredder Fluff;
- Sludge; (Sludge was also used for AIC)
- Compost; and
- Other materials (not specified.)

The California Integrated Waste Management Board (“CIWMB”) requires landfills to report ADC use, including material types and tonnage. These amounts are reported on the CIWMB web site. R3 obtained and summarized ADC data from thirty-two landfills, from 2002 to 2007. CIWMB has published data through 2006. The 2007 data was obtained through a county-by-county data gathering effort and is considered preliminary and subject to change before being published.

In addition, individual counties require reporting of additional material uses. Materials used for other purposes at landfills, including AIC, recycled materials, and use of inert waste as construction materials on-site, are summarized in reports sent to the counties by the facilities, but are not included on the CIWMB web site. The additional landfill diversion material types that are reported at the County level, but not included on the CIWMB web site, include the following:

## Section 9

### Alternative Daily Cover

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## Alternative Daily Cover

- Recycled materials;
- ADC roofing;
- Inert mixed construction;
- Inert concrete;
- Inert various;
- Inert shingles;
- Inert hazardous asbestos;
- Inert non-hazardous; and,
- Inert tire.

R3 researched the ADC, AIC and other materials diverted at landfills, obtaining information from both the CIWMB web site, and by contacting individual counties to obtain county-wide reports on materials diverted and beneficially reused on-site at landfills.

### **Waste Generation, Characterization, and Projections through 2040**

Table 9A shows the ADC totals, by material type, for 2002 through 2006. The preliminary total for 2007 is shown as well. Of all the sectors studied for this report, ADC has the most varied history, in terms of total tonnage per year. For example, ADC totals were nearly 239,000 tons in 2002, dropped to just over 102,000 tons in 2003, rose to over 208,000 tons in 2005, and have declined to 109,000 tons for 2007. See Figure 9A for a graphical representation of the historical ADC tonnage totals.

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**TABLE 9A**  
**City of San José**  
**ADC Totals, 2002 - 2007**

**Alternative Daily  
Cover**

<b>Alternate Daily Cover - Total</b>	<b>2002*</b>	<b>2003*</b>	<b>2004*</b>	<b>2005*</b>	<b>2006*</b>	<b>2007 est.**</b>
Pacheco Pass Sanitary Landfill	210	180	95	56	-	-
Zanker Material Processing Facility		-	-	-	1,730	3,078
Newby Island Sanitary Landfill	92,380	3,691	60,122	86,734	66,812	39,637
Zanker Road Class III Landfill	-	-	-	-	656	106
Kirby Canyon Recycle. - Disp. Facility	64,397	21,616	16,472	69,599	61,595	28,173
Guadalupe Sanitary Landfill	79,276	64,669	51,099	29,624	22,775	17,160
Tri Cities Recycling - Disposal Fac	61	12,384	31,864	22,142	11,269	19,415
Altamont Landfill - Resource Recovery	1,497	92	107	15	62	69
Vasco Road Sanitary Landfill	743	-	-	-	3	1
West Contra Costa landfill	-	-	-	-	62	16
Monterey Regional Wst Mgmt Dst/Marina LF	20	50	31	38	76	78
Forward, Inc.	-	4	19	6	16	11
Potrero Hills Landfill	20	25	756	32	18	919
Keller Canyon Landfill	-	16	-	-	-	-
Arvin Sanitary Landfill	-	-	-	-	-	-
Bakerfield S.L.F.(BENA)	-	-	-	-	-	-
Avenal Landfill	-	-	-	-	-	-
CWMI - B18 Nonhazardous Codisposal	-	-	-	-	-	-
Azusa Land Reclamation Co, Inc.	-	-	26	7	-	-
Redwood Sanitary Landfill	-	10	2	-	-	-
Highway 59 Disposal Site	-	-	-	-	-	-
Billy Wright Disposal Site	-	-	-	-	-	-
Crazy Horse Sanitary Landfill	-	-	-	-	-	-
Sacramento County Landfill (Kiefer)	36	-	-	-	-	-
L - D Landfill Co	-	-	-	-	-	-
John Smith Road Class III Landfill	-	-	-	-	-	-
Foothill Sanitary Landfill	-	-	-	-	-	-
North County Landfill	-	-	-	-	-	-
OX Mountain Sanitary Landfill	38	9	31	20	12	
B - J Dropbox Sanitary Landfill	-	-	-	-	-	-
Fink Road Landfill	-	-	-	-	-	-
Covanta Stanislaus, Inc.	-	-	-	-	-	-
<b>Total Tons</b>	<b>238,678</b>	<b>102,746</b>	<b>160,624</b>	<b>208,273</b>	<b>165,086</b>	<b>108,662</b>

\* 2002 - 2006 data was obtained from the CIWMB website

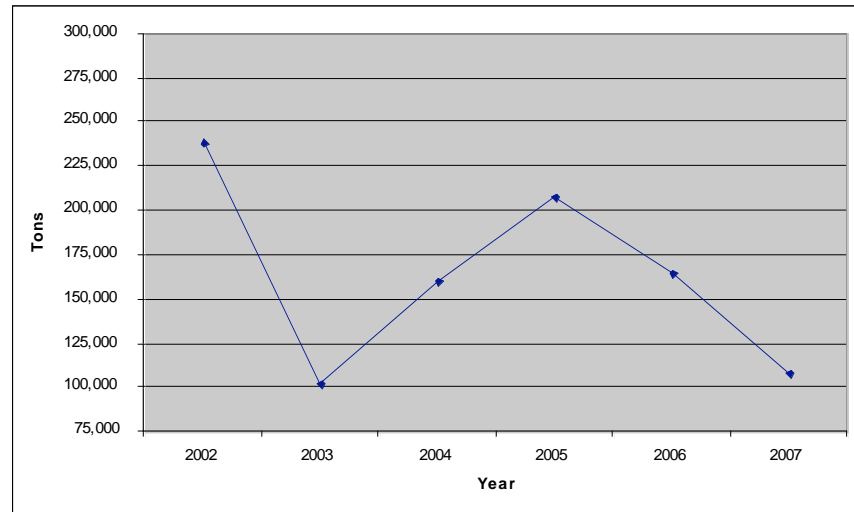
\*\* County Landfill Facility Quarterly Reporting & Fee Remittance Forms and Quarterly Facility Summary for Santa Clara County were only available for the 1st, 2nd & 3rd quarters of the year. Estimates were made by dividing available data by 3 and multiplying the result by 4.

R3

## Alternative Daily Cover

**FIGURE 9A**

**City of San José  
ADC Totals, 2002 - 2007**



### Summary of Total Tons Disposed and Diverted

The ADC total for 2006 was 165,086 tons, or nearly 9 percent of overall waste generation.

### Summary of Major Waste Types

As shown in Table 9B, the top 5 major ADC waste types in 2006 categories were:

- C&D at 63.6 percent;
- ADC green waste at 25.3 percent;
- ADC Mixed Waste at 10.2 percent;
- Sludge at .76 percent; and
- Other at .05 percent.

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**TABLE 9B**

**ADC from Material Originating in San José**

<u>ADC Type</u>	<u>Tonnage</u> <u>2006</u>
ADC C&D Debris	105,059
ADC Green Waste	41,818
ADC Sludge	1,257
ADC Mixed	16,875
Other ADC	77
ADC Tonnage Total	<u>165,086</u>

Alternative Daily  
Cover

**Alternative Intermediate Cover**

The CIWMB does not include AIC data on its web site. R3 obtained AIC data from Santa Clara County for 2006. One site, the Newby Island Sanitary Landfill, used nearly 212,000 tons of material as AIC. Of that total, approximately 65,000 tons was labeled, “beneficial reuse,” and approximately 146,000 tons was “sludge.”

**Recommendations**

By state law, ADC use already “counts” as diversion, by virtue of the fact that it does not “count” as disposal. However, there are concerns that ADC may be over-used in the City, and that the materials being used as ADC could be diverted and used for other, “Higher and Better” uses. In addition, during the planning period (through 2040), many landfills will close, affecting both waste disposal and ADC use. The following summary of the landfill capacity forecast is taken from “Attachment B, San José Disposal Capacity,” from the Zero Waste Goals staff report to the Transportation and Environment Committee on September 20, 2007:

*“Santa Clara County’s “Five-Year Integrated Waste Management Plan Report” shows that the six landfills in Santa Clara County are expected to reach capacity from 2010 (Palo Alto) to 2034 (Kirby Canyon). However, these dates are based on current flows to each site, and do not address the results of each closure as it happens. With the most heavily used site in the County, Newby Island, expected to close by 2024, and to cut off non-contracted business much sooner than that, Guadalupe and Kirby Canyon Landfills will almost certainly see increased flows, resulting in their capacity being exhausted sooner than they now project.”*

R3

## Alternative Daily Cover

Even if Kirby Canyon is stays open through an extended lease term until 2034, as has been reported, their permitted daily capacity is only sufficient to handle about 90% of the waste materials (whether disposed or diverted) currently handled by Kirby and Guadalupe.

Since ADC has ranged from 100,000 tons per year to nearly 240,000 tons per year for the last six years, and since one site received over 200,000 tons of material in 2006 as AIC, together, ADC and AIC are nearly as large as the combined disposal of single-family and commercial (franchised) waste. It should be noted that site operators have reported that large quantities of the materials reported as cover soils, ADC, or AIC have been stockpiled for use in subsequent years or at closure.

The City has already been working to minimize use of materials as ADC, and to ensure that materials are destined for the “highest and best use.” A City representative is participating in a CIWMB-organized task force to create long-term recommendations about ADC use statewide. In the future, state law or state regulations may limit or eliminate the use of green waste as ADC.

In addition, the City’s residential contracts require yard trimmings haulers to use yard trimmings as compost or mulch, rather than ADC. The same policy will be recommended for the commercial redesign process.

As mentioned in the Construction and Demolition debris section, the City will also be reviewing material uses as part of the more comprehensive review of the CDDD program.

With these on-going efforts in mind, our recommendations include:

- Prepare a more comprehensive ADC report that examines long-term trends and forecasts of ADC use, summary of the haulers that are delivering ADC of various material types to landfills, alternatives to ADC that are available to those haulers, and medium- and long-term capacity projections for ADC and AIC that would take into account upcoming landfill closures. This may be completed as part of the upcoming CDDD program review and the commercial redesign process.
- Continue contract practices and pursue other efforts and policies in the City that seek to minimize ADC use.
- Participate in CIWMB Organics Roadmap activities that provide tools for minimizing green waste removal as ADC, such as compost market development, specification and use ordinances.

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