Source Reduction and Recycling Element

City of San Jose, California

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Section One

1. STATEMENT OF GOALS AND OBJECTIVES

1.1 INTRODUCTION

In order to ensure that California's solid waste is managed in an effective and environmentally sound manner, State Assembly Bill 939 (AB 939) was signed into law on September 29, 1989, thereby enacting the California Integrated Waste Management Act of 1989. This bill is an essential part of the state's comprehensive program for solid waste management.

AB 939 addresses a wide range of issues dealing with the management of solid waste materials. The bill establishes the California Integrated Waste Management Board and requires the preparation of countywide integrated waste management plans. It also requires all municipalities to divert 25 percent of their solid waste from landfill disposal through source reduction, recycling, and composting, by January 1, 1995. By the year 2000, 50 percent of the waste stream must be diverted.

Assembly Bill 1820 amends certain portions of AB 939. These modifications and the implementing regulations are now being finalized as a part of Title 14 by the California Integrated Waste Management Board, which sets forth guidelines and procedures for preparing the countywide plans.

This section presents a summary of the goals and objectives designed to assist the City of San Jose in meeting the mandated source reduction and recycling goals.

1.2 SOURCE REDUCTION GOALS

Source reduction refers to any action that causes a net reduction in the generation of solid waste, and can include, but is not limited to, replacing disposable materials and products with reusable materials and products, reducing packaging, and increasing the efficient use of paper, cardboard, glass, metal, plastic, and other materials in the manufacturing process. Although individual source reduction measures are difficult to quantify and document, the cumulative effect of several such measures, in conjunction with an effective recycling program could significantly reduce the volume of solid waste going to disposal facilities. A source reduction program will also conserve energy, avoid collection and disposal costs, increase public awareness of waste disposal issues, and contribute to the overall success of solid waste management plans.

The short range objectives of the City's program are to educate the public about source reduction activities and modify City procurement policies. The education and public information program will distribute informative flyers about specific source reduction activities that residents and office personnel can perform as well as the benefits that will be derived from such activities. Where feasible, all City offices will purchase recyclable over non-recyclable materials, products with minimal packaging over products with excessive packaging, and reusable products over disposable products.

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The medium range objective is to encourage source reduction behavior through a broad based program that incorporates instructional and promotional alternatives, economic incentives and rate structure modifications, waste exchanges, and City leadership and regulatory programs.

1.3 RECYCLING GOALS

The recycling program developed and implemented by the City of San Jose will form the cornerstone for achieving the 25 and 50 percent diversion goals established by AB 939. Recycling programs provide the most effective way to divert large quantities of material from disposal facilities. By meeting the following objectives, the City can expect to divert a variable percentage of its total waste stream.

Short-term objectives:

- Increase participation in residential recycling programs, especially programs for multi-family dwellings.
- Increase participation in the commercial recycling program.
- Increase the types of materials collected from the commercial sector.
- Establish a diversion program for materials currently collected via industrial debris boxes.
- Increase diversion of inert solids generated by the City's Department of Public Streets and Traffic and by construction of capital improvement projects.
- Increase local markets for materials made from post-consumer waste.
- Modify reuse collection practices to optimize the economics of recycling operations.

Medium-term objectives:

- Separate mixed paper from the residential and commercial waste streams.
- Increase local markets for materials made from post-consumer waste.
- Increase plastics recycling operations to include a wider variety of polymer types.
- Continue programs implemented in the short-term planning period.

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1.4 COMPOSTING GOALS

Composting will be the second most critical component for achieving the mandated 25 and 50 percent diversion goals. It is a very effective way to divert yard and selected organic wastes away from disposal facilities. These types of waste comprise a large part of the wastestream (over 25 percent).

The short-term objective for the City of San Jose is to divert at least 52 percent of the commercial and residential yard and wood wastestream. This will yield approximately a 14 percent goal for the total waste stream. The medium range composting objective for the City is to remove at least 74 percent of the commercial and residential yard and wood wastestream. This will yield approximately a 20 percent composting goal for the total waste stream. Establishing end-users will be a major factor in the ultimate success of the composting program. Medium-term marketing activities for the City include using the resulting soil amendments on City grounds and supplying existing distributors with quality material.

1.5 SPECIAL WASTE GOALS

Special waste refers to any waste which has been so classified pursuant to Section 66744 of Title 22 of the California Code of Regulations, or which has been granted a variance for the purpose of storage, transportation, treatment, or disposal by the Department of Health Services pursuant to Section 66310 of Title 22 of the California Code of Regulations. Special waste also includes any solid waste which is specifically conditioned in a solid waste facilities permit for handling and/or disposal, because of its source of generation, physical, chemical, or biological characteristics, or unique disposal practices.

Examples of special wastes include, but are not limited to, the following:

- Asbestos
- Sewage sludge
- Tires
- White goods
- Ash
- Abandoned vehicles
- Dead animals

Objectives for management of special wastes include the following:

- Continue existing programs that divert recyclable special wastes from landfilling.
- Continue to provide for environmentally safe management or disposal of special wastes that cannot be recycled.
- Increase recovery of recyclable special wastes from the solid waste stream.

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1.6 EDUCATION AND PUBLIC INFORMATION GOALS

There are many ways to increase public awareness of, and participation in, recycling, source reduction, and composting projects. The best overall strategy is a comprehensive mix of techniques, including:

- Public education
- Promotions and events
- Publicity and reminders

Short-term objectives build upon existing programs, and include:

- Expanding existing public education and information programs to address source reduction, composting, recycling, and household hazardous waste, tailored to the residential and commercial and industrial sectors.
- Creating public involvement opportunities through recycling promotions and events.
- Providing residents with detailed information about participation in local collection programs.
- Educating the public about the uses of recycled and composted materials, emphasizing "closing the loop" through a "buy recycled" campaign.
- Cultivating support by publicizing and encouraging involvement of the business community.
- Participating in countywide public education efforts.

Medium-term objectives build upon short-term objectives and will focus upon:

- Expanding existing programs.
- Revising and improving current efforts based on feedback obtained from evaluation of short-term activities.
- Developing new programs to target specific sub-populations or waste streams.

1.7 SUMMARY OF DIVERSION ACTIVITIES

The programs and activities for the short-term planning period are projected to achieve a 39 percent reduction of the waste stream in 1995. The medium-term planning period will meet the 50 percent diversion rate at a minimum through the programs described in the SRRE.

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Section Two

2. INITIAL WASTE GENERATION STUDY

2.1 INTRODUCTION

This section contains the initial waste generation studies for the City of San Jose. AB 939 defines total waste generation as the sum of waste disposed and waste diverted as shown in the following equation:

$$GEN = DISP + DIVERT$$

where:

GEN = the total quantity of solid waste generated within the jurisdiction

DISP = the total quantity of solid waste, generated within the jurisdiction, which is transformed or disposed in permitted solid waste facilities.

DIVERT = the total quantity of solid waste, generated within the jurisdiction, which is diverted from permitted solid waste transformation and disposal facilities, through existing source reduction, recycling, and composting programs.

To meet the requirements of AB 939, this section presents the results of two studies: a waste disposal study and a waste diversion study. From the results of these two studies, current and future waste generation, disposal, and diversion quantities were calculated and are presented in Tables 2-4 and 2-5.

2.2 WASTE DISPOSAL STUDY

The waste characterization used for the Waste Disposal Study comes from a pre-existing solid waste generation study for the City of Sunnyvale. Following the regulations encompassed in Title 14, Chapter 9, Article 6.1, Section 18724(c), the demographics and solid waste characterizations of San Jose and Sunnyvale were compared. The cities were found to be comparable as noted by the following similarities:

Demographic

- Household size and age (see Figure 2-1)
- Industry
- Climate (this is important in regards to Yard Waste Generation)

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- Relative proportion of residential to commercial waste generation.
- Waste reduction programs and waste disposal practices.

Table 2-1 lists the average composition of disposed waste from the industrial, commercial, and residential sectors.

2.3 WASTE DIVERSION STUDY

EMCON Associates (EMCON) was contracted by Santa Clara County to prepare a focused waste diversion study for the fifteen cities in the County. In compliance with AB 939, EMCON conducted a waste diversion study to estimate the quantities of materials diverted from each city's waste stream in 1990 through recycling, composting, and source reduction. Diversion results were obtained from (1) surveys of local recycling collectors and processes, (2) surveys of city programs, (3) data provided by the Department of Conservation, and (4) hauler records. The data from the City records and from the surveys were assumed to reflect the total diverted quantities.

The study results reflect a conservative diversion estimate total of 29 percent of the waste stream for the City of San Jose. There was no extrapolation of data in this study. The data from the City records and from the recyclers were assumed to be the total diversion characterization for the City. The results of the diversion characterization are presented for San Jose in Table 2-2 for the residential waste stream, and Table 2-3 for the commercial/industrial waste stream. The quantities listed are estimates in annual tons for 1990. The results are discussed below.

Source Reduction

A diaper service operating in San Jose reported serving 3,429 children in diapers. The diaper company estimated an average weekly diaper use of 50 per baby, for a total of 171,450 diapers per week. Thus, a total of 1,981 tons of garbage were diverted in San Jose in 1990 through the use of reusable cotton diapers. The diaper service estimated that twice the number of their customers are being serviced by other diaper companies operating in the City, although this estimate was not counted toward the City's source reduction rate.

Residential Recycling

Based on the survey of recyclers and city recycling programs, an estimated 35934.5 tons of wastes are diverted through residential recycling programs. These programs include residential curbside recycling, 32,709 tons, drop-off center recycling, 667.3 tons, and AB 20/20 (California redemption) programs, 2,558.2 tons, for a total of 35,934.5 tons. The estimated amounts by material type are listed separately in Table 2-2 for the residential curbside and (landfill) drop-off programs.

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Commercial/Industrial Recycling

The estimated quantity of solid wastes diverted by commercial/industrial recycling was 370,657.9 tons. The City's commercial recycling programs divert 510 tons of waste. Quantities from the City commercial programs are listed separately in Table 2-3. The quantity of materials diverted by private collectors amounts to 324,900 tons. This amount was reported by collectors.

Composting

San Jose's records indicate that 29,305 tons of yard wastes collected at the landfill for composting. This data includes quantities collected by the curbside collection program, as well as quantities diverted directly to the landfill composting area.

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FIGURE 2-1 -Number of Households and Persons Per Household in Santa Clara County*

AREA	1980		1985		1995		2005	
	households	persons	households	persons	households	persons	households	persons
CAMBELL	14,013	2.40	14,440	2.44	16,160	2.29	16,690	2.22
CUPERTINO	15,778	2.75	17,090	2.73	19,230	2.62	19,990	2.51
GILROY	8,246	3.18	9,540	3.22	14,160	3.09	22,300	2.98
LOS ALTOS	10,538	2.78	10,800	2.74	10,980	2.65	11,000	2.59
LOS ALTOS HILLS	2,790	3.03	2,910	2.99	3,200	2.82	3,290	2.73
LOS GATOS	11,802	2.52	12,150	2.48	12,920	2.37	13,230	2.30
MILPITAS	11,376	3.27	12,420	3.23	16,910	3.05	19,210	2.92
MONTE SERENO	1,423	2.83	1,460	2.80	1,520	2.68	1,570	2.59
MORGAN HILL	6,597	3.28	7,440	3.29	10,480	3.13	14,070	3.01
MOUNTAIN VIEW	27,950	2.13	29,080	2.17	31,960	2.11	32,610	2.07
PALO ALTO	24,983	2.37	25,330	2.36	27,700	2.26	28,830	2.17
SAN JOSE	231,425	2.93	249,530	2.96	294,580	2.79	320,480	2.66
SANTA CLARA	34,279	2.51	34,880	2.51	39,420	2.41	41,530	2.37
SARATOGA	9,547	3.09	9,970	3.00	10,710	2.89	10,980	2.78
SUNNYVALE	43,744	2.44	45,270	2.44	52,820	2.35	55,310	2.28
REMAINDER	4,028	3.02	4,040	3.00	4,410	2.92	4,980	2.87
TOTAL	458,519	2.76	486,350	2.78	567,160	2.66	616,070	2.56

* Source - ABAG Projections '87

Table 2-1
Average Composition
Disposed Waste

Material	WASTE TYPE		
	Industrial %	Commercial %	Residential %
Paper	44.2	51.8	40.8
OCC/Kraft	11.1	18.6	5.9
Mixed Paper	9.2	13.1	13.5
Newsprint	3.5	4.7	8.2
High Grade	7.3	2.4	0.9
Magazines/Glossy Insulated	2.9	1.2	2.4
Other Paper	10.2	11.8	9.9
Plastic	22.8	12.4	7.6
Film	3.0	4.1	3.0
HDPE	1.2	1.6	0.8
PET	0.0	0.1	0.4
Polystyrene Foam	1.5	0.9	0.5
Other Plastic	17.1	5.7	2.9
Food	2.5	18.8	8.6
Yard Waste	5.1	5.0	25.5
Wood	9.0	0.4	1.1
Textiles/Leather	1.2	0.8	1.5
Rubber/Tires	0.4	1.4	1.5
Agricultural Crop Residue	0.0	0.0	0.0
Manure	0.0	0.0	0.0
Other Organics	0.3	1.0	4.3
Metals	7.9	4.4	3.5
Tin F&B Cans	0.6	1.6	1.4
Other Ferrous	6.7	2.4	1.2
Bi-Metal Cans	0.0	0.0	0.0
Aluminum Cans	0.2	0.3	0.6
Non-Ferrous	0.3	0.0	0.2
Other Aluminum	0.1	0.1	0.1
Glass	2.3	3.5	4.4
Redeemable Beverage	0.4	1.6	1.5
Non-Redeemable Beverage	0.4	1.2	1.6
Other Recyclable	1.2	0.3	0.8
Other Non-Recyclable	0.3	0.4	0.5
Other Inorganics	3.1	0.3	1.0
OTHER WASTES	1.0	0.1	0.3
Appliances	0.0	0.0	0.2
Household Hazardous Waste	1.0	0.1	0.1
Total	100	100	100

Average may not sum to 100% due to rounding

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TABLE 2-2 RESIDENTIAL DIVERSION QUANTITIES
(Tons, 1990)

	SOURCE REDUCTION	CURBSIDE	APARTMENT RECYCLING	DROP-OFF (a)	BAY-BACK	20/20 CENTERS	COMPOSTING	TOTAL WITHOUT TRANSFORMATION	TRANS-FORMATION	TOTAL WITH TRANSFORMATION
PAPER	0	22,627	0	620	0	0	0	23,247	0	23,247
Corrugated Containers	0	150	0	0	0	0	0	150	0	150
Newspaper	0	21,890	0	494	0	0	0	22,384	0	22,384
High Grade Ledger Paper	0	0	0	0	0	0	0	0	0	0
Mixed Paper	0	587	0	126	0	0	0	713	0	713
Other Paper	0	0	0	0	0	0	0	0	0	0
PLASTICS	0	70	0	3	0	70	0	143	0	143
HDPE Containers (c)	0	0	0	0	0	0	0	0	0	0
PET Containers	0	70	0	3	0	70	0	143	0	143
Film Plastics	0	0	0	0	0	0	0	0	0	0
Other Plastics	0	0	0	0	0	0	0	0	0	0
GLASS	0	5,217	0	37	0	1,578	0	6,832	0	6,832
Refillable Beverage Containers	0	0	0	0	0	0	0	0	0	0
CA Redemption Value	0	3,130	0	37	0	1,578	0	4,745	0	4,745
Other Recyclable Glass	0	2,087	0	0	0	0	0	2,087	0	2,087
Other Non-recyclable Glass	0	0	0	0	0	0	0	0	0	0
METALS	0	618	0	7	0	911	0	1,536	0	1,536
Aluminum Cans	0	147	0	7	0	911	0	1,065	0	1,065
Bi-metal Containers	0	0	0	0	0	0	0	0	0	0
Tin Cans	0	471	0	0	0	0	0	471	0	471
Other Ferrous	0	0	0	0	0	0	0	0	0	0
Other Aluminum	0	0	0	0	0	0	0	0	0	0
Other Non-ferrous	0	0	0	0	0	0	0	0	0	0
White Goods	0	0	0	0	0	0	0	0	0	0
YARD WASTE (d)	0	4,177	0	0	0	0	0	4,177	0	4,177
OTHER ORGANICS	1,981	0	0	0	0	0	0	1,981	0	1,981
Food Waste	0	0	0	0	0	0	0	0	0	0
Tires/Rubber	0	0	0	0	0	0	0	0	0	0
Wood Wastes	0	0	0	0	0	0	0	0	0	0	0
Agricultural Crop Residues	0	0	0	0	0	0	0	0	0	0
Manure	0	0	0	0	0	0	0	0	0	0
Textiles/Leather	0	0	0	0	0	0	0	0	0	0
Diapers	1,981	0	0	0	0	0	0	1,981	0	1,981
Other Misc. Organics	0	0	0	0	0	0	0	0	0	0
OTHER WASTES	0	0	0	0	0	0	0	0	0	0
Inert Solids	0	0	0	0	0	0	0	0	0	0
Batteries (b)	0	0	0	0	0	0	0	0	0	0
Oil (b)	0	0	0	0	0	0	0	0	0	0
Other HHW's	0	0	0	0	0	0	0	0	0	0
SPECIAL WASTES	0	0	0	0	0	0	0	0	0	0
Ash	0	0	0	0	0	0	0	0	0	0
Sewage Sludge	0	0	0	0	0	0	0	0	0	0
Industrial Sludge	0	0	0	0	0	0	0	0	0	0
Asbestos	0	0	0	0	0	0	0	0	0	0
Auto Shredder Waste	0	0	0	0	0	0	0	0	0	0
Auto Bodies	0	0	0	0	0	0	0	0	0	0
Mattresses	0	0	0	0	0	0	0	0	0	0
Other Special Waste	0	0	0	0	0	0	0	0	0	0
TOTAL	1,981	32,709	0	667	0	2,558	0	37,916	0	37,916

(a) Includes non-profit recycling activities.
(b) Considered Household Hazardous Wastes (HHW).
(c) Not program material; are collected, but not reported.
(d) 1000 tons from City Leaf Bark; 2510 tons are brush and branches.

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TABLE 2-3 COMMERCIAL/INDUSTRIAL DIVERSION QUANTITIES
(Tons, 1990)

	SOURCE REDUCTION	CITY COMMERCIAL	PRIVATE COMMERCIAL (b)	PRIVATE INDUSTRIAL	LANDFILL SALVAGING (e)	COMPOSTING	TOTAL WITHOUT TRANSFORMATION	TRANS-FORMATION	TOTAL WITH TRANSFORMATION
PAPER	0	366	5,001	0	2,348	0	7,716	0	7,716
Corrugated Containers (c)	0	282	2,074	0	348	0	2,704	0	2,704
Newspaper	0	0	1,733	0	0	0	1,733	0	1,733
High Grade Ledger Paper	0	0	851	0	0	0	851	0	851
Mixed Paper	0	0	220	0	0	0	220	0	220
Other Paper	0	84	123	0	2,001	0	2,208	0	2,208
PLASTICS	0	0	750	0	27	0	777	0	777
HDPE Containers	0	0	100	0	0	0	100	0	100
PET Containers	0	0	204	0	0	0	204	0	204
Film Plastics	0	0	135	0	0	0	135	0	135
Other Plastics	0	0	311	0	27	0	338	0	338
GLASS	0	0	2,769	0	847	0	3,616	0	3,616
Refillable Beverage Containers (d)	0	0	300	0	0	0	300	0	300
CA Redemption Value	0	0	1,423	0	0	0	1,423	0	1,423
Other Recyclable Glass	0	0	1,044	0	847	0	1,891	0	1,891
Other Non-recyclable Glass	0	0	2	0	0	0	2	0	2
METALS	0	135	18,388	0	2,852	0	21,373	0	21,373
Aluminum Cans	0	6	1,280	0	0	0	1,286	0	1,286
Bi-metal Containers	0	0	0	0	0	0	0	0	0
Tin Cans	0	0	0	0	0	0	0	0	0
Other Ferrous	0	0	9,463	0	2,852	0	12,315	0	12,315
Other Aluminum	0	0	0	0	0	0	0	0	0
Other Non-ferrous	0	129	7,550	0	0	0	7,679	0	7,679
White Goods	0	0	93	0	0	0	93	0	93
YARD WASTE	0	0	16,075	0	9,053	0	25,128	0	25,128
OTHER ORGANICS	0	9	51,355	0	5,477	0	56,840	56,757	113,596
Food Waste	0	9	10,462	0	0	0	10,470	0	10,470
Tires/Rubber	0	0	327	0	0	0	327	1,181	1,508
Wood Wastes	0	0	40,482	0	5,477	0	45,959	55,576	101,535
Agricultural Crop Residues	0	0	0	0	0	0	0	0	0
Manure	0	0	0	0	0	0	0	0	0
Textiles/Leather	0	0	84	0	0	0	84	0	84
Diapers	0	0	0	0	0	0	0	0	0
Other Misc. Organics	0	0	0	0	0	0	0	0	0
OTHER WASTES	0	0	230,565	0	24,644	0	255,209	0	255,209
Inert Solids	0	0	230,000	0	24,644	0	254,644	0	254,644
Batteries (a)	0	0	528	0	0	0	528	0	528
Oil (a)	0	0	37	0	0	0	37	0	37
Other HHW's	0	0	0	0	0	0	0	0	0
SPECIAL WASTES	0	0	0	0	0	0	0	0	0
Ash	0	0	0	0	0	0	0	0	0
Sewage Sludge	0	0	0	0	0	0	0	0	0
Industrial Sludge	0	0	0	0	0	0	0	0	0
Asbestos	0	0	0	0	0	0	0	0	0
Auto Shredder Waste	0	0	0	0	0	0	0	0	0
Auto Bodies	0	0	0	0	0	0	0	0	0
Mattresses	0	0	0	0	0	0	0	0	0
Other Special Waste	0	0	0	0	0	0	0	0	0
TOTAL	0	510	324,901	0	45,248	0	370,658	56,757	427,415

(a) Considered Household Hazardous Wastes (HHW).
(b) Includes San Jose Conservation Corps and City's own survey of recyclers.
(c) City's model OCC recycling program.
(d) Independent EMCON results.
(e) Use of this data may be "double counting".

TABLE 2-4

PROJECTION OF DISPOSED AND DIVERTED QUANTITIES
ASSUMING CONTINUATION OF CURRENT PROGRAMS

Year	Population	Annual Growth	Waste Generation (tons)	Waste Diversion (tons)	Diversion Rate	Waste Disposed (tons)
1990	778993		1400900	408600	29.2%	992300
1991	791645	1.62%	1423595	415219	29.2%	1008375
1992	799300	0.97%	1437403	419247	29.2%	1018157
1993	807000	0.97%	1451346	423314	29.2%	1028033
1994	814800	0.97%	1465424	427420	29.2%	1038005
1995	822700	0.97%	1479639	431566	29.2%	1048073
1996	831400	1.06%	1495323	436140	29.2%	1059183
1997	840200	1.06%	1511174	440763	29.2%	1070410
1998	849100	1.06%	1527192	445436	29.2%	1081756
1999	858100	1.06%	1543380	450157	29.2%	1093223
2000	867200	1.06%	1559740	454929	29.2%	1104811
2001	871600	0.51%	1567695	457249	29.2%	1110446
2002	876000	0.51%	1575690	459581	29.2%	1116109
2003	880500	0.51%	1583726	461925	29.2%	1121801
2004	885000	0.51%	1591803	464281	29.2%	1127522
2005	889500	0.51%	1599921	466648	29.2%	1133273

TABLE 2-5

PROJECTION OF DISPOSED AND DIVERTED QUANTITIES
ASSUMING IMPLEMENTATION OF THE SRRE

Year	Population	Annual Growth	Waste Generation (tons)	Waste Diversion (tons)	Diversion Rate	Waste Disposed (tons)
1990	778993		1400900	408600	29.2%	992300
1991	791645	1.62%	1423595	443993	31.2%	979602
1992	799300	0.97%	1437403	484554	33.7%	952849
1993	807000	0.97%	1451346	572606	39.5%	878740
1994	814800	0.97%	1465424	647051	44.2%	818373
1995	822700	0.97%	1479639	685724	46.3%	793915
1996	831400	1.06%	1495323	746325	49.9%	748998
1997	840200	1.06%	1511174	767811	50.8%	743363
1998	849100	1.06%	1527192	785048	51.4%	742144
1999	858100	1.06%	1543380	796924	51.6%	746456
2000	867200	1.06%	1559740	806787	51.7%	752953
2001	871600	0.51%	1567695	812616	51.8%	755079
2002	876000	0.51%	1575690	818456	51.9%	757234
2003	880500	0.51%	1583726	824308	52.0%	759418
2004	885000	0.51%	1591803	830193	52.2%	761610
2005	889500	0.51%	1599921	836089	52.3%	763832

NOTES: 1990 population estimate by California Department of Finance
annual population growth rates from ABAG, Projections '90

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Section Three

3. SOURCE REDUCTION COMPONENT

3.1 INTRODUCTION

Source reduction is defined in Assembly Bill 939 (Public Resources Code, 40196) as "...any action which causes a net reduction in the generation of solid waste. Source reduction includes, but is not limited to, reducing the use of non-recyclable materials, replacing disposable materials and products with reusable materials and products, reducing packaging, reducing the amount of yard wastes generated, establishing garbage rate structures with incentives to reduce the amount of wastes that generators produce, and increasing the efficiency of the use of paper, cardboard, glass, metal, plastic, and other materials. Source reduction does not include steps taken after the material becomes solid waste or actions which would impact air or water resources in lieu of land, including, but not limited to, transformation."

Source reduction precedes waste management and addresses how products are designed, manufactured, purchased, and used so as to reduce the quantity and toxicity of waste produced when the products reach the end of their useful lives. Technical options for communities considering source reduction include product reuse, reduced material volume, reduced toxicity, increased product lifetime, and decreased consumption. It should also include encouraging lifestyle changes such as replacing lawns with water conserving xeriscaping alternatives, and landscaping which generates less yard waste than lawns.

Source reduction as a component of waste reduction is not currently a widely applied concept. It is, therefore, difficult to estimate the actual impact that source reduction programs will have on the waste stream. However, source reduction may be practiced at the corporate or household level through selective buying patterns and reuse of products and materials. Source reduction programs and approaches can be implemented through education, financial incentives and disincentives, and regulation, as well as research and technological developments.

Source reduction is the first step in a hierarchy concept approach to integrated waste management. California State Assembly Bill 939 reflects this by placing source reduction at the top of the integrated waste management hierarchy. Unlike recycling, composting, transformation, and disposal (the other constituents of an integrated waste management system), source reduction is a preventative measure. Source reduction focuses on reducing or preventing the generation of solid wastes that must subsequently be managed by an integrated waste management system. In preventing waste generation, the impact of source reduction is reflected in the absence of wastes from the waste stream and is therefore very difficult to quantify. Source reduction is, however, the single most effective method of reducing both the volume and the toxicity of the waste stream. Source reduction not only reduces waste, but also conserves resources and energy, reduces land, air, and water impacts, and saves businesses and residents money through more efficient purchasing habits.

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Source reduction encompasses several broad categories, including:

- Reduced waste generation through decreased consumption.
- Reduced material weight and volume.
- Material reuse.
- Increased product durability.
- Reduced toxicity.

Over the long-term, effective source reduction will depend on changes in three distinct areas: (1) manufacturing and production processes; (2) retail marketing and packaging design; and (3) consumer behavior and consumption practices. The prospects for fostering change in production and packaging practices at the local level are fairly limited; such changes commonly require actions at a state or national level. In contrast, however, changes in consumer behavior and consumption patterns must begin at the local level and depend to a great extent on public education programs. To be effective, source reduction should become a factor influencing consumer decisions in favor of bulk purchases and product reusability, recyclability, and durability. Changes in consumption patterns will eventually affect manufacturing, production, and packaging practices.

This component (1) describes existing conditions and presents source reduction objectives for the City of San Jose; (2) evaluates a broad range of alternatives that may be used to achieve those objectives; (3) describes a process for selecting among the alternatives; and (4) identifies a plan of action to implement and monitor source reduction.

3.2 OBJECTIVES

The source reduction objectives presented in this section have been developed to meet the goal of reducing the amount of solid waste generated in the City. These objectives are to be implemented in the short-term planning period (1991-1995) and continued during the medium-term planning period (1996-2000). The City can expect to divert one percent of the total waste stream by the end of short-term planning period and one and one-half percent by the end of the medium term planning period by implementing the following objectives:

- Reduce the use of non-recyclable materials.
- Replace disposable materials and products with reusable materials and products.
- Reduce packaging.
- Encourage product substitution toward less toxic materials.
- Purchase repaired or repairable products.
- Purchase durable products.

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- Increase the efficiency of materials used in the commercial and industrial sectors.
- Reduce generation of yard waste and promote backyard or on-site composting.
- Discourage the use of packaging made from non-renewable resources, especially when recycling is not feasible.
- Encourage the substitution of non-toxic chemicals in the workplace or at the home.
- Encourage the use of non-chemical pest control methods.
- Encourage the purchase of recycled content products.

Source reduction objectives will be coordinated with other environmental programs within the Office of Environmental Management (i.e., Water Conservation, Energy Conservation, and Environmental Protection) which include air quality, waste minimization focused on metals reduction in sewage, and the new Santa Clara County Nonpoint Pollution Control Program. Source reduction activities are also coordinated with the programs discussed in the Household Hazardous Waste Element and other components within the SRRE.

Target waste types for source reduction have been identified, based on four factors: (1) the ability to measure the results of source reduction education; (2) the results of solid waste generation studies; (3) the effectiveness of meeting the source reduction objectives; and (4) criteria that include the volume and weight of the material, the hazard created by the material, the percent content of non-renewable resources, the durability of the material, and the recyclability of the material. Some target waste types are outlined below.

- Packaging materials, including plastics and paper products.
- Construction materials, including concrete, asphalt, lumber, metals, and other inert solids.
- Paper, including office paper and mixed waste paper such as paper napkins, disposable bags, and non-recyclable junk mail.
- Yard waste.
- Single-use products, including disposable diapers, cups, utensils, office supplies, and personal care products.
- Repairable products, including appliances and electronics.

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Standard source reduction alternatives are evaluated in the section entitled "Evaluation of Alternatives." Specific alternatives which meet all of the criteria listed above will be identified and discussed in the section entitled "Selection of Programs." Many current source reduction activities will continue. A major emphasis in the short-term implementation period will be the creation of specific mechanisms to accurately measure diversion levels resulting from source reduction activities.

3.3 EXISTING CONDITIONS DESCRIPTION

This section describes existing source reduction activities and programs within the City of San Jose.

The City of San Jose is aware of many private source reduction activities currently in place which include but are not limited to: backyard composting, commercial on-site composting, commercial source reduction (e.g., double-sided photocopying, etc.) and material reuse and repair (by non-profit and for-profit businesses). The Waste Diversion study performed by EMCON Associates for the County of Santa Clara and focusing on the City of San Jose as one of the fifteen jurisdictions, was unable to unearth actual tonnage figures on most of these activities for the City of San Jose. This is understandable given the difficulty of tracking this type of data and to locate this information in the given timeframe allowed for the survey. Nonetheless, these activities are occurring. The City will assume a conservative diversion total of less than one percent of the total waste stream from private source reduction activities and from the activities discussed in this section. Actual documented diversion as a result of source reduction activities are listed in Table 3-1.

The City will concentrate it's source reduction activities during the short-term planning period beginning in Fiscal Year 1991/92 on acquiring actual tonnage figures for source reduction, reuse and repair programs.

Descriptions of existing source reduction activities given below are organized under the headings of alternatives used in Section 3.4 "Evaluation of Alternatives" (Rate Structure Modifications; Economic Incentives; Technical Assistance, Education and Promotions; and Regulatory Programs).

<u>Rate Structure Modifications</u>

1. Rubbish Franchise Fee System

   Annually sets the fees for rubbish collection under the City's non-exclusive franchise system. Fees are charged based on a percentage of gross annual receipts. Costs are transferred to commercial waste generators based on volume.

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The City currently charges the same franchise fees for all rubbish, regardless of where it is disposed. It is anticipated that the City will implement in the short term a financial incentive process for rubbish haulers to encourage source reduction, recycling, and diversion of rubbish from landfills. This will be accomplished by charging a lower franchise fee on rubbish which is disposed at materials recovery facilities (MRFs) and a higher franchise fee on rubbish which is disposed at landfills.

Such a structure could provide a powerful incentive to haulers to recycle waste they collect. This could also be designed to encourage waste generators to recycle their wastes by using rubbish haulers and recycling firms knowledgeable about recycling, rather than hauling their own wastes directly to landfills. People who haul materials directly to recycling facilities (e.g., scrap materials brokers) may be exempt from the franchise fee.

2. Business Tax

Revised on July 1, 1987, to be on basis of tons landfilled. It places an additional $3.00/ton on all waste landfilled at San Jose landfills. The Business Tax is another rate incentive to encourage waste generators to implement source reduction and recycling.

3. Variable Can Rate

General principles approved by the City Council in April 1991 for use in development of the Recycling Plus! Request for Proposal to be released in October 1991 for the next residential refuse collection and recycling system to begin on July 1, 1993.

Economic Incentives

1. Source Reduction and Recycled Procurement Policy and Program

- San Jose adopted a Source Reduction and Recycling Procurement Policy on August 28, 1990, which sets out the City's preference for buying recycled-content products. This is being implemented by: a) holding seminars for all City staff on the requirements of the policy; b) identifying recycled-product substitution possibilities through Buy Recycled Working Groups composed of various Purchasing and departmental staff; c) rewriting bid specifications for designated products to require minimum levels of post-consumer and total waste content; and d) reviewing all bid specifications to ensure no recycled-content bias.

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- As a condition of the Procurement Policy, certain contractors and grantees are being required to buy certain recycled content products in the course of doing business with San Jose. By 1993, nearly all contractors and grantees will be subject to such requirements, and the number of product categories affected will have increased from one to twenty.

- The next priority group targeted will be other San Jose businesses, as described in the Waste Reduction Strategy update adopted by the City Council in March 1991. Technical assistance has been and will continue to be provided to San Jose businesses on a phone-in basis. The San Jose-sponsored (with Local Government Commission and Department of Conservation) Northern California Recycled Products Vendor Show and Symposium held in San Jose November 14, 1990, gave businesses and local governments the opportunity to learn about and see recycled products. This may be repeated in the future.

- Most Bay Area local governments have received a copy of San Jose's Source Reduction and Recycling Procurement Policy. Many have also received technical assistance on implementation of a "Buy Recycled" program from San Jose staff directly and at seminars and conferences put on by local government organizations and professional associations.

A list of businesses selling recycled content products has been developed and is continually updated. This document has been duplicated in the Santa Clara County Manufacturing Group's "Guide to Commercial Recycling" and San Jose State University, Center for the Development of Recycling's "Procurement Guide."

2. Sustainable City Strategy 1991-1992

This is the policy document for the City of San Jose's Energy Conservation Program. It relates to solid waste by advocating the use of certain fluorescent lighting products that are extremely durable as well as low energy users. These products are used by City offices and recommended to businesses and residences. This works in conjunction with Pacific Gas & Electric's program of providing discount coupons for durable, energy conserving lights.

3. Integration of Non-Profit Reuse Organizations into City Garbage System

Staff is currently working on an agreement between the non-profit reuse (thrift) organizations (e.g., Goodwill Industries, Salvation Army, St. Vincent de Paul, etc.) which will reduce their garbage costs and enable them to increase their ability to accept and reuse more goods, especially goods that become bulky

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wastes. Standard conversion factors will be developed which will provide accurate data on the quantities of goods which are repaired and reused.

4. Financial Incentive Programs

The City's Water and Energy Conservation Programs have developed several incentive programs, including the Water Conservation Financial Incentive Program, that encourage businesses to implement conservation measures. These incentive programs have small auxiliary actions of reducing general solid waste by reducing the amount of materials being used and reducing the amount of replacement of parts that need to be purchased. The creation of similar programs for solid waste could be considered in the mid-term planning period.

Technical Assistance, Education, and Promotion

1. Integrated Environmental Audits, the Technical Assistance Project (TAP)

The TAP program in the City's Office of Environmental Management chose 50 representative businesses, based on business type, water and energy use, and solid waste generation, to participate in a combined environmental audit of their business operations. Fact sheets and case studies will continue to be developed from these detailed audits.

2. Water Conservation Program

The Water Conservation Program conducts Landscape Water Audits for businesses and some residential customers (large water users with home owners associations). Recommendations for xerophytic plantings are included in the water saving recommendations.

3. Recycling and Source Reduction Telephone Audits

Staff in the City's Commercial Recycling Program conducts daily telephone audits of various kinds of business. Source reduction activities are explained in the Technical Information Packet which is mailed to these businesses. Other businesses have begun to call the City with specific questions about source reduction, generally dealing with packaging and with choices between paper and plastics.

4. Site Audits of Businesses Not Included in the TAP Project

Single purpose recycling audits are conducted at some businesses depending on business type. Source reduction recommendations as well as recycling options are discussed with businesses.

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5. Technical Assistance and Information Exchange

Technical assistance and information exchange is provided to organizations representing the waste generators and service providers. Information includes source reduction and recycling practices, legislative updates and reporting requirements. Specific items have been produced, others are in the process of being developed.

a. The Santa Clara County Manufacturing Group - Guide to Commercial Recycling and upcoming conference. Major portions of the text and lists of service providers were provided by staff. Staff designed the source reduction component of the June 24, 1991, conference and will speak on the Non-Profit Reuse Corporate Donation Program.

b. The Institute of Packaging Professionals (IoPP); Reduce, Reuse & Recycle of Protective Packaging (R3P2), Packaging and the Environment Task Force - Staff assisting the packaging designers in developing guidelines for source reduction of packaging, material options or life-cycle analysis, use of recycled content in packaging, environmental labeling, and reuse of packaging systems. The goal is to have these guidelines adopted by the full IoPP by the end of 1991, and for the City of San Jose to make the guidelines available to all companies in the City.

c. Business Recycling Advisory Committee (BRAC) - This is a City-sponsored group which conducts meetings of service providers, (including non-profit and for-profit recyclers, manufacturing end-users, and local government representatives) and some waste generators. BRAC is currently working on a "Specification List" that will assist in product development and will facilitate the reuse and recyclability of specific materials.

d. Center for the Development of Recycling (CDR) at San Jose State University - The City will be contracting with CDR to perform specific source reduction activities including surveys, waste characterizations, and updating fact sheets and reuse/repair directories.

5. Conference and Workshop Development

Office of Environmental Management hosted a conference to assist businesses with implementing sound environmental programs, which included water and energy conservation, toxic programs and solid waste management programs including source reduction, recycling, and market development. Staff assisted with two other conferences in Spring 1991. Source reduction played a major component in both conferences.

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a. Don't Let Your Bottom Line Go to Waste - June 14, 1990, hosted by the City of San Jose.

b. Business Environmental Networks - April 22, 1991, hosted by the Peninsula Conservation Center.

c. Guide to Commercial Recycling - June 24, 1991, hosted by the Santa Clara County Manufacturing Group.

6. Production and/or Distribution of Brochures to Public

The City has prepared or contributed to the creation of several how-to brochures that target source reduction activities. These brochures are mailed to interested residents and businesses and are displayed and given out at public information fairs.

a. Household Hazardous Waste Brochures.

b. Santa Clara County Nonpoint Source Pollution Brochure.

c. Water Conservation and Drought Tolerant Plant Guide (and subsequent reduction in plant debris generation).

d. Backyard Compost Flyers including bin construction, making compost, and dealing with pesticides.

<u>Regulatory Programs</u>

1. CFC Bans (Chlorofluorocarbons)

The City of San Jose has begun a program to phase out the use of CFC's and HCFC's within the City. Phase One requires the recycling of CFC's and HCFC's used in automobile air conditioners. Phase Two which is currently being implemented will phase out the use of these chemicals in building materials and fast food containers unless recycling programs are in place. Later phases will address the elimination/recycling of CFC's and HCFC's in refrigeration units, aerosols, and solvents.

2. Landscaping and Irrigation Guidelines

In response to a new law, AB 325, the City must develop and implement a Water Efficient Landscaping Ordinance by January 1, 1993. Staff believes that this ordinance as well as one covering water efficiency in City facilities will be

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completed in Fall 1991. Sustainable landscaping will be a component of both ordinances.

The quantitative effectiveness of most current source reduction activities is difficult to assess and the description of existing conditions is therefore qualitative, at this point. A survey is being developed that will allow the City to begin to quantitatively discuss source reduction activities.

National efforts affecting the products purchased in stores and used by residences and businesses within the City are described below. The City will continue to support national and state level source reduction activities. It should be noted that some of the national level activities result in a switch from one material to another. Often this new material is not recycled given current recycling collection, processing, and manufacturing capabilities.

National Source Reduction Efforts

The following are some examples of major national source reduction efforts:[1]

- Some manufacturers offer concentrated versions of products which use less packaging (e.g., frozen juices, concentrated pesticides, and concentrated soaps).
- One manufacturer is using reusable, collapsible, or stackable boxes to replace expendable corrugated boxes for parts delivery from its suppliers.
- Several supermarket chains give a .05 cent credit for each bag a customer returns and reuses, including canvas bags.
- Over the past 10 years aluminum beverage containers have been reduced in thickness and hence weight.
- Packaging changes initiated by one manufacturer include:
  - Disposable diapers and diaper packages changed so that net total amount of materials in product and package is 50 percent less than preceding design.
  - Detergent with bleach eliminates need for separate purchase of bleach.

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[1] This summary is based on information from U.S. Congress, Office of Technology Assessment, *Facing America's Trash - What Next for Municipal Solid Waste,* OTA-0-424, Washington, D.C.: U.S. Government Printing Office, October 1989.

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- Half-gallon ice cream cartons have been reduced in weight by 30 percent over the last five years by changing the containers materials.

- One manufacturer changed the tub of a dishwasher from enameled steel to engineered plastic, which enables the warranty on the dishwasher to be increased because the tub is more durable.

- A new blow-molding tool for plastic (HDPE) milk bottles reduces their weight 10 percent while increasing strength.

- One soap manufacturer has made a single-bar shampoo soap since about 1960; while this product requires some packaging, it avoids the use of larger containers.

- Plastic bags bought by a major "fast food" chain to ship products to its stores are designed to be reused as garbage bags.

- Two local video rental chains sell or give customers reusable bags for video rentals.

3.4 EVALUATION OF ALTERNATIVES

This section presents alternatives for implementing successful source reduction programs that meet the objectives outlined above. Each alternative consists of several approaches to implementing the alternative; these approaches are called "programs" in this Source Reduction Component. Each of the alternatives is evaluated according to a set of criteria specified in the regulations implementing AB 939. However, the impact of these alternatives is, for the most part, difficult to quantify due to a lack of data on the impact of source reduction on specific elements of the waste stream.

Many of these alternatives are complementary to each other and depend significantly on the implementation of other alternatives, programs, or components presented elsewhere in the Source Reduction and Recycling Element (SRRE), such as recycling or composting components, or in the Household Hazardous Waste Element (HHWE). Where possible, these relationships have been indicated in the criteria for evaluating the alternatives. An additional consideration in evaluating the alternatives is that their effectiveness and impact need to be considered on the basis of how several alternatives or programs will work together as a system, and not necessarily as alternatives independent of one another.

The source reduction alternatives have been grouped into four general categories:

1. Rate structure modifications, including local waste disposal fee modification and quantity-based local user fees.

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2. Economic incentives, including loans, grants, and loan guarantees, reduced business license fees, and deposits, refunds, and rebates.

3. Technical assistance and public education, including waste audits, technical assistance to industry and consumer organizations, backyard composting workshops, educational efforts, public recognition activities, and non-procurement programs.

4. Regulatory programs, including adoption of local ordinances to enhance source reduction, procurement programs, source reduction planning requirements by waste generators, product bans, and local land-use requirements.

Each of the four source reduction alternatives is described below and then evaluated according to a set of criteria specified by the regulations governing AB 939.

Alternative 1 - Rate Structure Modifications

Source reduction activities can be encouraged through rate structure modifications, including (1) disposal fees, and (2) quantity-based user fees for garbage collection services. The rate structure modifications described below address all source reduction objectives identified above in Section 3.2, "Objectives," and may be applied to both residential and non-residential generators.

1. Disposal Fees

Disposal fees[2] at the landfill could be modified to promote source reduction by making the cost of disposal for non-recyclable and non-reusable wastes relatively high. Fees could also be imposed for goods and products sent to landfills when alternative facilities exist that can repair and/or reuse the goods. This type of fee structure would serve to divert certain types of reusable materials from the waste stream. It would also create an incentive for purchasers of products to consider the costs of the products' eventual disposal in their purchasing decisions. Another method would be to create a tiered franchise fee system designed to separate more readily recyclable loads from non-recyclable material.

2. Quantity-based User Fees

These fees involve calculating collection and disposal fees based upon the amount of waste collected. This is similar in principle to other service-based utility charges such as water and electricity. Generators are charged fees according to the number of cans used, the number of bags collected, or the frequency of collection. Variable rate fees are directly proportional to

[2] This paragraph discussed fees set at the landfill. Disposal fees are not intended to refer to Advanced Disposal Fees or Recycling Disposal Fees which would be implemented at the State or Federal level.

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actual disposal costs; consequently, residents have the opportunity to reduce costs by generating less waste.

There are a number of variants to the rate structure alternative, including:

- Use of a base subscription fee to cover fixed collection costs, plus a flat per-unit volume charge.
- Fees that rise according to increasing volume.
- Charges based upon weight instead of volume.

Most systems that currently charge a variable fee do so using volume as the basis. However, some communities support the concept that a weight-based system would be more equitable because not every container is necessarily full and the densities of some wastes are different from others. Some cities are experimenting with weight-based systems even though such systems require more collection time. Another requirement of these systems is that the collection vehicle must have a scale and a bar-code reader similar to those found in grocery stores to "read" the generator's account number on the container. One of San Jose's contractors is currently testing a vehicle that weighs recycled quantities and records data from bar codes. The City is monitoring the effectiveness of this system and may incorporate its design in future collection systems.

Jurisdictions implementing quantity-based user fees or variable rate schemes have frequently found that they do result in reduced quantities of disposed waste. Because of the reduction in waste quantities, however, the projected revenues generated by the system are often overestimated and insufficient to cover fixed costs. This problem may be solved through the use of a subscription fee to cover fixed costs, plus a variable fee for the actual quantities of waste collected.

Quantity-based user fees are most successful when free or low-cost collection of recyclables is provided in addition to collection of non-recyclables for disposal. Implementing recycling and yard waste programs in conjunction with the variable rate structure provides generators with alternatives to divert wastes from collection and disposal and provides a direct link between fee levels and generated quantities of non-recyclable wastes. Variable rate structures, however, do require both anti-dumping ordinances and anti-scavenging ordinances, since the variable rates and the recycling programs tend to encourage both dumping and scavenging.

All rate structure modifications are evaluated below to determine whether this alternative is appropriate for the City of San Jose as well as to compare to other alternatives.

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Effectiveness

It is generally believed that rate structure modifications can be effective in encouraging source reduction, since the cost of disposal or collection of disposables can be high. The economic incentive to reduce disposed waste should cause generators to become more conscious of waste generation and may alter their habits to reduce the amount of material generated through purchasing decisions, backyard composting, product reuse, and other source reduction activities. Additionally, variable rate structures provide an incentive for increased participation in recycling and composting programs. Studies have shown that, during the first year of operation, a volume-based rate system can reduce the volume of waste requiring disposal by 25 to 50 percent, although the weight of the waste per container tends to increase due to compaction. This assumes that no recycling programs are in effect. For communities where collection programs for recyclables are already in place, diversion through recycling increases.

The estimated impact on the waste stream of variable rate structures is difficult to quantify and depends on two factors: (1) the participation of waste generators in source reduction programs due to higher collection and disposal fees, and (2) the effectiveness of the source reduction activities undertaken by participating generators. These factors are sensitive to the rate at which collection and disposal fees rise; as fees increase, participation and effectiveness will increase. However, there is probably an upper limit to the variable rate structure beyond which illegal dumping will begin to occur.

Hazard

There is no direct environmental hazard associated with rate structure modifications. However, increased disposal and collection costs could result in an increase in illegal disposal, both on public property and in the disposal containers of commercial businesses. Variable rate structures often necessitate the installation of locking dumpster mechanisms for commercial containers. Illegal dumping could result in environmental and public health hazards.

Ability to Accommodate Change

Modifications to rate structures, in general, are easily adapted to existing programs. Rate structures can also be further changed and modified as circumstances warrant. Over the medium- and long-term, this alternative is quite flexible. Additionally, once volume-based rates are established, subsequent rate changes require the approval of the jurisdiction's governing body. In the City of San Jose, franchise fees and garbage rates are reviewed each year, and so this is not a new procedure for staff or City Council.

Consequences on the Waste Stream

Rate structure modifications would be designed to reduce waste at the source and avoid substitution of a product or material that results in an equivalent or greater amount of waste being generated. Rate structure modifications also provide a strong incentive to divert items from the

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waste stream when other programs such as recycling and composting are available. The impact of this alternative, in concert with these other programs, is that the waste stream may be of lower volume, higher density, and contain much lower proportions of recyclables and yard wastes.

Implementation Period

Technically, implementation of this alternative could occur within a period of months and is well within the short-term planning period. However, the City's current contract with its residential collector will preclude implementation until July 1993.

Facility Requirements

No additional facilities are needed to implement rate structure modifications.

Consistency with Local Plans and Policies

This alternative is consistent with the plans, policies, and ordinances of the City of San Jose. The City Council has directed that variable rates be required in the Request for Proposal for the next service contract.

Institutional Barriers

The rate setting and approval process may require changes to current institutional relationships between local agencies responsible for administering the waste management program and those responsible for setting and approving local rates. These barriers become more complex when single or multiple private haulers, disposal facilities, and wastes from other cities are included in the implementation and rate-setting process.

Estimated Cost

The costs associated with implementing rate structure modifications are based on the following six major steps:

1. A rate study to determine appropriate rate structures for achieving the desired level of source reduction.

2. A determination of whether the proposed rate would support the fixed and variable costs of collection and disposal, once source reduction had begun.

3. Review and approval by the local jurisdiction (including a public hearing).

4. Generation of informational and educational materials.

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5. Procurement of either containers or approved stickers for collection bags.

6. Modification of existing billing operations.

End Uses

Not applicable.

Alternative 2 - Economic Incentives and Disincentives

Source reduction activities can be encouraged through economic incentives and disincentives. These include: (1) direct economic benefits: tax credits and exemptions and reduced business licenses; (2) economic assistance: grants, loans, loan guarantees; and (3) disincentives: fees, penalties, and fines. Analysis of state or national level incentives and disincentives include deposits, refunds, rebates, and advanced disposal fees. Economic incentives and disincentives address all source reduction objectives identified above in Section 3.2, "Objectives."

Economic incentives and disincentives can foster source reduction in three ways: (1) direct economic benefits provided to businesses and consumers who participate in source reduction programs; (2) economic assistance to groups and organizations whose mission includes fostering source reduction and supporting the community's waste management goals and objectives; and (3) placing a penalty upon the behavior, activity, or lack of action on the part of waste generators.

1. Direct Economic Benefits

Direct economic benefits are designed to encourage source reduction by providing an incentive to businesses and private organizations to implement source reduction programs and integrate source reduction activities into their operations. For example, tax credits and/or exemptions can be given to businesses that implement formal source reduction activities for manufacturing or procurement. Loans, grants, and loan guarantees can provide direct economic assistance to businesses for the purpose of implementing source reduction activities. Such economic assistance includes funds to purchase copy machines that produce double-sided copies and source reduction and recycling education materials for staff of these businesses. Reduced business license fees can also be granted to businesses that implement source reduction activities.

2. Economic Assistance

Economic assistance incentives are designed to enhance the effectiveness of other source reduction alternatives and programs. These economic incentives are primarily intended to support groups and programs that contribute to the education and technical assistance efforts of the community's source reduction campaign. For example, the City could provide loans, loan guarantees, or grants to encourage the economic development of businesses, non-profit groups, or associations that promote source reduction and reuse such as appliance repairs. Programs

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developed by the recipients of grants and loans could enhance local community source reduction programs such as public education, source reduction awareness campaigns, and any other aspect or component of the overall waste reduction effort.

For example, the City could provide a grant to the local chapter of an environmental group or public service organization to develop and implement composting workshops. These workshops could be timed to coincide with the beginning of other programs and alternatives, such as variable disposal rates and backyard composting programs. The City could provide funding and meeting rooms for workshops given by local chapters of conservation groups on source reduction techniques for the managers of commercial procurement programs. In addition, the City can also lend its support in exploring and developing other funding sources such as grants, industry financial support, in-kind support (donations of composting bins or use of facilities for workshop seminars), and private contributions to be used in developing and implementing source reduction programs.

This program emphasizes the provision of nominal amounts of support to facilitate the primarily volunteer efforts of local or regional groups and associations seeking to foster source reduction efforts at the community level. The City can provide both facilities and financial assistance to defray some of the costs of providing technical assistance and public education offered by these groups. This is one way that the City can forge a relationship and working partnership with volunteer and community interest groups and associations who seek to further community waste management goals and objectives. This alternative enables the City to take advantage of the expertise and resources of volunteer interest groups in the community.

The City of San Jose is in the process of applying to become one of the eight Recycling Market Development Zones proposed by the California Integrated Waste Management Board. This would be utilized in conjunction with the Enterprise Zone, already in existence, and with other financial incentives to recycling collectors, processors, and end users. A more detailed analysis of the proposed Recycling Market Development Zone will be included in the City of San Jose's application to the California Integrated Waste Management Board (CIWMB). The City has reviewed the CIWMB's draft regulations and will present detailed information based on the final regulations.

3. Economic Disincentives

Penalties and/or fines could be imposed by the City on businesses that do not develop and implement source reduction programs and practices. Alternatively, a municipality could impose a fine on businesses that fail to complete a short (one- or two-page) form providing data on their waste stream and outlining their source reduction practices. In addition, businesses could be required to demonstrate a program to purchase feedstock, inputs, materials, or inventories that have the minimum packaging possible (such as buying in bulk). Technical assistance could be provided to businesses for this program in the form of a pamphlet and informational flyer describing the kinds of data sought by the jurisdiction.

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This requirement would serve to highlight the importance of community waste reduction efforts to businesses. This program would provide a source of funding for other selected source reduction programs. For example, any fines collected could be allocated to fund programs conducted by local community groups to provide education and technical assistance for backyard composting programs. Moreover, this type of program would generate valuable waste stream data on commercial businesses, as well as on source reduction practices. These data could be used to monitor changes in the waste stream over time and to evaluate the impact of source reduction programs on the waste stream. The form could be filed once a year with the local tax assessor or when obtaining and/or renewing a business license. Fees or penalties could be imposed on a yearly or quarterly basis.

4. State and/or National Efforts

Advanced disposal fees can be imposed at the state or national level on certain products that are either non-recyclable or non-reusable. Background research into this type of program has recently been completed for the California Integrated Waste Management Board and is under consideration.[3] Products with excess packaging could also be made economically unattractive. A fee would be imposed on products that meet the following criteria: disposable, non-recyclable, or non-reusable; substitutes that were durable, reusable, or recyclable would need to be available. For example, a fee could be placed on disposable products such as pens, razors, cameras, beverage containers, utensils, personal care products, and disposable diapers. These fees could also be applied to products with a range of useful lifespans, with the fee applied to products with shorter lifespans to induce the consumer to purchase the longer-lasting alternatives. Examples of these kinds of products are diapers, batteries, and appliances.

This approach, now under consideration in California, could seek to establish a fee structure that creates a hierarchy of incentives to alter consumer behavior, as follows: (1) buy reusable, recyclable, and durable products; (2) repair older items such as white goods, except where continued use of an old appliance conflicts with energy conservation goals (replacement appliances may entail a fee); and finally, (3) purchase only what is necessary of products that are disposable and have no substitutes. Finally, deposits, refunds, and rebates can be provided for hard-to-recycle materials or materials that are non-durable, as well as for recycled or recyclable materials. This provides a positive incentive to grant purchase preferences to durable, reusable, and/or recyclable products.

Economic incentives and disincentives are evaluated below to determine whether this alternative is appropriate for the City, as well as to compare it to other alternatives.

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[3] The CIWMB submitted the *Disposal Cost Fee Study Final Report* (Tellus Institute, Boston, Mass.) to the California Legislature and the Governor on March 1, 1991.

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Effectiveness

The potential benefits of economic incentives are difficult to quantify. Advanced disposal fees, however, present an excellent mechanism for creating an incentive for consumers to source reduce by purchasing reusable, recyclable, and durable goods and by avoiding disposable, non-reusable, and non-recyclable products. Targeted sources for economic incentives include business and commercial sources (for direct economic incentives and disincentives) and both residential and non-residential (for incentives applied through education and technical assistance programs). Materials targeted by this alternative include potentially every element of the waste stream, including paper products, paper and plastic packaging, all disposable products, tires, batteries, and appliances, and food and yard wastes.

Hazard

There are no environmental hazards created by the economic incentives and disincentives presented in this alternative.

Ability to Accommodate Change

Economic incentives can be modified to accommodate changes in consumption patterns, availability of materials, and the economy. As the City, the waste management system, and the waste stream itself change over time, the ability of both businesses and private groups to apply economic incentives to source reduction efforts will change as well. Economic incentives are readily adaptable to new source reduction techniques and approaches as the latter become available, and as new methods and programs are developed.

However, with advanced disposal fees, as new products and materials are introduced to the marketplace, Federal or State jurisdictions will have to determine whether these products will require a fee. Staff will need to monitor and comment on legislation of this type as it develops at State and Federal levels.

Consequences on the Waste Stream

Economic incentives, whether applied directly by businesses or indirectly through education and technical assistance programs, will reduce the amount of solid waste disposed. Changes in the waste stream composition will depend on the materials targeted by the incentive programs. The greatest potential for shifts in the waste stream composition would result from programs directed toward (1) backyard composting, (2) commercial procurement programs, and (3) consumer purchasing awareness programs. Waste stream materials affected by these types of programs are yard wastes and wood cuttings, office paper, plastic and paper packaging, corrugated cardboard, and other packaging products.

The City will need to monitor the impact of any State or Federal advanced disposal fee system on the local waste stream to ensure that the program is indeed reducing the presence of targeted

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products found in the waste stream. In addition, the City must ensure that substitutes for the targeted products are being used and recycled, or that they result in lower volumes, densities, or toxicities of waste disposed.

Implementation Period

Economic incentives must be approved by San Jose City Council (unless State or Federally mandated). The amount of time required for the approval process and implementation of the program can range from two to three months to several years. Modifications to any economic incentive programs would undergo a similar approval process. Implementation of State or Federal mandated advanced disposal fees may require local ordinance changes. Council approval for changes to City ordinances can range from two to three months and could fall under the short-term or medium-term planning period, depending on the time periods required by new laws.

Facility Requirements

No facilities are needed to implement economic incentives in jurisdictions in the City.

Consistency with Local Plans and Policies

The City currently participates in the Economic Development Enterprise Zone and merchants actively adhere to the current Advanced Disposal Fees on car batteries, tires, and containers that fall under AB 2020. Additional programs should be consistent with local policies and will have to be reviewed on a case-by-case basis.

The City of San Jose prefers establishing a feeling of cooperation with local businesses as demonstrated by the number of Technical Assistance programs already in place. Economic disincentives such as fines on businesses who do not complete annual reports, is not consistent with current City Policy and most likely will not be implemented in the short-term or medium-term planning period.

Institutional Barriers

The incentives proposed under this alternative would in many cases have to be funded by the City through general funds intended to serve the solid waste collection and disposal system. This could, in many cases, result in a need for rate increases to cover the expense of the incentive program.

The disincentives presented under this alternative would not require funding and would actually generate revenue depending on State or Federal regulations.

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Consistency with Local Plans and Policies

Economic disincentives such as fines on businesses who do not complete annual reports, is not consistent with current City Policy and most likely will not be implemented in the short-term or medium-term planning period.

Estimated Cost

The costs of this alternative would include the use of the City staff resources to develop and administer the incentive and disincentive programs. Staff resources would be necessary to develop, approve, implement, and administer each community project funded by the City. Additional costs include the direct dollar amounts of any grants or funding provided under the incentive programs. Although the disincentive programs would generate some level of revenue, whether they would cover their own costs is unknown. Specific costs for implementing advanced disposal fees, however, would depend upon the products or materials targeted for the fee. In general, costs associated with implementing an advanced disposal fee would be based, in part, on the following five activities:

1. A determination of the products and materials which will be subject to the advanced disposal fee.

2. A rate study to determine appropriate fee structure for achieving the desired level of source reduction.

3. Review and approval, including a public hearing.

4. Generation of informational and educational materials.

5. Creation of a system to collect and administer the fee.

End Uses

Not applicable.

Alternative 3 - Technical Assistance, Education, and Promotion

The programs presented in this alternative address all source reduction objectives identified above in the Section 3.2, "Objectives." These activities include (1) waste evaluations; (2) technical assistance; (3) educational efforts; (4) promotional programs (i.e., public recognition and awards); and (5) commercial non-procurement source reduction programs.

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1. Waste Evaluations

Waste evaluations identify the waste types generated by a business that can be targeted for source reduction activities. A number of approaches to waste evaluations have been implemented by the City. For example, the City has assisted selected, large-quantity commercial generators in the community to conduct waste evaluations to identify what types and amounts of wastes are being generated and to assist them in identifying and implementing source reduction techniques. Waste evaluations are conducted at certain categories of commercial generators according to Standard Industrial Classifications (SIC) codes, employee size, or by the quantity and type of wastes known to be generated by those enterprises.

Restricting, or selecting, the number of generators that will complete these waste evaluations reduces the administrative burden and cost of these programs. Additionally, restricting the scope of this program ensures greater effectiveness by focusing on larger generators or on representative generators that contribute significantly to the waste stream.

Data collected from the waste evaluations could also be used for:

1. Assessing proper waste disposal fees.

2. Controlling the disposal of banned wastes into the waste stream (e.g., corrugated cardboard, organic wastes, and household hazardous, medical/infectious, or special wastes).

3. Establishing a baseline for waste generation data from which to measure future progress in waste reduction.

These evaluations have been checked periodically to provide for monitoring and evaluation of generator progress and could be made a provision of the waste generator's business license or waste disposal contract. The primary purpose of the waste evaluation alternative is to increase commercial awareness of the need for, and benefits of, waste reduction programs and to assist businesses to design and implement programs reducing waste generation.

2. Technical Assistance

Technical assistance to businesses and consumers can be accomplished through workshops and seminars that address practical ways businesses and consumers can reduce the quantity of wastes generated. Topics can include (1) decreased consumption; (2) reuse and then recycling of materials; (3) procurement practices with preferences for reduced packaging; (4) increased durability, and increased recycled materials content; (5) increased manufacturing efficiency; and (6) composting of yard wastes at the site of generation.

Because yard waste is the largest component of the waste stream, source reduction or diversion programs targeted at these wastes can significantly impact the amount of waste disposed of by

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he community. Although technical assistance programs are often targeted at residential generators, these programs could also be applied to commercial and institutional generators of yard waste, including public agencies. Workshops targeted to landscape architects, gardeners, and facility maintenance employees, coupled with the Water Conservation Program, can expand the level of understanding and spread the implementation of source reduction to the private sector.

3. Educational Efforts

Educational efforts by the City would be an invaluable means of developing consumer awareness about the benefits of source reduction and changing consumption patterns. Implementing public education programs increases awareness of the solid waste problem, the economic and environmental benefits of source reduction programs, and the regulatory requirements of source reduction programs. These programs may also seek to change consumer purchasing patterns to reflect source reduction concerns. Educational efforts include developing and sponsoring consumer awareness programs, school curricula, seminars, and public forums.

In implementing public education programs, the City would act as a catalyst for source reduction efforts and serve as a clearinghouse for information on source reduction techniques to San Jose residents and businesses while the Center for the Development of Recycling can act as a clearinghouse for information requests from outside the City. This would enable different sectors of the community (public and private, residential and commercial) to efficiently exchange source reduction information. Examples of this include:

- Providing businesses with information on how to reduce waste disposal by reducing generation and reusing products.
- Providing source reduction pointers ranging from procurement practices to the use of double-sided copying and using waste paper as scratch paper.
- Encouraging consumer organizations to meet with businesses to develop different approaches to product retailing.
- Offering businesses engaged in fostering source reduction (such as bulk-purchase stores or stores catering to yard waste composting activities) the opportunity to conduct workshops or seminars.

Public education programs are vital to the success of other programs (such as backyard composting and grant funding) for community groups seeking to participate in source reduction efforts.

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4. Public Recognition and Awards

Public recognition can be used by the City to publicly acknowledge businesses that have implemented source reduction activities. Awards could also be presented to community groups or individuals that are promoting source reduction in the community either through example or through education. Through public recognition, the City can generate public support for source reduction efforts by recognizing businesses, private groups, and individuals who actively engage in source reduction efforts and support the community's source reduction programs. These programs serve to complement other source reduction programs such as public education, technical assistance, and grant programs. Approaches developed for this alternative could range from local pride campaigns emphasizing waste reduction and environmental awareness to reporting in the local newspaper examples of exemplary source reduction programs. These programs could enhance participation in other programs such as waste audits and commercial reporting requirements for source reduction programs.

5. Non-procurement Source Reduction Programs

These programs involve all methods to implement source reduction that are not associated with purchasing decisions. They require the City to undertake a number of activities aimed at altering the behavior of its own staff and operations to reduce the amount of waste generated on a day-to-day basis. These activities could include education programs familiarizing people with source reduction practices such as:

- Double-sided copying.
- Increasing the use of scratch paper.
- Making fewer drafts of reports.
- Use of electronic mail (when the technology is available).

This alternative provides an opportunity for the City itself to develop and implement a model source reduction program that can be used as an example for other private, public, and commercial entities in the area.

Technical assistance, education, and promotion activities for source reduction include: waste evaluations, technical assistance, educational efforts, public recognition and awards, and non-procurement source reduction programs, and are evaluated below to determine whether this alternative is appropriate for the City of San Jose as well as to compare it to other alternatives.

Effectiveness

An effective technical assistance program combined with education and promotion can result in significant reductions in the quantities of solid waste disposed. Actual quantities of waste

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diverted are difficult to estimate and are dependent upon (1) the types of programs selected; (2) the scope of each program; and (3) the materials and generators targeted for program impact. The programs and approaches outlined by this alternative combine several factors that point to potentially high returns in terms of waste diverted through source reduction. First, this alternative targets the entire spectrum of waste generators: residential and non-residential/commercial. Second, the alternative targets the entire spectrum of wastes in the waste stream, from paper and plastic packaging to yard wastes and non-durable, disposable products.

Finally, this alternative consistently aims to use all existing resources within the community in terms of public service and environmental groups, associations, businesses, and private individuals. This alternative seeks to achieve gains in source reduction by using non-public community resources pressed into service by well-organized and administered programs to increase awareness, achieve technology and information transfer, and publicly reward top performers. In this way, the programs outlined under this alternative support, enhance, and increase the effectiveness of other source reduction programs and alternatives.

Hazard

There are no hazards associated with the programs presented by this alternative. The City may seek to ensure that proper composting techniques are used so that no public health or fire hazards are created.

Ability to Accommodate Change

This alternative is easily adaptable to change as new methods and programs are developed. This alternative also readily accommodates changes in the waste stream, as well as changes in consumer purchasing behavior and available products and alternatives. Indeed, once the public is sensitized to the City program of heightened environmental awareness, it may in fact be easier to introduce new concepts to further change public behavior. As the community, the waste management system, and the waste stream itself change over time, the expertise and abilities of community resources will change also. New techniques and approaches will become available to the City by virtue of the informal relationship between the public agencies, businesses, households, and community groups. Programs for public recognition, local pride, and environmental awareness can all be readily changed in their focus, scope, and intensity to accommodate changes in local waste management programs, changes in the waste stream, seasonal variations in waste characteristics, and other factors.

Consequences to the Waste Stream

Technical assistance, education, and promotional activities would be designed to (1) reduce waste at the source; (2) avoid substitution of a product or material that results in an equivalent or greater amount of waste being generated; and/or (3) substitute a material that is not economically feasible to recycle under current or future market conditions. Direct community and business involvement with, and participation in, carefully implemented programs will reduce the amount

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of solid waste disposed. Changes in the waste stream composition will depend on the effectiveness of the technical assistance, public education, and promotion efforts, and on the materials targeted for reduction by those responding to the message of these programs. The most likely areas for significant impact would be from programs aimed at backyard composting, commercial purchasing and procurement, office source reduction, consumer-purchasing awareness programs, and industrial processes. The waste stream materials affected by these types of programs are:

- Yard wastes and wood cuttings.
- Office paper and plastic packaging.
- Corrugated cardboard.
- Other packaging products.

Implementation Period

This alternative can provide a range of options with respect to the scope and duration of the various programs outlined. Initial efforts in technical assistance, public education, and promotional activities can be implemented in the short-term planning period. The need for additional staffing and the more involved aspects of the alternative, such as developing school curricula, are the main factors that could delay implementation to the medium-term.

Facility Requirements

No additional municipal facilities in the City would be required. Existing educational facilities and office conference space could serve as locations for seminars and educational workshops.

Consistency with Local Plans and Policies

Technical assistance, education, and promotional activities are consistent with current policies in the City. The City has historically considered technical assistance and educational activities for waste management to be superior to regulatory controls.

Institutional Barriers

There are no institutional barriers to implementing technical assistance, education, and promotional activities for source reduction. In addition, the City will try to incorporate activities that complement other environmental programs conducted by staff.

Estimated Cost

The costs for technical assistance, education, and promotion will vary depending on the City's commitment to funding a broad spectrum of programs. Generally, the cost of any of these pro-

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grams will vary dramatically depending upon the scope of implementation. Each of the programs outlined in this alternative would require resources from the City for developing and administering the program. Although staffing would constitute the majority of the costs of implementing technical assistance, public education, and promotional activities, the programs outlined under this alternative involve some direct costs including (1) costs associated with promotional brochures, pamphlets, flyers, doorhangers, and (2) production costs for any use of the media or outside consultants. Additional costs include those for publicity and public relations associated with awarding recognition and highlighting of specific activities within the community.

The costs for the waste evaluation depend on the level of information collected. The City will structure the requirements of this program whenever possible so that target generators can conduct the waste evaluation using in-house staff and expertise. The bulk of the cost of this program involves staff resources to conduct the waste evaluation and to process the resulting data. Businesses and institutions have the option to perform their own audits using the information provided in the Technical Assistance Packet or the Santa Clara County Manufacturing Group's "Guide to Commercial Recycling."

The costs associated with a non-procurement source reduction program are similar to those for developing and implementing any kind of awareness program within an institutional setting. The primary cost will be for staff time to develop and implement a source reduction policy and program for the City. Additional costs include preparing and disseminating informational materials to staff, perhaps in the form of pamphlets or flyers posted at appropriate places in the work place.

End Uses

Not applicable.

Alternative 4 - Regulatory Programs

Several regulatory program alternatives are available to the City that address the source reduction objectives outlined above in the Section 3.2, "Objectives." These programs include: (1) local procurement ordinances; (2) required waste reduction planning and reporting; (3) local product bans; and (4) local land-use planning requirements. Regulatory programs require continuous enforcement efforts.

1. Local Procurement Ordinances

The City has adopted a procurement policy specifying that several criteria be considered in the procurement selection of products and packaging, including: durability, recyclability, reusability, and recycled material content. Additionally, it specifies that any business or organization holding a contract with the City would have to have a source reduction plan or program and provide products or materials according to the above criteria.

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2. Waste Reduction Plans

Plans involve establishing waste reduction planning and reporting requirements for large, commercial or institutional waste generators. Waste reduction planning and reporting would require each business to establish a source reduction plan outlining what source reduction activities will be implemented. Businesses would also be required to report quantities of waste source reduced. One variant of this program would be to require the larger institutional and commercial waste generators in the community to implement the source reduction elements (and perhaps other elements, as well) of Assembly Bill 939. These entities would be held responsible for developing and implementing a plan that reduces the amount of waste disposed through source reduction (as well as recycling and composting) that satisfies the diversion requirements of AB 939. These institutions and commercial businesses could report their progress on a regular basis, for example (1) when they apply for business license renewal, or (2) when they pay their taxes.

3. Product Bans

These are bans on targeted products and packaging techniques resulting in a reduction of waste at the source. Bans might be considered on products and packaging that do not lend themselves to easy recyclability or source reduction. The criteria for product bans are similar to those used to determine the applicability of advanced disposal fees: the product must be disposable or difficult to reuse or recycle and must have environmentally sound substitutes (e.g., razors, pens, non-reusable beverage containers). For example, some communities have banned polystyrene foam packaging from fast food restaurants. Other communities have banned items such as non-recyclable beverage containers. Communities that pursue this kind of alternative often adopt a time limit or phase-out period for the ban to take effect, providing time for businesses and others to adjust to the policy and identify substitutes.

4. Land Use Requirements

Land use and development requirements involve establishing incentives and disincentives for land use and development that promote source reduction. For example, the City could enact regulations requiring waste management planning as a condition for opening a new business, relocating an old one, or building or otherwise developing property for commercial or residential purposes. The required planning would consist of describing (1) how much and what type of waste will be added to the waste stream, and (2) what programs are to be implemented in the developed area to encourage source reduction.

The alternative of providing regulatory programs to achieve source reduction objectives is evaluated below according to mandated criteria to determine whether it is appropriate for the City, as well as to compare it to other alternatives.

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Effectiveness

The effectiveness of regulatory programs would depend on (1) the level of regulation imposed by the City; (2) the materials targeted; (3) adherence to the regulations by the community; and (4) the level of enforcement.

Targeted sources for regulatory programs include:

- The City administrative offices and other operations.
- Larger commercial and institutional generators.
- Residential and commercial consumers of banned products.
- Real estate developers.

Materials diverted by regulatory approaches include (1) paper products and packaging; (2) plastic products and packaging; (3) all disposable items; (4) tires; (5) batteries; (6) non-reusable food service items; (7) food wastes; (8) yard and wood wastes; and (9) plastics using CFC's and HCFC's.

Hazard

There are no environmental hazards associated with the regulatory programs described above.

Ability to Accommodate Change

The regulatory measures outlined in this alternative vary in their flexibility to changing social and economic conditions. Procurement policies, waste reduction plans, and land development requirements are all fairly flexible and can readily accommodate new circumstances in source reduction techniques and processes, as well as changes in local source reduction programs and regulations. These programs can adapt to new types of packaging, new products and marketing formats, and to changes in the waste stream due to consumer behavior. Product bans, however, will not adapt quickly to change. Bans do not respond to changes in the marketplace or to new developments and techniques for using the product that might make it more acceptable for reuse or recycling. Common to each of the regulatory programs is the degree of inflexibility associated with the need to submit any regulatory program to the formal approval process required by the City.

Consequences to the Waste Stream

Changes in the waste stream composition will depend on the effectiveness of each program. However, large changes in the waste stream could result from the availability of alternative products for procurement programs. Institutional or commercial generators have the potential

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for impacting specific waste categories (such as disposable diapers, food wastes, high-grade paper, or corrugated packaging and cardboard). A product ban will reduce the quantities of the banned product present in the waste stream. However, the ban will also tend to increase the presence of product substitutes in the waste stream. The effect of product substitutes must be carefully considered when implementing a product ban to ensure that the substitutes do not themselves present problems involving increased volumes or toxicities of wastes disposed.

Implementation Period

Procurement programs, waste reduction plans, and land-development plans can all be implemented in the short-term planning period. With product bans, however, communities usually allow a period of time for consumers, producers, and retailers to adjust to the effects of the ban. In addition, implementing a product ban over a longer time frame may allow for the opportunity to pursue this alternative in conjunction with neighboring jurisdictions. However, each of the regulatory programs outlined in this alternative would have to undergo a complex approval process, as well as anticipated resistance by businesses to any further regulation. The complexity of, and opposition to, these programs may preclude their implementation in the short-term, and perhaps medium-term time frame.

Facility Needs

There are no facility requirements for this alternative.

Consistency with Local Plans and Policies

Regulatory programs might be viewed as inconsistent with municipal policy for the City if there were current plans for implementing voluntary waste diversion programs. However, in the absence of any stated commitment to voluntary source reduction, and barring any conflicts with current plans, policies, and ordinances, regulatory approaches may not pose any conflict for the City.

Institutional Barriers

Purchasing and procurement programs within the diverse public agencies will have to be coordinated in order to achieve a City-wide impact from a source reduction procurement program. While purchasing and procurement itself is often centralized within a City's operations, the individual agencies receiving or consuming the goods and services purchased must agree to any aspects of their purchase requests that would differ from their normal specifications. There are no institutional barriers presented by a product ban program, although there may be unknown legal ramifications associated with excluding a product from the market by implementing a local product ban.

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Estimated Cost

Costs for regulatory programs largely depend on the level of regulatory programs that a jurisdiction chooses to pursue. Each of the programs outlined in this alternative would require resources from the City for developing, administering, implementing, and monitoring the program. Furthermore, each of the programs would involve costs associated with legal fees and staffing incurred during the approval process. The costs to merchants associated with a product ban are unknown. Moreover, suitable products that meet source reduction requirements (and are therefore identified as viable substitutes for products normally purchased), might be higher in cost to purchase. This would inflate the costs of procuring these items.

End Uses

Not applicable.

3.5 SELECTION OF A SOURCE REDUCTION PROGRAM

In the previous section, four categories of alternatives were presented, each having several programs or approaches from which to select. Each category was evaluated qualitatively according to a range of criteria mandated by the regulations governing AB 939. Each of the alternatives and programs has inherent qualities that make it either more or less attractive to the City of San Jose. In addition, each of the alternatives and programs has aspects that are already in place and as such, are more appropriate to the City's goals, objectives, policy environment, waste stream, and solid waste management system.

The current level of waste diversion due to existing source reduction activities, such as appliance repair, use of diaper services, thrift shops, and refilling of deposit bottles and other containers, has been initially quantified by the Initial Waste Generation Study presented in Section 2.

The implementation schedule of the Source Reduction Program for the short-term and medium-term planning periods falls under four phases:

Phase I — Technical information and assistance to residents and businesses is the first phase. The objective is to provide information to the public which will allow them to implement source reduction at their location. Implementation will be done voluntarily. The City has concentrated most of its efforts to date in the information exchange area. During this period, the City will improve the methods used to quantify source reduction activities. This phase will be implemented in the short term, specifically FY91/92 and FY92/93.

Reviewing and commenting on legislation at the State level and possibly at the Federal level will be a major task for staff in Source Reduction as well as in the Market Development Program. The City can leverage its knowledge of source reduction, market development and recycling and move quickly to develop local

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ordinances which enhance any state or federal incentives or address any state or federal failings.

Phase II — Economic incentives will be the major emphasis of the second half of the short-term implementation period, FY93/94 and FY94/95.

Phase III — Mandates will become the emphasis in the beginning of the medium-term implementation period. Actual implementation and enforcement will depend on the level of success achieved by short-term source reduction and recycling efforts. This covers FY95/96 and FY96/97.

Phase IV — The final phase will be to provide actual City Services, not otherwise included in Phase I or II (e.g., workshops, Master Compost Program or free composting bins). Again, actual implementation will depend on the level of success achieved by source reduction and recycling efforts already in place.

Source reduction is identified as the highest priority within the Integrated Waste Management Hierarchy. Every program within the Office of Environmental Management attempts to integrate source reduction into their implementation plans. All of the current source reduction activities as discussed in the Existing Condition section will continue. The City will continue modifying its rate structure each year. The Business Tax will remain and a variable can rate will be implemented in the next garbage collection contract. Technical information services will continue and will improve as the City improves its targeted media approaches. Incentives and bans will be implemented according to the phases discussed in this section. Coordination will occur between other environmental programs (e.g., Water and Energy Conservation, and the Environmental Protection Program) and with other City Departments (e.g., General Services, Economic Development) to ensure that all programs complement each other.

Several specific activities have been chosen to be implemented in 1991/92 that will provide the City with specific measures of success. These activities were chosen because results can be measured. Depending on the success of these tests, similar activities will be expanded to other businesses or other residential areas. Once the City has firm data on (1) the amount of waste that can be diverted through backyard composting, and (2) data on the amount of waste that can be avoided by changes in behavior or processes, then the City can set firm percentage goals for source reduction. Until then, the City will set the short-term source reduction goals to be twice that of the current level as described in the Initial Waste Generation Study presented in Section 2.

The following source reduction programs are described in some detail to demonstrate the steps and measures that will be used to implement source reduction efforts. Consistent with the phased in approach, the activities fall under the Technical Assistance, Education and Promotion Alternative for implementation in the short-term planning period. These programs are in addition to the source reduction programs discussed under existing conditions, which fall within all four of the evaluation alternative categories.

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1. Source Reduction by the General Consumer

Outreach efforts are a part of every source reduction technique. This first test will provide quantifiable data on the effects of public education on purchasing habits. The results of this test will provide the direction for future source reduction techniques targeted at the general consumer.

1. In this technique, the City will identify a neighborhood with a centrally located retail center with one major supermarket, the management of which is willing to cooperate. Several specific products in the retail center will be identified based on their source reduction potential.

2. Participating businesses will be asked to make available detailed records of their sales figures for the specific products both before, during, and after the test period.

3. Public education materials (e.g., posters, shelf tags, and store advertisements) will be developed targeting the specific products.

4. A sample group of local residents will be surveyed to identify their current knowledge of source reduction habits.

5. The education materials will be displayed and distributed over the test period.

6. Following the conclusion of the public education phase, residents will be surveyed to identify their knowledge of source reduction and of purchasing habits. These surveys will be compared to the before, during, and after sales reports from the participating retailers.

Materials anticipated to be reduced by this program are paper, plastic, and other packaging materials.

2. Source Reduction by City Employees at Work

Similar to the source reduction technique aimed at general consumers, this technique will monitor source reduction at the workplace following instructions and training provided to City employees or specific departments within the City. Before and after purchasing habits can be quantified with the cooperation of General Services. Before and after waste characterizations will be easier to conduct within the controlled environment of City Hall than at the general consumer or manufacturing area.

1. Identify sample departments. Survey their knowledge of source reduction techniques in the office environment (e.g., double-sided photocopying, ceramic coffee mugs, review of internal and external forms). If desired, source reduction

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techniques can be expanded to non-office oriented City departments or functions like landscaping and the cafeteria. Non-participating departments will make excellent control groups, with some indirect effects resulting from employee transfers.

2. Create educational materials targeting specific materials or behaviors. Distribute training materials and hold training classes.

3. After a given period of time, such as six months or one year, a second survey, waste characterization, and review of purchases will be performed. This data will be compared to the original survey and to the control groups in order to calculate source reduction levels.

This program should reduce the amount of white ledger and computer paper, reusable office supplies, and disposable materials like cups and plastic ware that is discarded.

3. Source Reduction Within the Manufacturing Sector

This technique will identify manufacturing habits that would benefit from the implementation of source reduction, for example, the cost of producing a package is decreased when fewer raw materials are needed or when simpler design requirements exist. Studies of the businesses participating in the Integrated Environmental Audit, Technical Assistance Program (TAP) clearly highlight areas for source reduction in solid waste as well as the obvious water and energy savings these businesses can achieve by implementing changes in their manufacturing processes.

1. Staff will identify one or more TAP businesses. Rough quantification of their waste streams have already been performed.

2. Staff will develop specific educational materials and/or training programs to reduce the waste generated.

3. Staff will participate in a training program.

4. After a specified period of time a second waste generation study will be performed.

5. The before and after data will be compared to ascertain the level of source reduction achieved. (Staff will take note of any business decisions, like closing a production line, that could influence source reduction or waste generation quantities.)

This program should reduce the amount of post-industrial scrap and packaging material including plastic, paper, and wood. Greater operational efficiencies and greater profitability could be a by-product of this project.

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4. Backyard Composting

Although the City's Yard Waste Recycling Program will provide more landfill diversion than any other direct City service, source reduction in this sector is desirable in order to reduce the costs of collection and processing, reduce the amount of material that must find a market, and reduce the consumption of energy and water required to produce lush landscaping.

The first objective is to encourage the use of backyard composting at 5 percent of all detached housing units by 1995, and by 10 percent of all such units by the year 2000. The diversion objectives are, respectively, 0.5 percent and 1 percent of the residential waste stream. This diversion can be documented by surveying the residential sector periodically and by sampling the setouts of homes reporting this activity, and then comparing the waste composition with the average residential composition.

The second objective is, by December 1992, to evaluate all City regulations regarding development and installation of landscaping to determine whether yard waste can be minimized by, for example, limiting turf, requiring the use of native plants or plants requiring very little irrigation, or requiring provision of a composting bin in all new single-family detached development. The diversion potential of this objective cannot be estimated at this time, but is clearly supportive of other City environmental programs.

5. Annual Source Reduction Attitude Survey and Index

This will provide the control data to compare the results of source reduction activities. It is based on the Index system developed by the City of Seattle.

6. Source Reduction Advisory Council (SRAC)

The goal of the SRAC is to advise the City on the actual implementation of source reduction activities within San Jose. It will include representatives from the City Council, local large and small businesses, the Chamber of Commerce, the Santa Clara County Manufacturing Group, environmental groups, the arts, academics, and the construction industry.

7. California Materials Exchange and Reuse Program

The City will continue to advertise and recommend this program through BRAC, TAP, and the Technical Information Packet.

3.6 PROGRAM IMPLEMENTATION

Government Agencies Responsible for Implementation

The City of San Jose, through the Office of Environmental Management (OEM), will be responsible for coordinating the Source Reduction Program and providing technical assistance

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to implement specific programs. The following departments or contractors will be involved in the implementation.

- Coordination with the City's General Services Department for the Office Source Reduction Project.
- Coordination with the Compost Program for the Backyard Compost Project.
- Coordination with the Center for the Development of Recycling for the General Consumer Project.
- Cooperation of TAP businesses for the Manufacturing Source Reduction Project.
- All activities will be coordinated with the Community Relations Department within OEM.

Tasks Necessary to Implement Source Reduction Activities

The tasks necessary to implement the selected programs are discussed in Section 3.5, Selection of a Program.

Short-Term and Medium-Term Planning Schedule

The source reduction activities can all be implemented during the short-term planning period, and continue through the medium-term planning period, depending on success rates. An unsuccessful or cost-restrictive activity will not be taken on by the private sector without regulation. A timeline of source reduction activities is included in the Integration Component in Table 10-2.

Medium-term activities will be chosen based on the success of earlier phased-in activities and based on the City's ability to achieve AB 939 goals.

Implementation Costs

Approximately $150,000 in costs for each fiscal year for the short-term planning period will be incurred for the following: staffing and administrative costs; source reduction strategy; public information and education materials; and to provide for consulting, staffing, and administrative expenses.

Limited funding for these programs may be available from the California Integrated Waste Management Board under the regulations of AB 2448. If State monies do become available for some of these programs, the expenditure of General Fund monies will be reduced.

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3.7 MONITORING AND EVALUATION

Methods to Quantify and Monitor Achievement of Objectives

The following methods will be used to monitor achievement of the source reduction objectives:

- Further waste generation studies and characterization studies to measure changes in both waste types and waste quantities.

- An annual survey of businesses and municipal government to monitor procurement practices and, specifically, to identify reductions in the purchase of non-recyclable materials and products, as compared to the previous year's purchasing practices. The survey might also monitor trends towards replacing less durable and single-use materials with more durable and reusable products, materials, and equipment.

- An annual residential survey to ascertain the participation rates for backyard composting programs and the general level of awareness regarding source reduction issues which will be linked to the Block Leader Program discussed in the compost component.

- Continual monitoring of national and state trends in source reduction with respect to production and packaging practices resulting in volume and weight reduction. The City could do this in order to receive "credit" for the diverted waste and to modify local public education programs so that purchasing of such products can be encouraged.

Since the selected source reduction programs are based on collecting and evaluating data, specific methods to measure the achievement of objectives are contained in the selected programs. Each of the selected programs will quantify waste diverted in percent of total waste generated compare this percentage to the stated objectives.

Written Criteria for Evaluating the Program's Effectiveness

The success of the source reduction programs will be evaluated by the following criteria:

- Were the activities implemented on schedule?

- Do residents have a greater understanding of the concept of source reduction?

- Have businesses' procurement practices changed?

- Are the residents and businesses participating?

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- Are the source reduction objectives being achieved?

Agencies Responsible for Program Monitoring, Evaluation, and Reporting

The City of San Jose Office of Environmental Management is responsible for monitoring, evaluating, and reporting on the effectiveness of the source reduction programs in the City.

Monitoring and Evaluation Funding Requirements

Funding is built into the implementation costs. Additional funding of $50,000 will be needed to develop a Source Reduction Attitude Index.

Measures to be Implemented if Objectives are Not Met

The following measures will be implemented if the source reduction objectives are not achieved:

- Expand the development and implementation of regulatory programs, including product bans, mandatory waste reduction planning and reporting, and procurement requirements, as described in the phase-in process.

- Investigate changes to the local procurement ordinance.

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Table 3–1
Documented Source Reduction Quantities (Tons, 1990)

	Documented Diversion
Refillable Beverage Containers	300
White Goods	183
Yard Waste	5,500
Textiles/Leather	0
Diapers	1,981
Mattresses	225

Section Four

4. RECYCLING COMPONENT

4.1 INTRODUCTION

Recycling is defined in Assembly Bill 939 (Public Resources Code, 40180) as ". . . the process of collecting, sorting, cleansing, treating, and reconstituting materials that would otherwise become solid waste, and returning them to the economic mainstream in the form of raw materials for new, reused, or reconstituted products which meet the quality standards necessary to be used in the marketplace." Recycling is an old practice that is taking on an increasingly important role in the waste management programs of many communities because of disposal capacity. This form of waste diversion helps preserve natural resources and reduces the environmental impacts associated with waste disposal.

As defined in AB 939, recycling goes far beyond merely collecting and separating post-consumer waste; recycling includes returning the recovered materials to the marketplace in the form of new products. Thus, markets for recovered materials are critical for the full recycling process to be complete. Accordingly, recycling planning must include market development as well as program development.

The City of San Jose recognizes the value of recycling and seeks to support programs and services appropriate to the community and dedicated to the recycling of a broad range of materials. This component (1) describes existing conditions and presents recycling objectives for the City; (2) evaluates a broad range of alternatives that may be used to achieve those objectives; (3) describes a process for selecting among the alternatives; and (4) identifies a plan of action to implement and monitor recycling programs. Waste streams are described in this component as "residential" and "non-residential," with the latter signifying both commercial and industrial waste streams.

4.2 OBJECTIVES

The recycling objectives presented in this section have been developed to meet the goal of reducing the amount of solid waste generated in the City of San Jose. These objectives are to be implemented in the short-term planning period (1991-1995) and continued during the medium-term planning period (1996-2000). Through the following objectives, the City can expect to divert at least 50 percent of the total waste stream.

Short-Term Objectives

The City of San Jose expects to divert 46.5 percent of the total waste stream by the end of 1995, which is consistent with its goal of diverting a minimum of 50 percent by July 1, 1996. The City's short-term goals for diversion will be achieved by implementing the following objectives:

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- Increase participation in residential recycling programs, particularly among minority communities.
- Include additional materials in the residential recycling program (including mixed paper).
- Expand multi-unit dwelling recycling services City-wide, comparable to single-family services.
- Increase the number of businesses recycling in San Jose.
- Increase the number of material types collected from the commercial sector.
- Establish a diversion program for materials currently collected via industrial debris boxes.
- Divert inert solids generated by the City of San Jose.
- Increase information exchanged between the City and San Jose businesses to meet quantification goals.
- Increase local markets for materials made from post-consumer waste.
- Promote the highest and best end use of recycled materials.
- Modify refuse collection practices and rate structures for haulers and generators as needed to optimize the economics of recycling operations.
- Reduce contamination and scavenging.

Medium-Term Objectives

- Separate mixed paper from the commercial waste stream and identify viable markets for the materials collected.
- Increase local markets for materials made from post-consumer waste.
- Increase plastics recycling operations to include a wider variety of polymer types.
- Continue programs implemented in the short-term planning period.

Target waste types for recycling have been identified from the results of solid waste generation studies and are based on five factors: (1) the effectiveness of meeting the recycling objectives; (2) the volume and weight of the material; (3) the hazard created by the material; (4) the percent

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content of non-renewable resources; and (5) the recyclability of the material. These target waste types are outlined below:

- Corrugated cardboard
- Newspaper
- High-grade office paper
- Mixed paper
- Food wastes
- Wood wastes
- HDPE, PET, and Polystyrene plastic
- Film plastic
- Mixed plastic
- Glass
- Aluminum cans
- Tin cans
- Other scrap metal
- Appliances and tools
- Tires
- Inert solids

4.3 EXISTING CONDITIONS

Seven years ago the San Jose City Council first adopted the goal of diverting 25 percent of the wastes from landfills by 1990 in the Solid Waste Program Goals and Principles. As projected in the 1991 Waste Reduction Strategy (WRS), and corroborated in this document, San Jose can report that it is meeting that goal. The primary contributors to meeting the goal are the following:

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- City-Operated Residential Recycling Programs - Have reduced total wastes by 3.6 percent (and residential wastes by 13.8 percent) through Curbside Recycling (including Mixed Paper Pilot), Multi-Unit Recycling Pilot, Oil Recycling (starting early 1991), and Yard Waste Recycling (Pilot and beginning stages of City-wide expansion).

- City Commercial Programs and Solid Waste Facilities - Have reduced total wastes approximately 8.6%. The Newby Islant Recyclery which opened in April 1991, will reduce a significant portion of the waste stream.

- Other Private Initiatives - Have reduced total wastes approximately 13.3 percent, primarily through the activities of over 140 recycling service providers in the San Jose area.

The City has established a clear commitment to changing from a one-way system that emphasizes disposal of solid wastes at landfills to a comprehensive integrated waste management, recycling-oriented system. The City has established an elaborate infrastructure of support for both residential and commercial programs and initiatives by both the public and private sectors. All forms of recycling and waste reduction are encouraged in San Jose, from non-profit and charitable activities, to buyback and convenience-oriented activities, recognizing the diversity of recycling interests and demographics within the City. Public policies clearly encourage the investment in recycling, including contract requirements, ordinances, permits, rate structures, franchise fees, and tax policies. The City has also pioneered local government's contributions to expanding the markets for recycled materials to strengthen the economics and substantial investment that the City has made in these initiatives. The following sections have incorporated the initiatives in the City's Waste Reduction Strategy.

Local Government Activities

The City of San Jose currently engages in a variety of recycling activities that are discussed in the sections describing residential and non-residential activities.

Residential Activities

Residential Activities in the City of San Jose include:

Curbside Recycling Service

Curbside recycling service is being provided throughout the City to about 166,000 of the approximately 173,200 eligible single-family households of 4 units or less. Most of the remainder appear to be in mobile home parks and condominiums which are on private streets. A public outreach effort was adopted for 1990-91 and is proposed to be continued in 1991-92 to increase those served to at least 170,000 households.

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During 1989-90, 27,270 tons, or an average of 105 tons per work day, of aluminum and steel cans, glass and plastic bottles, newspaper, and mixed paper were recovered. It is now projected that for 1990-91 a total of over 29,000 tons will be collected, exceeding the targeted projections in the 1991 WRS by more than 1,000 tons.

Mixed Paper Pilot

The Mixed Paper Pilot, which is currently providing service to 21,300 households through June 30, 1991, is testing several variables during its pilot phase, including container types and types of paper to be accepted. The containers being tested are: (1) a 26-gallon plastic can, made with 25 percent recycled content plastic resin (CAN); (2) a fourth stacking recycle bin, taken from stock on hand and labeled for mixed paper (BIN); and (3) resident-provided, brown paper grocery bags (BAG). Residents are asked either to recycle: (a) virtually all waste paper (MOST), or (b) only three types of mixed paper -- magazines, corrugated cardboard, and brown paper bags (LIMITED).

Significantly higher participation and recovery rates are achieved when residents are provided a large container and are asked to place most recyclable waste paper (other than newspaper) into it. This configuration currently serves 1,134 households.

In the MOST CAN area, an average of more than 17 pounds of mixed paper per month are recovered from each participating household, and almost 90 percent of the households have participated in the pilot program. In its pilot area, this program has increased the total amount of materials recovered in the Curbside Recycling Program by 57 percent. A total of 480 tons of mixed paper was recovered in FY89-90.

Based on the recovery rates of the MOST CAN areas, it is projected that a City-wide program would recover 16,500 tons of mixed paper, or over 5 percent of the residential waste stream, per year.

The volume of recovered paper is so large that the mixed paper cannot efficiently be carried by the existing vehicles, even with modifications. The program was designed to use a mid-route transfer to a packer truck. The contractor has never implemented the transfer.

Used Motor Oil

Used motor oil collection was added to the curbside recycling program in January 1991. So far, over 460 gallons per day are being collected and about 170,00 gallons per year are anticipated to be recovered.

Multi-unit Recycling

Phase I of the multi-unit recycling pilot was also added to the curbside recycling program in July 1990. The program serves about 9,000 units and is expected to recover 750 tons in 1990-91

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(based on preliminary data from the pilot program). In this program, complexes are provided with a set of two 95 gallon wheeled carts, one for newspaper, and one for mixed cans, bottles and PET and HPDE plastic.

Phase II of the multi-unit recycling pilot program, scheduled to begin in July 1991, will test two additional containers: divided 4-cubic-yard bins and divided 14-cubic-yard bins; these bins will be designed with chutes to prevent scavenging. An additional 1,500 units will be served in Phase II, and it is estimated that Phase II will recover 12 tons of materials per year. Old corrugated cardboard will be collected in Phase II as well. All information from the pilot programs will be used to design the best system for City-wide recycling at multi-unit dwellings.

Yard Waste Recycling

(The yard waste recycling program is discussed in Section 5, Composting Component of the SRRE.)

Drop-off and Buyback Centers

(See Residential and Non-residential Activities section.)

Non-Residential Activities

Unlike the City's residential recycling programs, which are operated as a municipal service, the City's main role in Commercial/Industrial recycling is to facilitate and stimulate the private sector to provide a comprehensive array of recycling services to San Jose businesses. As a result, commercial recycling activities in San Jose consist of two main categories: (1) City Programs and Initiatives; and (2) Programs and Initiatives undertaken by the private sector. Together, these activities have created the foundation for an elaborate infrastructure capable of meeting the recycling needs of the Commercial/Industrial sector.

City Programs and Initiatives

The City's efforts to facilitate recycling in the Commercial/Industrial sector fall under four main categories: 1) information exchange; 2) economic incentives; 3) mandates; and 4) city services

All of the above approaches are being utilized by the City to facilitate recycling in the Commercial/Industrial sector; however, some aspects are more heavily emphasized than others at this time. The following is an outline of existing City programs and initiatives.

Information Exchange

The City is currently involved in a variety of activities designed to facilitate exchange of information between the City and San Jose businesses, including both waste generators and recycling service providers. The following existing activities will enable the City to effectively

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collect, analyze, and exchange information necessary to promote, evaluate, and quantify public and private recycling activities in the Commercial/Industrial sector.

- Computer Tracking System - City developed computer tracking system is used to document incoming calls to City. The system allows the City to be able to quantify complaints, referrals, tonnages recycled, problems, and requests for information from waste generators and recycling service providers.

- Technical Information Packet And Assistance - City developed outreach literature designed to provide San Jose businesses with information on how to establish a recycling program, where to purchase products made from recycled materials, etc. In addition, City staff provide up to 100 referrals a month to waste generators and recycling service providers.

- Waste Audits - As part of the City's Technical Assistance Program, and in an effort to develop case studies, the City performed detailed waste audits for 10 San Jose businesses and prepared comprehensive reports on each.

- Start a Recycling Business - The City has drafted a guide on how to start a recycling business in San Jose to increase the number of service providers.

- Business Recycling Advisory Committee (BRAC) - A forum for the City, recycling service providers, and others in the solid waste management field to discuss issues and share information and resources.

- Santa Clara County Manufacturing Group (SCCMG) - City works in cooperation with the SCCMG to provide technical assistance to San Jose businesses.

- California Materials Exchange and Reuse Program - (see source reduction component).

- Center for the Development of Recycling (CDR) - City contracts with CDR to serve as an Information Clearinghouse on recycling and other integrated waste management issues.

Economic Incentives

The City has by ordinance created a distinction between materials defined as "garbage" and "rubbish". "Garbage" is a load of commercial waste that contains more than 15 percent garbage, including wet putrescible material. "Rubbish" is waste that is less than 15 percent garbage, including wet putrescibles, and is inherently more recyclable. Waste generators and haulers have an incentive to keep waste loads dry and recyclable because the City charges higher franchise fees for loads of garbage than for loads of rubbish. As of July 1991, the commercial garbage franchise fee is 28.9 percent of gross revenues, while the franchise fees for commercial

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garbage franchise fee is 28.9 percent of gross revenues, while the franchise fees for commercial rubbish are 10 percent for the first $100,000 of gross revenues and 19.5 percent thereafter. This makes the total cost of "rubbish" collection less expensive relative to garbage collection costs, thereby creating an incentive to keep waste loads dry and recyclable.

The City also exempts landfills from paying a $3/ton business tax for all materials delivered to the landfill which are recycled rather than buried.

The combination of these incentives and certain mandates (described in the following paragraph) has led to significant private investment in "rubbish" recovery facilities.

Mandates

In awarding its 30-year disposal contract in 1986, the City required the International Disposal Corporation to construct a recycling facility to divert wastes from burial. This facility ("The Recyclery") opened in the spring of 1991. The City has also required two landfills to charge less for "clean", dry rubbish than for mixed waste loads delivered to the landfill.

City Services

The City currently operates, or is in the process of concluding, a number of recycling programs that serve the Commercial/Industrial sector. Three of the City's programs (Recycling at Work, and the Schools and Parks Programs) represent the City's commitment to recycling at its own public facilities and institutions. The other programs are specifically designed to increase the already active role of the more than 140 recycling service providers serving San Jose businesses.

- Recycling at Work - The General Services Department operates the City's in-house recycling program, which collects over 11 different materials (including: seven grades of office paper, cans, bottles, PET, corrugated cardboard, brass bullet shells, tires, oil, fire hose, and light poles).

- Schools - The City provides equipment and technical assistance to facilitate recycling at schools throughout San Jose. The City also oversees recycling collection services provided to more than 40 San Jose schools by the San Jose Conservation Corps (SJCC). Funding is provided by the California Department of Conservation, and equipment is provided by the City.

- Parks - The City works in cooperation with the San Jose Conservation Corps to provide bins and signage for the pilot recycling program at San Jose parks.

- Downtown Multi-Tenant Office Recycling Program - The City oversees collection services provided to over 100 businesses by SJCC. Equipment is provided by the City.

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- Model Mixed Recyclables Collection Program - This City-sponsored project provided for the collection of mixed recyclables from over 200 San Jose businesses collected a total of 657 tons of Old Corrugated Cardboard (OCC), Plastic, Paper, Wood, Metal, and Glass, and served two main purposes: 1) it demonstrated to the City the demand for such services, and 2) it stimulated the private sector to provide similar services. The program ended April 1991, and the City is assisting participating businesses in seeking alternative services by providing technical assistance and a City-generated list of alternative service providers.

- Model Cardboard Recycling Collection Program - This City-sponsored project provided for the collection of OCC from 200 small businesses in San Jose. In all, 420 tons of Cardboard were collected. The program ended December 1990 and demonstrated the need and economics associated with providing such services to San Jose businesses. The program also stimulated the provision of cardboard recycling collection services by the private sector.

- Market Development - The Market Development Strategy adopted in 1989 is designed to strengthen the economics of all publicly and privately sponsored recycling programs in the San Jose area. The City alone is investing $10-20 million per year over the next several years to provide recycling services. The private sector is making a far greater investment to respond to City and State goals as well. This strategy (described later in this section) will help ensure the success of all these investments.

Private Programs and Initiatives

The combined activities of more than 140 recycling service providers serving San Jose have created a comprehensive infrastructure of recycling opportunities available to the Commercial/Industrial sector. More than 370,000 tons were recycled through private sector programs and initiatives. Recycling options that are available to San Jose businesses include:

- Private Collection Services - Consist of various collection services provided by private (profit and non-profit) haulers, scrap dealers, paper brokers, and materials processors. At least 60 reyclers offer collection services to San Jose businesses. Services range from collection of a single material (or multiple materials that are highly source separated) to commingled or mixed recyclables that require minimal source separation. Equipment provided by collectors ranges from rolling (garbage can-type) carts to 40-cubic-yard rolloff containers. Whether a business has to pay for collection services or gets paid for its recyclable materials depends on the purity, type, and quantity of material(s) generated.

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Residential and Non-Residential Activities

- Drop-off and Buyback Recycling Centers - At least 30 Drop-off and 60 Buyback Centers currently serve San Jose residences and businesses.

- Manual and Mechanized Material Recovery Operations - Consist of activities taking place at the processing end of recycling. Processing of recyclable materials by recycling service providers occurs at a variety of settings, including drop-off and buyback recycling centers, and at scrap dealers' and material brokers' facilities. Operations range from dump and pick operations, to sophisticated, highly mechanized multi-material sorting lines.

- Salvage at Solid Waste Facilities - Involves the recovery of materials from loads that are left at a designated site, such as a landfill or transfer station. Aggressive recycling activities are occurring at Guadalupe Rubbish Disposal Site, Newby Island Sanitary Landfill (at their Recyclery recycling facility), and at Zanker Road Disposal and Recycling Center, which recycles approximately 45% of incoming wastes.

4.4 EVALUATION OF ALTERNATIVES

The City of San Jose has evaluated the following recycling alternatives that could be implemented to meet its Recycling Objectives. For ease of evaluation, these alternatives have been divided into those that apply to: 1) the residential sector, 2) the non-residential sector, and 3) both the residential and non-residential sectors.

Each of the alternatives is evaluated according to a set of criteria specified in the regulations implementing AB 939. Program details should be considered preliminary. Cost and program details will be refined during development of specific programs.

Many of these alternatives are complementary to each other and depend significantly on the implementation of other alternatives, programs, or components such as the Source Reduction or Composting Components. Where possible, these relationships have been indicated in the criteria for evaluating the alternatives. In addition, the alternatives should be evaluated based on their combined effectiveness and impacts; the alternatives are not necessarily independent of one another.

The alternatives have been grouped into five general categories:

- Separation methods.

- Changes to Zoning and Code Practices, including commercial and residential rezoning, revising building codes in the commercial sector, and land use and development requirements.

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- Rate structure modifications, including local waste disposal fee modification and quantity-based local user fees.
- Market development, including local procurement programs.
- Materials handling methods.

Separation Methods

Separation of recyclable materials from the waste stream is clearly the key to diverting these materials from transformation or landfill disposal. The effectiveness of any recycling diversion program in meeting the goals of AB 939 is extremely dependent upon the method used. The effectiveness of the various separation methods involves three primary factors: (1) the degree to which materials can be separated at the source of generation, which affects the cost, recovery rate, and quality of materials; (2) the level of convenience to generators, which affects participation in the separation and collection programs; and (3) the ability to economically process the recyclable materials so that they are marketable. These factors tend to differentiate the approaches presented below.

Residential Alternatives

Alternative 1 - Curbside Recycling Service

Curbside collection is the most effective method of achieving high rates of single-family residential participation in recycling programs. Curbside programs can involve collection of either separated or mixed recyclables and can include a variety of materials. Generally, these programs are most successful when the level of service delivery and convenience to the homeowner is the highest. Programs with collection schedules that minimize the amount of storage time of recyclables by households, that provide containers, and that are supported by aggressive public information campaigns tend to achieve higher participation rates. These programs will also generate materials with higher market quality due to lower levels of contaminants.

The following programs are currently being offered as curbside recycling services provided by the City. Some services are already offered on a City-wide basis, while others are pilot programs. Alternatives are to eliminate, decrease, maintain, or expand the above programs plus add additional programs, if necessary.

Alternative 2 - Mixed Paper (City-wide or Pilot). The Mixed Paper Pilot will end in June 1991. Data collected will be used to plan a City-wide collection of mixed paper beginning in July 1993, when the Recycling Plus! contract takes effect.

Alternative 3 - Used Motor Oil. Begun in January 1991, city-wide collection of used motor oil currently collects 460 gallon per day from single-family homes which have curbside recycling.

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It is anticipated that 170,000 gallons of used motor oil will be collected by the end of 1991. To increase the amount of used motor oil collected, multi-family homes could be incorporated into the program when the Recycling Plus! program begins in 1993.

Alternative 4 - Yard Waste Recycling. See Section 5 - Composting Component.

Alternative 5 - Multi-unit Recycling Pilot Program. The same principles lending to a successful recycling program at single family dwellings also apply to programs at multi-family dwellings with the most important factors being convenience and continuous education (due to higher turnover rates than single-unit dwellings). Recognizing that, the pilot multi-unit recycling program provides a set of 95-gallon carts at each dumpster site in a complex; this way residents make one trip to recycle and to deposit trash.

In addition to the three containers being tested in the pilot programs at multi-unit dwellings -- 95 gallon carts, four-cubic-yard bins, and 14 cubic yard bins -- San Jose may consider two other alternatives. One is to collect all of the recyclables commingled in one container including newspaper, mixed paper, and mixed containers. This alternative increases convenience to the residents as it requires less source separation and increases materials collected to include mixed paper. This system is a precursor to a wet/dry sort. The recyclable materials would be sorted at a Material Recovery Facility (MRF).

The next alternative is an enhancement of the above to a wet/dry sort. The materials collected in the recyclables container would include scrap metals, all paper, wood waste excluding yard waste (yard waste will be collected separately), and mixed plastics. The materials would be sorted at a MRF.

Alternative 6 - Additional Programs or Materials. The City is considering adding mixed plastics to its curbside residential recycling program. Materials are likely to include HDPE milk jugs and water bottles and might include all types of mixed plastic containers. This alternative would include an evaluation of possibly having to arrange for alternate collection vehicles, due to the high volume, low weight nature of plastic containers.

Non-Residential Alternatives

A variety of separation methods can be utilized to divert materials from San Jose's Commercial/Industrial waste stream. Many of the methods listed below are already being employed in San Jose. Thus, most of the options that exist within each method involve altering or maintaining existing services, rather than adding new services.

Alternative 1 - Private Collection Services. Private Collection Services consist of various collection services provided by private (profit and non-profit) haulers, scrap dealers, paper brokers, and materials processors. Services can range from collection of a single material (or multiple materials that are highly source separated) to commingled or mixed recyclables that require minimal source separation. Equipment provided by collectors can range from rolling

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(garbage can-type) carts to 40-cubic-yard rolloff containers. Whether a business has to pay for collection services or gets paid for its recyclable materials usually depends on the purity, type, and quantity of material(s) generated.

City Programs and Initiatives

Alternative 1 - Change Or Maintain Existing City Programs

The following City commercial recycling collection programs could be eliminated, scaled down, maintained or expanded: Model Programs, Recycling at Work, Schools, Parks, Downtown Multi-Tenant Office Recycling Program.

Alternative 2 - Promotion of Private Recycling Service Providers

The City could maintain or increase its efforts to promote the existing infrastructure of private recycling service providers, and the various separation methods they employ (collection services, drop-off and buyback centers, recycling operations at waste processing facilities, and salvage at solid waste facilities), through information exchange and public education and outreach efforts, economic and other incentives and mandates.

Alternative 3 - Addition of New City Services

The City could provide a variety of commercial recycling services to help meet its waste diversion goals. Recycling Services could be offered for short-term periods to stimulate the private sector to provide similar services, as was done with the City's Model Programs. Services could also be provided on a City-wide basis, targeting specific segments of the Commercial/Industrial sector (small businesses, public institutions, etc.) or certain materials, to fill needs that are not being met by the private sector.

If the private sector does not meet the City's goals with all the above assistance, it might be desirable to restructure the entire commercial waste and recycling system to be provided on an exclusive franchise basis.

Residential and Non-Residential Separation Methods

The alternatives presented below can be applied to both residential and non-residential generators. The first three alternatives (drop-off centers, buyback centers, and mobile collection) tend to target residential and urban-small business generators. The final three alternatives (manual and mechanized recovery, and salvage) target both residential and non-residential generators, however, their primary focus would be non-residential generators.

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Alternative 1 - Drop-off Recycling Centers

Drop-off recycling centers tend to target recyclables from residential sources and so are usually located where they are readily accessible to homeowners and apartment dwellers. However, they may also be located in more commercial areas and serve smaller businesses and downtown areas. They may be located at solid waste transfer and disposal facilities as well. These centers usually accept the full range of commonly recycled materials such as newspaper, glass, plastics, and aluminum cans. They can be expanded to include other materials such as corrugated cardboard, scrap metals, and high-grade and mixed paper. Drop-off centers can be owned and operated by either public agencies or by private non-profit and for-profit entities.

Alternative 2 - Buyback Recycling Centers

Traditionally, these operations were the underlying foundation of most local recycling programs. The participants are paid for the materials they bring in. These materials typically include aluminum cans, newspaper, glass, corrugated cardboard, and high-grade office paper. Because of the nature of the programs, buyback centers must have regular business hours and be staffed full-time; they are often more labor intensive than drop-off centers and can require equipment not needed at drop-off centers.

Alternative 3 - Mobile Collection

A mobile collection system provides drop-off or buyback service to more than one area. Mobile systems are ideal for rural areas with low-density populations and can be effective in urban areas that do not currently have a curbside program.

Alternative 4 - Manual and Mechanized Material Recovery Operations

Manual material recovery facilities are designed to be centrally located for the collection, processing, and marketing of recyclable materials from several cities or regions. A manual recovery facility will accept incoming loads to be tipped either onto a pad or into a hopper. Next, the waste stream is then sorted and separated by hand, usually as it travels along a conveyor belt system.

Mechanized material recovery facilities are very similar in design and operation to manual facilities except that the conveyor system is equipped with a series of mechanical sorters and separators that recover materials from the waste stream. Although the bulk of the separation and recovery is achieved through mechanical means, a portion of material is recovered manually by the facility operators.

Material Recovery Racilities (MRFs) located in San Jose will play a key role in diverting recyclable materials from the City's waste stream. However, materials processed at MRFs must be marketable. Since non-recyclable materials present in incoming loads can contaminate recyclable materials and decrease their marketability, it is important that contamination levels

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kept to a minimum. It is the City's goal that residual (non-recyclable) materials processed at MRFs not exceed 75% of the total wastes received as weighed for FY91-91, 50% by FY 92-93, and 25% for FY93-94.

If MRFs located in San Jose do not divert a sufficient percentage of materials processed at their facilities on their own, the City may consider enacting regulations that require that MRFs meet the City's goals for FY91-94. However, local haulers and processors are concerned that such stringent requirements for cleaner loads may unfairly benefit haulers with homogenous loads of recyclable materials. Such requirements could discourage rubbish haulers from taking their mixed waste loads, which often contain significant quantities of recyclable materials, to a MRF.

Alternative 5 - Salvage at Solid Waste Facilities

Salvage at solid waste facilities involves the recovery of materials from loads that are left at a designated site, such as a landfill or transfer station. Salvaging may occur in a designated area prior to unloading as well as at the tipping face of the landfill or transfer station. These loads are often from uncompacted commercial debris boxes. This program, sometimes referred to as a "dump and pick" operation, would be instituted at one or more to the landfills serving the City. A cement pad for sorting the materials is preferable, though not required, for this type of an operation. A cement pad would require a dedicated picking area. Salvage at solid waste facilities is usually restricted to clearly identifiable loads of specific items such as white goods and appliances, wood waste, construction debris, concrete and asphalt, as well as paper, plastics, and metals. Loads subject to salvage at solid waste facilities include residential, commercial, and self-haul loads.

Each alternative can be evaluated according to the following criteria to determine whether it is appropriate for the community as well as to compare it to other alternatives.

Effectiveness

The various separation programs presented in this alternative can be extremely effective at enhancing the participation and capture rates from each of their respective target generator groups. Target sources for this alternative include residential and non-residential generators. Target materials include paper, glass, aluminum and other metals, plastics, and other recyclables.

In ethnically and economically diverse communities (such as San Jose), providing all of these types of recycling services can be complementary and provide residents and businesses with the maximum opportunities to recycle. Promotions of all recycling approaches simultaneously should yield the highest involvement of all sectors in the community. Those who will recycle if convenient service is available will embrace curbside, apartment, and commercial recycling collection programs. Those who wish to donate their materials to charities (such as youth groups or church groups) will use conveniently located drop-off facilities. Those who want or need direct economic benefit will sell their materials at mobile or traditional buyback operations.

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Hazard

The hazards associated with drop-off and buyback centers and with mobile collection systems are virtually insignificant. Workers at a manual material recovery facility face possible hazardous situations, as they may be at risk from potential exposure to hazardous materials in the waste stream and from working around large, moving equipment such as loaders, dozers, and compactors. Workers in curbside recycling need to take special care not to develop back problems, as these programs currently require the lifting of over 5 tons of material each day by the average collector.

There are several potential hazards associated with a manual or mechanized material recovery facilities station. There is the possibility of fire and explosion from shredder operations and the possibility of explosion when compacting the residual load. Because some of the materials that will be collected at the facility are combustible, there is a minor fire hazard associated with their storage. In addition, workers at the facility will be at a safety risk from the handling of materials, exposure to potentially hazardous materials, and moving equipment.

Ability to Accommodate Change

All of the separation methods and programs outlined under this alternative are fairly flexible with respect to their ability to accommodate changing materials, techniques, and processes. Additionally, the programs under this alternative can easily adapt to changes in the waste management system as well as to changes in the City's regulatory programs. Mobile collection systems are especially adaptable for changing conditions. Curbside recycling can be designed to be flexible if the collection vehicles and processing facilities factor that in as a priority in their design. For manual material recovery, increased recovery of materials or the recovery of additional materials may require expansion of the facility or changes in processing methods. Mechanized material recovery facilities are moderately flexible; however, the flexibility is limited. Some changes may require facility modifications.

Consequences on the Waste Stream

None of the methods or programs presented in this alternative are expected to have an impact on the waste stream generated.

Implementation Period

A mobile collection system or drop-off centers would take less than a year to implement. Approximately one to two years would be needed to implement a manual or mechanized material recovery operation or a substantial buyback center, depending on whether it is sited in an existing facility or if it requires new permits. There are existing programs already functioning in San Jose, including residential, curbside, and commercial mobile units, which could be expanded.

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Facility Requirements

A drop-off center requires containers, signs, and a location approved by the land owner and the City. A buyback center would require the addition of scales, a cash register, and security fencing, and might require a building to house additional equipment. A mobile collection system would require a trailer for customer transactions, approved locations to park, and a storage area for material collected. The collection site should be secured at night to prevent scavenging. A manual material or mechanical recovery operation requires a facility with an area for sorting, storage, and collection; this could be at a landfill or in heavy industrial zones.

Estimated Cost

Costs for the programs presented in this alternative would depend upon the scope of the projects undertaken and the existing programs and conditions in the community. However, drop-off centers generally require more staff or equipment than buyback centers, and the capital costs to establish a City-operated mobile collection system are estimated to range from $50,000 to $100,000. For years, the City has encouraged the private sector to operate mobile facilities at various locations at no cost to the City.

Markets for Recovered Materials

See section titled "Materials Markets" later in this section.

Public vs. Private Operation

Most of the programs outlined under this alternative could be operated by either a public or private entity. The City presently requires that any residential collection by the City be under exclusive franchise agreement.

Changes to Zoning and Code Practices

Residential and Non-Residential Alternatives

The City of San Jose can and does promote recycling activities in the residential and non-residential sectors through a variety of regulatory approaches such as ordinances, zoning, land use, and code requirements.

Alternative 1 - Reporting Requirements

The City must be able to document current recycling activities in San Jose, as required by AB 939 and the City. The City needs an effective reporting system which will enable tracking and quantifying existing recycling activities in the private sector. The City could rely upon voluntary disclosure of quantities of materials recycled by each service provider. However, many service providers consider this information to be proprietary, and choose not to disclose their figures,

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which makes it impossible for the City to quantify these materials. The alternative to voluntary disclosure is to adopt an ordinance that requires that recycling service providers track and report actual tonnages recycled.

Alternative 2 - Regulations

At present, recycling of all materials in the City of San Jose is voluntary. However, the City is likely to ban food waste from commercial rubbish by 1993, to increase the recyclability of collected materials. Another possibility might be to create an ordinance that requires all loads of rubbish to be processed at a MRF to ensure that recyclable materials are being recycled.

Additional bans, such as prohibiting the disposal of corrugated cardboard or yard waste at landfills, are likely to be evaluated in the future. Mandatory residential and non-residential recycling may also be considered, but only if the City finds that mandates are absolutely necessary to enable the City to meet its recycling goals overall, or to collect a specific commodity.

Alternative 3 - Zoning and Code Practices

The City of San Jose can promote recycling activities in the residential and non-residential sectors through regulatory approaches such as zoning, land use, and code requirements. The City's Zoning Ordinance currently includes provisions for zoning and regulation of recycling facilities, including reverse vending machines, small/large collection, light/heavy processing, and composting facilities. The City could amend this ordinance to include provisions for the zoning and certification of Waste Processing Facilities (WPFs).

The City could influence and promote space allocation for recycling at both existing and new commercial developments. Revisions are also being made to the Zoning Ordinance presently being drafted by the City Planning Department to provide exemptions from set-back and permit requirements for trash enclosures and/or on-site (recycling) collection facilities for existing (developed) residential and non-residential sites. Further revisions to zoning and building code requirements could include a building code amendment to require recycling collection areas to be set aside in all new construction with the exception of single family homes.

Land use and development requirements involve establishing incentives and disincentives to land use and development that promote recycling and manufacturers who use secondary materials as a feedstock. For example, the City could enact regulations stating that an entity could not open a new business, relocate an old one, or build or otherwise develop property for commercial or residential purposes without presenting a plan describing the types and quantities of waste that would be added to the waste stream, including whether the sources would be residential or non-residential. The plan could require descriptions of programs to be implemented to encourage materials separation and recycling at the developed area. In addition, the City could identify recycling specifically in local codes for allowable land uses for a given zoning.

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The City could also apply to become one of the Recycling Market Development Zones established under SB 1322. This would couple existing local, state and federal economic development incentives with newly available state recycling development assistance to attract new businesses to San Jose to manufacture products from recycled materials.

The alternatives address all of the recycling objectives identified in the section titled "Objectives" and may be applied to both residential and non-residential generators.

These alternatives can be evaluated according to the following criteria to determine whether it is appropriate for the community as well as to compare it to other alternatives.

Effectiveness

The effectiveness of regulatory programs would depend on the level of change implied by the regulations imposed by the City, the materials targeted, adherence to the regulations by the community, and the level of enforcement.

Targeted sources for regulatory programs include: (1) the City's administrative offices and other operations; (2) larger commercial and institutional generators; (3) residential and commercial generators; and (4) real estate developers.

Materials diverted by regulatory approaches include: paper, plastic, glass, metals, and any other recyclable product or material.

Hazard

There are no environmental hazards associated with these regulatory programs, although hazards from incompatible land uses could result if some restrictions were not applied to the types of facilities allowed to be located in zoned areas.

Ability to Accommodate Change

The regulatory measures outlined in this alternative are all fairly flexible and can readily accommodate new circumstances in recycling techniques and recovery processes as well as changes in local recycling programs and regulations. These programs can adapt to new types of materials, products, and marketing formats, and to changes in the waste stream due to generator behavior. One aspect that is common to each of the regulatory programs is designing them to be subject to change by City Council if they prove ineffective or onerous, and phased in over time only to the degree they are needed.

Consequences on the Waste Stream

Changes in the waste stream composition will depend on the effectiveness of each regulatory program. However, large changes in the waste stream could result from the ability of

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residential, commercial, and institutional generators implementing recycling programs to identify and target specific waste categories consisting of recyclable materials (such as corrugated cardboard, high-grade paper, mixed paper, and plastics). The effect of these regulatory programs will be to decrease the quantities of recyclables present in the waste stream composition.

Implementation Period

Regulatory programs, such as zoning, code, and land-use requirements, can all be implemented in the short-term time period. However, the City usually allows a period of time for residential and non-residential generators to adjust to the effects of the new requirements. In addition, implementing programs such as these over a longer time frame may allow for the opportunity to pursue these alternatives in conjunction with neighboring jurisdictions. Each of the regulatory programs outlined in this alternative would have to undergo a complex approval process as well as anticipated resistance by generators to any further regulation by cities in Santa Clara County.

Facility Needs

There are no facility requirements for this alternative.

Consistency with Local Plans and Policies

Regulatory programs could be viewed as inconsistent with San Jose policy given current plans for implementing voluntary source separation and recycling programs. However, in the event that voluntary approaches to recycling are not successful by themselves or would benefit by some of the regulatory changes outlined, this should be viewed as consistent with local plans and policies.

Institutional Barriers

Institutional barriers to this alternative involve potential conflicts within the jurisdiction between public agencies responsible for implementing effective waste management programs designed to meet the requirements of AB 939 and public agencies responsible for encouraging economic growth and development. New regulatory requirements for residential and commercial areas within the jurisdiction could be an impediment to attracting new growth and investment in the community, especially if similar restrictions were absent in neighboring jurisdictions.

Estimated Cost

Costs for regulatory programs depend primarily on the level of regulatory programs that a jurisdiction chooses to pursue. Each of the programs outlined in this alternative would require resources from the the City for developing, administering, implementing, monitoring, and enforcing the program. Furthermore, each of the programs would involve costs associated with legal fees and staffing incurred during the approval process. The costs to the private sector of

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the regulatory programs outlined in this alternative would be offset by savings in long-term waste collection and disposal costs.

Markets for Recovered Materials

See section entitled "Materials Markets" later in this section.

Public vs. Private Operation

Not applicable.

Rate Structure Modifications

Recycling activities can be encouraged through rate structure modifications including disposal fees and quantity-based user fees for garbage collection services. Rate structure modifications, described below, address all of the recycling objectives identified in Section 4.2, Objectives.

Residential Alternatives

Alternative 1 - Quantity-Based User Fees

Quantity-based user fees involve calculating collection and disposal fees based upon the amount of waste collected. This is similar in principle to other service-based utility charges for services such as water and electricity. Generators are charged fees according to the number of cans used, the number of bags collected, or the frequency of collection. Variable rate fees are directly proportional to actual disposal costs; consequently, residents have the opportunity to reduce costs by separating recyclable materials from their waste stream, thereby generating less waste.

There are a number of variants to the rate structure alternative, including:

- Use of a base subscription fee to cover fixed collection costs plus a flat per-unit volume charge;
- Fees that rise according to increasing volume, or that are essentially flat by volume; and
- Charges based upon weight instead of volume.

These variants require some flexibility in the delivery of service to households and will lead to variation in whether containers are provided by the collector or provided by the generator, the types and sizes of containers used, and the use of stickers or special tags purchased to identify legitimate containers.

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Most systems that currently charge a variable fee do so using volume as the basis. However, some communities support the concept that a weight-based system would be more equitable because not every container is necessarily full and the densities of some wastes are different from others. Some cities are experimenting with weight-based systems although they require more collection time and require the collection vehicle to have a scale and a bar-code reader similar to those found in grocery stores to read the generator's account number off of the container. Consequently, collection costs are substantially increased.

Cities implementing variable rate schemes have found that they do result in reduced quantities of disposed wastes. Unfortunately, this often means that the estimated revenues generated by the system are often overestimated and insufficient to cover the fixed costs of the hauler. A solution to this problem could be the use of a subscription fee to cover fixed costs, plus a variable fee for actual quantities of waste collected.

Variable fees that rise rapidly with increasing volume tend to place a strong economic incentive upon reducing the amount of waste disposed. Variable rate structures thus provide an excellent impetus for participation in source reduction and yard waste programs, as well as recycling programs. Indeed, one crucial aspect of successful variable rate systems is that recycling and yard waste programs must be provided in conjunction with the variable rate structure to provide generators with alternatives to divert wastes from collection and disposal. Participation rates in recycling programs can be dramatically increased by combining the program with a variable can rate or quantity-based user fees, especially if the collection of recyclables is not charged separately. Variable rate structures, however, do require both anti-dumping ordinances and anti-scavenging ordinances to deter these activities as the variable rates and the recycling programs will tend to provide incentives for both illegal dumping and scavenging.

Non-Residential Alternatives

Alternative 1 - Quantity-Based User Fees

The existing garbage and rubbish system for collection of commercial/industrial wastes is structured so that San Jose businesses pay per-container rates for their garbage and rubbish. The City could continue to promote the existing volume-based system or it could evaluate the possibility of a transition to a system that determines costs based on weight.

Alternative 2 - Adjustments to Franchise Fees

By making a distinction between garbage and rubbish, and structuring franchise fees in a manner that encourages collecting wastes as rubbish, the City encourages separation of potentially recyclable materials from non-recyclable wastes. The City has the option of creating further disparity between the franchise fees charged for garbage versus rubbish, thereby increasing the incentive to separate materials into dry recyclable loads. One way the City could accomplish this would be to revise the rubbish franchise fee system to allow rubbish haulers to pay a lower

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franchise fee on materials taken to a Material Recovery Facility (MRF) than those taken to a landfill.

Alternative 3 - Adjustments To Business Tax

As mentioned earlier, the existing Business Tax could be increased, thereby raising the value of the recycling exemption and increasing the incentive to recycle at the landfill.

Residential and Non-Residential Alternatives

Alternative 1 - Disposal Fees

The City already imposes a $3 per ton Business Tax on all materials buried at landfills. All materials delivered to the landfill that are recycled and not buried are exempt from this tax. Disposal fees at the landfill could be further modified in this manner by making the cost of disposing of potentially recyclable wastes prohibitive relative to the cost of recycling them. This type of fee structure would serve to divert recyclable materials from the waste stream by creating an incentive for generators and self-haulers of wastes containing recyclables to either source separate the recyclable materials or take them to a recovery facility. Other fees could also be imposed, further increasing the incentives for haulers and generators to recycle rather than bury recyclable materials.

These alternatives can be evaluated according to the following criteria to determine whether they are appropriate for the City as well as to compare them to other alternatives.

Effectiveness

Rate structure modifications can be very effective in encouraging recycling, since the cost of collection and disposal of recyclables can be high. The economic incentive to reduce disposed waste will cause generators to become more conscious of waste generation and may alter their habits to reduce the amount of material generated through increased participation in source separation and recycling programs. In addition, generators may alter their purchasing decisions to substitute with more recyclable products due to their lower disposal cost through the recycling program. Additionally, variable rate structures provide an incentive for increased participation in source reduction and community composting programs.

Targeted sources for this alternative include residential and non-residential generators. Target materials include paper, plastic, aluminum, glass, and other recyclables such as automotive batteries and motor oil.

The estimated impact on the waste stream of variable rate structures is difficult to quantify and depends on two factors: (1) the participation of waste generators in recycling programs due to higher collection and disposal fees, and (2) the effectiveness of the separation and recycling activities undertaken by participating generators. These factors are sensitive to the rate at which

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collection and disposal fees rise; as fees increase, both participation and effectiveness will increase. However, there is an upper limit to the variable rate structure beyond which illegal dumping will begin to occur.

Hazard

There is no direct environmental hazard associated with rate structure modifications. However, increased disposal and collection costs could result in an increase in illegal disposal, both on public property and in the disposal containers of commercial businesses. Variable rate structures often necessitate the installation of locking dumpster mechanisms for commercial containers. Additional collection services for bulky goods, appliances, and inert materials could minimize the desirability of illegally dumping these materials. Illegal dumping could result in environmental and public health hazards.

Ability to Accommodate Change

Modifications to rate structures, in general, are easily adapted to existing programs. Rate structures can also be further changed and modified as circumstances warrant. Over the medium- and long-term, this alternative is quite flexible. San Jose has designed its rate-setting processes to be extremely flexible to accommodate annual changes in the structure of the system as desired.

Consequences on the Waste Stream

Rate structure modifications would be designed to encourage source reduction and recycling. Some compacting of wastes will occur in conversion to a volume-based system as more waste is compacted into each can, increasing the density of the waste stream. Rate structure modifications provide a strong incentive to divert items from the waste stream such as yard wastes and recyclable materials when programs for those elements of the waste stream are available. The impact of this alternative, in concert with these other programs, is that the waste stream may be of lower volume, higher density, and contain much lower proportions of recyclables and yard wastes.

Implementation Period

Implementation of these alternatives could occur within a period of several months to a year and is well within the short-term planning period. Collection and disposal rates are adjusted on an annual basis.

Facility Requirements

No additional facilities are needed to implement rate structure modifications.

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Consistency with Local Plans and Policies

This alternative is consistent with the plans, policies, and ordinances of the City of San Jose.

Institutional Barriers

The rate setting and approval process is led by the local agency responsible for administering the City's waste management program. Primary barriers come from haulers and/or disposal facilities who are impacted by the implementation and rate-setting process.

Estimated Cost

The cost of implementing each of these alternatives is minimal as this is already a routine procedure for San Jose, subject to annual review and changes. Implementing rate structure modifications would require at least six major steps, each of which would have associated costs:

- A determination of whether the proposed rate would support the fixed and variable costs of collection and disposal, once recycling programs had begun.
- Review and approval by the San Jose City Counsel (including a public hearing).
- Generation of informational and educational materials.
- Procurement of either containers or approved stickers for collection bags.
- Modification of existing billing operations.

Markets for Recovered Materials

See section entitled "Materials Markets" later in this section.

Public vs. Private Operation

This alternative is compatible with either public or private refuse collection.

Market Development

Several alternatives for market development for recycled materials have already been adopted by the City as a part of comprehensive Market Development Strategy created in 1989. This Strategy initiated City efforts in economic development (expansion of existing recycling businesses and attraction of new ones), contingency planning, advocacy for state and federal market development incentives, and expansion of the City's local procurement program for recycled products. In 1990, the City adopted a Source Reduction and Recycling Procurement

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Policy which further expanded and formalized the City's commitment to recycled product procurement.

This alternative will focus on evaluating the City's adopted Market Development Strategy, and exploring the potential development of a Market Development Zone in San Jose.

Alternative 1 - Procurement

San Jose adopted its Source Reduction and Recycling Procurement Policy in August 1990. City leadership is considered essential to promoting such purchasing among private businesses and the general public. This Policy concerns itself with the source of materials used to manufacture products that the City purchases and uses. Currently, the City buys recycled white paper, envelopes, hand towels, toilet tissues, plastic garbage bags and cans, plastic recycling bins, recapped tires and soil amendments.

The object is to ensure that no product manufactured with recycled or "secondary" material is discriminated against for reasons other than function; and further, to direct that such products are to be preferred over goods made strictly with virgin material when recycled-content products can meet the necessary standards of performance.

This policy is designed to: increase the recycled content of products purchased and used by the City of San Jose, its contractors, and its grantees; reduce waste in the manufacture and use of products and packaging purchased by the City; and, provide guidance to City staff in evaluating the purchase of products for City use.

It is City policy, whenever practicable, to purchase products which contain in order of preference: the highest percentage of post-consumer recovered material available in the marketplace; and the highest percentage of pre-consumer recovered material available in the marketplace.

In addition, in purchasing paper products it is City policy, whenever practicable, to purchase products which at a minimum meet the State of California's definition of "recycled paper products," (i.e., at least 10 percent post-consumer recovered material, and at least 50 percent total recovered material). In addition to the recovered material content of a product, important criteria in selecting products are: the ability of a product and its packaging to be reused, reconditioned for use, or recycled through existing recycling collection programs; and the volume and toxicity of waste and by-products a given product and its packaging generate in their manufacture, use, recycling and disposal. Products and packaging designed to minimize waste and toxic by-products in their manufacture, use, recycling and disposal are preferred.

Equipment purchased or rented by the City shall be compatible, whenever practicable, with the use of recycled-content products. Specifications and requisitions shall not require the use of products made from virgin materials, nor specifically exclude the use of recycled-content

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products. Performance standards must be reasonable and related to function, and shall not be designed to exclude the purchase of recycled-content products.

All City contractors and grantees shall be required to conform to the minimum recycled-content procurement standards set forth by product in the Recycled Product Requirements Lists developed by the Department of General Services and the Office of Environmental Management.

The Department of General Services and the Office of Environmental Management shall prepare and deliver to the City Council an annual status report on implementation of this Policy and the Recycled Product Requirement List.

Alternative 2 - Economic Development and Market Development Zone

The City should work to expand existing local recycling manufacturers and to attract new manufacturers to the San Jose area who use post-consumer recyclables as a feedstock. The presence of such manufacturers will strengthen and stabilize local demand in vulnerable recyclables markets and improve the ability of the City to sell materials collected through local recycling programs, while simultaneously creating jobs, increasing the City's property tax base and diversifying the local economy. Attention should be given to maximization of the "multiplier effect" of investment of waste resources into the local economy.

The development of a Recycling Market Development Zone pursuant to State legislation (SB1322 of 1989) should be considered a high priority. Applications for State designation will be released by the California Integrated Waste Management Board this summer, and are due to the State in the fall. This would provide recycling businesses locating in San Jose access to State financial assistance, and would highlight San Jose as a City committed to expanding businesses related to recycling, making recruitment easier. In turn, having more local recycling businesses will enable all other business in San Jose to be more cost effective, by increasing the value of materials recycled and reducing their costs of collecting and disposing of their wastes.

A study published in 1989 by the Institute for Local Self-Reliance estimated the value added of local waste-based production to a city of San Jose's size at $250 million and 1,500 jobs. Imminent potential prospects include a paper mill and a plastics recycling plant. These would be held to the highest environmental standards. Their presence could dramatically increase the efficiency and cost effectiveness of the City's more than $10-20 million/year investment in recycling collection programs, and would provide tremendous benefit to the currently estimated $82 million per year San Jose waste industry.

Aggressive pursuit of this "Sustainable City" economic development activity would allow San Jose to capture the growing economic opportunities in the waste industry, while at the same time reinforcing environmental standards in the most cost-effective way for local industries.

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Alternative 3 - Contingency Planning

Contingency planning activities focus on identification and implementation of immediate, concrete steps which can be taken in the current recycling environment to enable the City to better withstand inevitable fluctuations in the market value of materials collected in City recycling programs. Over the long term the focus of contingency planning will evolve from short-term protection of recycling programs and minimization of the City's financial risk to development of regional cooperative agreements and development of new markets and new products for recyclables.

Contingency planning will need to identify materials where market demand is exceptionally weak, particularly where the loss of one market could compel the landfilling of the materials. Planning will need to identify alternative uses for materials with weak markets, and identify any procurement policies, legislation, or economic development efforts needed to diversify markets for such materials. Priority attention needs to be given to the markets for yard waste and all commodities of paper collection in the curbside and commercial recycling programs.

Contingency planning could also establish trigger mechanisms to direct recycled materials to other uses once the value of materials falls below established standards. City staff could explore potential coordination of the sale of recycled materials collected by City-sponsored recycling programs with other cities in order to leverage bargaining power with domestic and export mills. Similarly, staff could explore the possibilities for the short-term stockpiling of materials.

Alternative 4 - Advocacy for State and Federal Incentives

The City actively supported market development legislation over the past two years, including the following bills noted in the Market Development Strategy in 1989: AB4 (requires procurement of recycled materials by government agencies); AB1305 (requires newspaper publishers to purchase a minimum percentage of recycled newsprint); and SB432 (tax incentives for purchase of recycling equipment by manufacturers of recycled products).

Future legislative activities could continue activities outlined in the Market Development strategy such as:

- Develop and prioritize specific legislative targets, including specific legislation and ordinances which implement the Council-endorsed policy guidelines contained in the California Resource Recovery Association's State Recycling Policy and the National Recycling Coalition's National Recycling Policy.

- Develop possible State legislation or local ordinances to establish processing fees, tax credits, deposits or similar incentives to recycle materials in the waste stream whose scrap values are not currently sufficient to cover the cost of collection and recycling.

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- Have City legislative staff identify author(s) for market development and incentives legislation, and work to build a coalition of local government, private sector and other interests on behalf of such legislation.

- Seek partnership with members of the Santa Clara County Manufacturing Group, California Resource Recovery Association, public interest groups and other private sector representatives in carrying out legislative strategy. Work closely with the League of California Cities, the County Supervisors Association of California, and individual cities and counties to coordinate legislative efforts.

- Distribute CRRA's State Recycling Policy and the National Recycling Coalition's National Recycling Policy to all visitors to San Jose recycling facilities and to all those requesting information from the City about San Jose's recycling programs. Encourage those who receive these documents to adopt them as legislative policy guidelines for future State and Federal legislation.

Effectiveness

The effectiveness of a market development program would depend on the materials targeted and the impact of the City on the regional demand for those materials. San Jose is strategically well positioned to develop an effective program due to its nationally recognized leadership on recycling programs to date.

Hazard

There are no environmental hazards associated with this alternative.

Ability to Accommodate Change

Market development policies are fairly flexible and can readily accommodate new circumstances in recycling techniques and processes as well as changes in local recycling markets, programs, and regulations. Market development programs can easily adapt to new products and markets for recycled materials.

Consequences of Alternative on the Waste Stream

Effective market development through procurement programs could lead to increased quantities of materials in the waste stream that have a high content of recycled material.

Implementation Period

Market development programs can be implemented in the short-term time period. The attraction of new businesses to San Jose or the region may extend into the medium-term planning period.

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Facility Needs

Facilities would be expanded by local manufacturers and developed by new companies attracted to the area.

Consistency with Local Plans and Policies

There are no conflicts with current plans, policies, and ordinances.

Institutional Barriers

Purchasing and procurement programs across public agencies will have to be coordinated in order to achieve a City-wide impact from a procurement program. While purchasing and procurement itself is centralized within San Jose's operations, the individual agencies receiving or consuming the goods and services purchased must agree to any aspects of their purchase requests that would differ from their normal specifications. Interdepartmental working groups have been established to respond to this concern. Similarly, close coordination will be needed with the Office of Economic Development to succeed in the expansion and attraction of recycling businesses.

Estimated Cost

Costs for a market development program include resources for developing, administering, implementing, and monitoring the program. These costs are budgeted in the Funding Component.

Markets for Recovered Materials

See section entitled "Materials Markets" later in this section.

Public vs. Private Operation

Not applicable.

Materials Handling Methods

The City has two main objectives regarding materials handling methods: quality of material and convenience to the customer.

Source separation of recyclable materials generally enhances the integrity of recovered materials for end use. A variety of collection programs, from residential curbside programs to commercial programs, ensures a range of materials collection options to serve differing types of generators and provide each with the opportunity to participate in recycling efforts in a convenient manner.

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The convenience of separation and collection programs for recyclables can have a direct impact upon the quality of the materials eventually offered for sale to the recovered materials market. For example, encouraging source separation methods would be consistent with the City's objective of promoting the highest quality and best end use for recyclable materials collected in San Jose. However, programs that require high levels of source separation are not necessarily the most convenient. A commingled or mixed recycling program, on the other hand, can be extremely convenient, but may not necessarily promote the highest quality and best end use of the recycled materials, particularly if the mixing causes significant contamination.

Residential Alternatives

Alternative 1 - Source Separation

The City encourages high levels of source separation through its various curbside recycling programs.

Alternative 2 - Commingled or Mixed Recyclables Collection

The City could alter its current collection strategy and increase convenience through changing to commingled or mixed recyclables collection services.

Alternative 3 - Public Education and Outreach

The City influences the handling of recyclable materials by promoting its curbside and multi-unit recycling programs and local drop-off and buyback centers through various public education and outreach efforts.

Non-Residential Commercial Alternatives

Alternative 1 - Source Separation

The City encourages source separation through a wet-dry system for commercial/industrial wastes. This is accomplished by making a distinction between "garbage" and "rubbish". In the City of San Jose, garbage consists of any part of the waste stream that contains more than 15 percent "wet" wastes (including food or putrescible material). Rubbish, on the other hand, is any part of the waste stream that contains less than 15 percent "wet" wastes. The City could lower the percentage of wet wastes allowed in rubbish (or ban "wet" wastes altogether from being collected as rubbish), which would increase the quality of the materials, making them easier to recycle.

Alternative 2 - Commercial Collection Re-Routing

Another method the City could employ would be to encourage re-routing of commercial collection runs in order to preserve the quality of recyclables destined for a manual or

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mechanized recovery facility. This would enable the separate collection of wet wastes from grocery stores, for instance, and dry wastes from other businesses.

Residential and Non-Residential Alternatives

Alternative 1 - Maximize Recycling Opportunities

The City promotes a system in which a diversity of recycling opportunities are available, so that San Jose residents and businesses can tailor a recycling program to meet their specific needs. The City could encourage higher participation rates through promotion of both source separation and more convenience-oriented programs, such as the recently completed Model Mixed Recyclables Program, which offered the convenience of commingled (or mixed) recyclables collection services.

Alternative 2 - Regulatory Efforts and Economic Incentives

The City can influence the way materials are handled through a variety of regulatory and economic mechanisms. For example, the City could impose bans on the landfilling of certain materials (e.g., yard waste, wood, cardboard) which would require separate collection of these materials. In addition, the City could make changes in franchise fees and business taxes to provide more economic incentives to recycle materials rather than dispose of them at the landfill.

Alternative 3 - Education and Outreach

The City can affect the way San Jose businesses handle their wastes through effective public education and outreach efforts. The City's Commercial Recycling Program works extensively with commercial and industrial businesses, providing technical assistance and literature to educate them on how to handle their wastes differently, via recycling. The City can increase the effectiveness of its programs and initiatives by ensuring that any efforts to modify people's behavior is accompanied by an extensive effort to educate the public.

These alternatives can be evaluated according to the following criteria to determine whether they are appropriate for San Jose.

Effectiveness

The impact of a program to improve materials handling methods would be to improve the quality of recovered materials offered to secondary markets. In addition, improved handling methods often imply collection and separation programs more closely tailored to the range of needs of waste generators, thereby improving participation in the recycling program.

Targeted sources for this kind of program include both residential and non-residential generators. Materials impacted by this approach include paper, plastic, glass, and other recyclable products.

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Hazard

There are no major environmental hazards associated with these alternatives.

Ability to Accommodate Change

Programs to adopt alternative materials handling methods are fairly flexible and can readily accommodate new circumstances in recycling techniques and processes as well as changes in local recycling markets, programs, and regulations. Materials handling programs can easily adapt to new products and markets for recycled markets.

Consequences on the Waste Stream

This alternative is not expected to have any significant impact on the waste stream.

Implementation Period

Alternative materials handling methods can be implemented in the short-term time period.

Facility Needs

There are no facility requirements for this alternative, although the private sector is encouraged to develop whatever recovery facilities are needed to meet the City's goals.

Consistency with Local Plans and Policies

This alternative is consistent with current City of San Jose plans, policies, and ordinances.

Institutional Barriers

This alternative presents no institutional barriers with the exception of potential conflicts with waste haulers in altering contracts with waste generators to accommodate the new handling methods and implied changes in separation and collection methods.

Estimated Cost

Costs for City involvement in this alternative are outlined in the Funding Component for commercial recycling. The costs to facility developers and waste haulers are not a matter of public involvement.

Markets for Recovered Materials

See section entitled "Materials Markets" later in this section.

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Public vs. Private Operation

The programs contemplated under this alternative could be implemented by either public or private entities.

4.5 SELECTION OF A RECYCLING PROGRAM

The City of San Jose has many recycling programs already in place. In addition, some programs are currently in the planning stages, while others are in the process of being phased out. In the previous section, a number of alternatives were presented, many of which included the possibility of maintaining or altering existing programs. Each alternative was evaluated qualitatively according to a range of criteria mandated by the regulations governing AB 939. In this section, each of the recycling programs is reviewed and assessed to determine if the program is appropriate to the City's needs. The selection of the alternatives was based on two critical factors in the process: (1) the degree to which each alternative and program is appropriate to the conditions of the City (i.e., goals, objectives, policy environment, waste stream, and solid waste management system), and (2) the degree to which the alternatives and programs complement each other and form a coherent, comprehensive, and cost-effective package. The following method of ranking was used to assess each program.

High: The criterion for the alternative in question enhances its score.

Medium: The criterion for the alternative in question is neutral in its impact.

Low: The criterion for the alternative in question does not enhance its score.

Using this method, each set of alternatives was evaluated and ranked according to each criteria and an overall comparison among alternatives was achieved. Note that it is entirely possible that while a particular alternative may receive a low ranking, the City may decide to select that alternative, or a program associated with that alternative, due to factors not fully accounted for in the evaluation criteria.

Alternatives Selected

In order to meet the goals and objectives outlined in this component, the City of San Jose will have to divert approximately 46.5 percent of the total waste stream in the short-term planning period and 50 percent by July 1, 1996. The City of San Jose has selected the following programs and alternatives:

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Short-Term Planning Period

Residential Alternatives

Curbside recycling objectives are to increase participation and recovery rates, to reduce contamination in set-outs, and to reduce scavenging. These objectives will be achieved through the following mechanisms:

Separation Methods

- The Mixed Paper Pilot will be discontinued until the next contract is in place and a more efficient system can be instituted.
- The Used Oil curbside collection is proposed to be continued and be actively promoted in 1992.
- The Multi-Unit Recycling Pilot is proposed to be extended until July 1, 1993, when the City-wide program for multi-unit dwellings will be launched. A priority through the end of 1991 will be to obtain data needed for the Recycling Plus! RFP.
- The next priority to be considered for addition will be mixed plastics. In 1991, the City should assess the amount of plastic that can be recovered and the impacts of recycling mixed plastics. The experience of Contra Costa County and other agencies will be evaluated.

Rate Structure Modifications

On July 1, 1993 the City will implement a new, combined curbside recycling/garbage collection contract whose aim is to advance the City's recycling goals in the residential sector. Called Recycling Plus!, this system will modify the volume-based fee variation into a fee-per-standard container rate structure. The program also launches supplementary services greatly desired by the community.

The Recycling Plus! system includes the following features:

- Along with the variable can rate discussed above, the system proposed would include unlimited collection of recyclables.
- Expand the Curbside Recycling Program with addition of mixed paper, mixed plastics, and other new materials. They will be sorted by residents in the current three stacking recycling bins plus the household's own container for mixed paper.

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- Distribute a choice of wheeled carts -- 32-gal. or 64 gal. (plus extra carts if needed) -- to households for garbage set out, and set the monthly fee to each household according to the size of cart(s) ordered.

- Arrange for purchase of bags or tags so households can put out extra volumes of garbage occasionally.

- Improve the collection system for bulky wastes (e.g., white goods and furniture).

- Expand neighborhood cleanup capability to encourage community participation.

Non-Residential Alternatives

The City intends to continue its multi-faceted approach to increasing recycling in the Commercial/Industrial sector. However, it is now focusing on a strategy that emphasizes a logical progression of specific programs and initiatives that will be phased in between now and the year 2000. Although various aspects of all four phases will be implemented in the short-term planning period, the focus will be on Information Exchange and Incentives.

The City's strategy is designed to increase the already active role taken by the 140 recycling service providers serving San Jose. The City will only get involved to the extent needed to assist the private sector, to comply with State requirements, or to meet the needs of San Jose businesses not being met by the private sector.

Separation Methods

- The City will continue or expand most of its current programs. The City's in-house Recycling at Work Program will be continued. The Schools Recycling Program will be expanded through increased technical assistance and equipment provided. The Parks and Downtown Multi-Office Recycling Programs will be continued, with the focus of the latter program being to serve as a starter or primer, paving the way for future provision of recycling services by the private sector. Collection services for City's Model Cardboard and Mixed Recyclables Collection Program have been concluded and the City is currently preparing an analysis of the program that will be made available to the public, including potential service providers interested in providing similar services. Although they provide valuable information to the City, the City does not intend to create any new Model Programs (or other new City services) in the foreseeable future, because of the considerable staff and financial resources required.

- The City will increase its efforts to promote and expand the existing infrastructure of recycling services (drop-off and buyback centers, collection services, and material recovery operations) provided by the private sector. This will be accomplished through information exchange (technical assistance, public education

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and outreach efforts, and promoting service providers), incentives and, only if absolutely necessary, mandates.

- The City will develop an analytical system that will allow sufficient understanding of the commercial waste and recycling system to predict results from City intervention and changes in materials processing methods.

Changes to Zoning and Code Practices

Changes to zoning and code practices in the Short-Term Planning Period will focus primarily on previously discussed mechanisms that encourage rather than mandate participation in recycling related activities. Two likely exceptions to this approach will be a ban on food wastes from rubbish loads and mandatory reporting requirements for all rubbish haulers, recyclers, and waste processing and recovery facilities licensed to operate in the City of San Jose.

Rate Structure Modifications

- The City will evaluate and possibly modify the existing rate structure for commercial/industrial waste through further rate structure modifications in the form of adjustments to disposal fees, user fees, lower franchise fees for loads going to MRFs or Waste Processing Facilities (WAFs) instead of landfills, and differential franchise fees for garbage, rubbish and recyclables.

- Towards the end of the short-term planning period, the City will analyze the effects of any rate structure modifications and other incentives that have been implemented to determine if any last-resort measures such as mandates will need to be considered for the medium-term planning period.

- Under the Recycling Plus! system, all of the commercial sector will contract individually with licensed collection companies the same way that rubbish is handled currently.

Materials Handling Methods

- The City will continue to promote all public and private programs that emphasize extensive source separation to ensure the highest quality and best end use of recyclable materials. At the same time, the City will strive to increase the diversity of recycling services provided to San Jose businesses by the private sector. Both objectives will be achieved through the City's public outreach and education efforts, and various economic and regulatory mechanisms.

- The City will consider additional ways to achieve desirable material handling methods, such as providing recycling services to the commercial/industrial sector to achieve AB 939 goals, only if all efforts previously described (i.e. information

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exchange, incentives, and mandates) do not sufficiently stimulate the private sector to meet the City's and State's recycling goals for the commercial/industrial sector.

Residential and Non-Residential Alternatives

Changes to Zoning and Code Practices

- By January 1, 1992, the City will have an ordinance in effect requiring that private recycling service providers and rubbish haulers that handle recyclable materials track and report to the City, the quantities of materials recycled. To meet AB 939 goals, the City's quantification efforts will seek to determine tonnages recycled by 90 percent of service providers so that 95 percent of materials are tracked within ± 10 percent accuracy.

- The City will continue its present efforts to change zoning and code practices to promote recycling in San Jose, including provisions for exemptions from set-back and permit requirements in exchange for providing trash enclosures and/or on-site (recycling) collection facilities for existing (developed) residential and non-residential sites, and space allocation for recycling at existing and new commercial developments.

Market Development

- Recycling Market Development will continue to focus on preparing contingency plans, supporting state and federal legislation regarding market development, encourage siting of new markets in San Jose, and expand City and private procurement practices. An effort will be made to expand existing local recycling manufacturing activities as well as attract new manufacturers who use secondary materials in their processes.

- In addition, the City is aware of the Recycling Market Development Zones to be established under SB 1322 and is considering this option.

Medium-Term Planning Period

Non-Residential Alternatives

Changes to Zoning and Code Practices

The City will determine if the short-term activities have done enough in terms of maximizing waste diversion in the commercial/industrial sectors. If not, then the City should become more actively involved in regulating this sector. Several alternatives for such measures include: certification of recycling facilities with reporting requirements; bans through local ordinances

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on various types of materials (e.g., yard waste, corrugated cardboard) from landfills; bans on the use of specific materials (e.g., certain types of packaging); district-wide, area-based collection for all or some materials; development of an ordinance to provide definitions of terms; mandates that commercial recycling services be used; providing for additional City services.

Materials Markets

Recycling requires more than the separation and collection of materials; viable markets must exist for the recovered materials. This section addresses the existing market conditions relevant to the City of San Jose, as well as market conditions on a broader scale (e.g., regional, statewide, national, and international). The focus is on those materials most often collected through recycling programs, such as various paper grades, plastics, metals, and glass.

Old Newspaper (ONP)

Old Newspaper is the main grade of waste paper collected in the residential sector. A number of other ONP markets are available in Northern California, including San Jose. Currently, the amount of ONP that is available nationwide for recycling far exceeds the demand. However, this situation is expected to change. It is estimated that the demand for ONP will almost double by 1995 due to increases in exports of ONP, increases in the paper board market, and other factors.

Because ONP is contaminated with printing inks, it is necessary to deink this raw material before it can be recycled. The primary reason for excess ONP is the shortage of newsprint facilities that can deink the newspaper or reuse it. The deinking capacity in the United States is expected to increase in the future to meet the anticipated demand and help balance the market.

End uses for ONP include newsprint, insulation, packing, building materials, and animal bedding. Newsprint manufacture is anticipated to be the largest market for ONP and is anticipated to increase significantly through the year 2000. Other end uses are anticipated to increase only marginally.

Current market prices paid for ONP in California range from $25 to $70 per ton (currently over $60). However, the market price for ONP is cyclical due to decreased collection in the winter months, paper mill shutdown for maintenance repair in the summer months, economic conditions, international exchange rates, and other factors.

High-Grade Waste Paper

High-grade paper is a general description of various long-fiber grades of paper. High-grade paper includes white ledger, colored ledger, computer paper, and tab cards. These grades are more valuable for recycling because of their strength, and thus command a higher price than other paper grades.

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Market prices for high-grade paper are dependent on the price of pulp. Because high-grade wastepaper is often used as a substitute for pulp, high-grade paper prices tend to follow the price of pulp. The market prices for different paper grades vary independently. However, the market prices for higher grades are generally more stable than those paid for lower grades. The higher the degree of separation from the source, the higher the price paid for the paper. High-grade paper can be used in making writing paper, computer paper, napkins, tissues, and paper towels.

Mixed Waste Paper

As implied in its name, mixed paper refers to a paper stream containing more than one grade of paper. Mixed paper is defined in AB 939 as a mixture, unsegregated by color or quality, of at least two of the following paper wastes: newspaper, corrugated cardboard, office paper, computer paper, white paper, coated paper stock, or other paper. The housing industry decline and the decreased value of the U.S. dollar overseas mean a decrease in the demand for waste paper. Secondary markets for recovered paper can be found in the U.S. and abroad. Mixed paper export has increased significantly and has allowed for growth in mixed paper recycling, particularly in the western United States. Local domestic markets, however, are fairly well saturated.

The primary use of waste paper is in the manufacture of combination boxboard which is used to make boxes for shoes, clothing, and dry foods. Other uses for mixed waste paper include the manufacture of roofing felt and construction paper building materials.

Old Corrugated Containers (OCC)

The amount of OCC consumed in the U.S. is significant, approximately 15 million tons per year, due to its use in shipping packaging for most consumer products. The quantity of OCC in the waste stream is greater in the commercial sector than in the residential sector. OCC that has been separated properly can be used in the manufacture of new corrugated containers, cereal boxes, pad bases, and wallboard.

The market for OCC in California is very strong; more than one half of the collected OCC in California is used by mills within the state. Current market prices for OCC range from $43 to $65 per ton.

Aluminum Cans/Used Beverage Containers (UBC)

Approximately half of the aluminum disposed of in solid waste is in the form of cans. The waste recovery system for aluminum cans is highly successful. Compared to other recyclables currently found in the municipal waste stream, aluminum cans command the greatest price per pound.

Aluminum cans that have been separated can be used by the primary producer and are remelted and made directly into can stock. Aluminum scrap is used primarily by secondary aluminum

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producers. Current scrap value market prices for aluminum cans range from $0.40 to $0.55 per pound. The addition to the AB 2020 redemption value raises the total market price. Markets for aluminum cans exist in the U.S. and abroad.

Steel Food and Beverage Containers

"Tin" cans that are used as food containers are actually steel cans with a thin coating of tin. The percentage of tin in steel cans usually totals about 0.25 percent and is worth approximately $3 to $4 per pound. This small amount of tin can cause contamination in steel making. De-tinning recovers tin and also increases the quality of steel scrap. Growth in curbside collection of steel cans has been an important element in the expansion of steel can recycling.

Glass Cullet

Waste glass usage in the U.S. is estimated at 25 to 30 percent of the glass produced. Cullet is primarily traded on the U.S. market. A primary concern for end use markets is the quality of the material. In the glass plant, contaminants can cause damage to equipment or result in poor quality product. One of the problems with curbside collection of commingled glass is that it can produce multi-colored shards of glass or cullet. Markets for mixed-color cullet are not as stable or lucrative as that for color-sorted containers.

The two primary end uses for recovered waste glass are cullet for new glass and as a raw material for making secondary products, such as glasphalt highway paving material, foamed insulation, and construction material (including fiberglass insulation).

The glass market has become problematic for many recyclers recently due to the increased quality standards being imposed and the request for color-sorted materials. Current market prices for sorted California redemption value glass range from $0.03 to $0.04 per pound. The addition to the AB 2020 redemption values raises the total market price. However, markets for mixed glass cullet are decreasing rapidly.

Plastics

Markets for plastics are fairly new, but the EPA predicts that as processing technologies are developed, plastics recycling will grow and new markets will develop.

Most soda containers are made out of polyethylene teraphthelate (PET) which is the most recycled of all plastics. Over 160 million pounds of PET bottles were recycled in 1988. Post-consumer PET is prohibited for use in new food containers because of FDA restrictions (although certain developments are underway that may lift this restriction). The primary end use for PET is fiberfill, which is used in pillows, sleeping bags, and ski jacket insulation, among other things. The most desirable market for recycled PET is compounded, extruded, and molded plastic makers.

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High-density polyethylene (HDPE) is used in the manufacture of jugs (e.g., milk, cider, distilled water) and bottles (e.g., laundry and dish detergent, motor oil, antifreeze). Although the market for recycled HDPE is growing, these items are not recycled back into food packaging because of sanitary restrictions. Major potential markets for recycled HDPE are soft drink basecups, plastics, lumber, containers, drums, pails, and various types of pipes.

Low-density polyethylene (LDPE) is used in clear film wrap to package products and in many plastic bags and some bottles. The use of LDPE in the manufacture of bags adds strength to the film.

Polystyrene

There are various forms of polystyrene; the most familiar being the foamed or expanded polystyrene foam (EPS) commonly referred to by its trademarked name "styrofoam". The uses of EPS foam include fast-food single serve cups and trays and packing materials in both rigid, molded form and in loose form or "peanuts" as it is sometimes called. Recovered polystyrene can be used in the manufacture of toys,office equipment, insulation, and cassette casings.

4.6 PROGRAM IMPLEMENTATION

The following section addresses the specific tasks and an implementation schedule, both of which will be necessary to achieve full implementation of the selected alternatives.

Government Agencies Responsible for Implementation

The City of San Jose, through the Office of Environmental Management, will be responsible for coordinating the Recycling Program and providing technical assistance to implement specific programs.

Tasks Necessary to Implement Recycling Activities

Residential Recycling

Curbside Recycling Service

Curbside recycling service is being provided throughout the City to about 166,000 of the approximately 173,200 eligible single-family households of 4-units or less. Most of the remainder appear to be in mobile home parks and condominiums which are on private streets. A public outreach effort was adopted for 1990-91 and is proposed to be continued to increase those served to at least 170,000 households.

Prior to the award of the Recycling Plus! contract(s), a system will be devised to ensure that homeowners' associations and mobile home park owners and managers who do not wish to allow for this service to be provided by the City's authorized collector provide equivalent service.

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During 1990, 27,270 tons, or an average of 105 tons per work day, of aluminum and steel cans, glass and plastic bottles, newspaper and mixed paper were recovered. It is now projected that in 1991 a total of over 29,000 tons will be collected, exceeding the targeted projections in the 1991 WRS by more than 1,000 tons. Revised projections are that 31,000 tons of recyclables will be recovered by curbside recycling in 1991-92, and 32,000 tons in 1992-93.

Continued program promotion is needed to increase the participation and recovery rates, to reduce set-out contamination, and to reduce scavenging.

Specifically, promotional programs will continue to focus on:

- Increasing the number of households participating in the program through direct City contact with residents who do not participate, and by including the mobile home parks and condominiums which do not currently receive collection in the service area.

- Increasing the amount of materials being recycled in participating homes by encouraging residents to try recycling materials which they do not currently separate.

- Reducing contamination of recycled materials to increase the marketability of the recovered materials, and increase collection and processing efficiency.

Mixed Plastics

The next priority for addition to Curbside Recycling should be HDPE milk and water bottles and all mixed plastic containers. It is proposed that an evaluation be completed by December, 1991, to assess the possible recovery rates and impacts on the integrated waste collection system and waste reduction from mixed plastics recycling. Because of the inefficiencies of collecting this large volume of very lightweight material, alternate collection mechanisms will need to be evaluated for including these materials in the Recycling Plus! system.

Used Motor Oil

The recovery of about 170,000 gallons per year is anticipated. The cost of this service will be 75 cents per household plus 65 cents per gallon for each gallon over 170,000 per year under the current contract. It is proposed to begin to offer this service to multi-unit dwellings, which could increase the amount of oil recovered to about 300,000 gallons per year.

Multi-Unit Recycling Pilot Program (MURPP)

A second phase of the pilot is planned to start in July, 1991. Phase II of the MURPP will test two different collection systems: (1) divided four cubic yard bins with weekly collections, and (2) divided 14 cubic yard bins with monthly collection. Each bin is custom-designed with a

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mailbox type opening to prevent scavenging. The pilot will test public perception of the containers for recycling. The pilot program funding includes the purchase of small containers for the storage of materials by residents in their apartment complexes. The additional materials collected include OCC, and possibly used oil.

Following the evaluation of the pilot programs, recommendations will be incorporated into the RFP for the next contract. City-wide expansion for summer 1993 will be designed to maximize participation utilizing the most cost-effective system, or possibly the use of both systems for different styles of complex.

Non-Residential Recycling

Meeting the City's goals for recycling in the commercial/industrial sector requires a multi-faceted approach that the City believes can best be achieved by the private sector. The City's challenge, then, is to encourage the private sector to achieve the public policy goals of recycling by facilitating the provision of a sufficient variety of recycling opportunities to San Jose businesses. This section outlines how the City plans to implement its objectives for commercial/industrial recycling between now and the year 2000.

The City's plans for recycling in the commercial/industrial sector can be divided into 4 main phases: Information Exchange, Incentives, Mandates, and City services. These "phases", all of which overlap to some degree, will be phased in incrementally between now and the year 2000, with the implicit goal that the City may never need to take the last step, i.e., providing direct services for the commercial sector. The emphasis will be on facilitating the private sector to achieve desired levels of recycling through a variety of mechanisms, including public education, economic incentives, and (only if necessary) regulations. These mechanisms will be designed to minimize City involvement and maximize private sector involvement. The focus will be on the following activities:

Phase I - Information Exchange

The City's ability to effectively stimulate and facilitate the private sector to provide a wide variety of recycling opportunities to San Jose businesses depends on two critical tools: 1) a comprehensive database on existing activities, and 2) the ability to effectively provide information to both waste generators and recycling service providers. The next two years (1991-92) will focus on data collection and analysis, concentrating on developing the following mechanisms:

- Computer Tracking System for Business Referrals and Data.
- Outreach/Promotional Materials (e.g. fact sheets and directories)
- Business Referrals/Technical Assistance (e.g. personal and phone consultations).

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In addition, one of the most important areas of focus in 1991-92 will be to analyze the effectiveness of existing economic incentives for recycling in the City.

Phase II - Incentives

Probably the most important key to achieving the City's commercial recycling objectives is the presence of sufficient economic and other incentives for waste generators and recycling service providers to recycle their waste instead of landfilling it. Many of the necessary mechanisms (e.g., franchise fees, a business tax, variable container rates) are already in place. What the City needs now is a better understanding of how effective these incentives are in promoting recycling as an alternative to disposal. One of the major reasons for the City's emphasis on data collection and analysis during the 1991-92 period is to gain a better understanding of the effectiveness of existing economic and other incentives.

Necessary adjustments or additions to existing economic incentives will be introduced incrementally between 1993 and 1995. The following are some of the economic incentives that may be considered (based on results from the City's analysis of data in 1991-92) within the following time-frames:

- Lower franchise fees for waste going to MRFs instead of landfills (1992-1993).
- Rate structure modifications, such as disposal fees and quantity-based user fees (1993-94).
- Franchise fees for waste processing facilities and material recovery facilities (1993-94).
- Differential franchise fees for garbage, rubbish, and recyclables (1993-94).
- Increased recycling credits and/or business tax at landfills (1994-95).

Phase III - Mandates

In 1993, with the introduction of the Recycling Plus! system, food wastes should be banned from rubbish to ensure it's recyclability.

In 1994-95, the City will be able to determine the effectiveness of its on-going efforts to promote commercial recycling through a comprehensive system of economic incentives. If it is determined that these steps are not sufficient to meet the desired waste diversion goals set forth in AB 939 and in the City's own Waste Reduction Strategy, the City will consider a third option - mandates. The following mandates are examples of the kind of regulation which will be considered for implementation:

- Bans on food waste from commercial rubbish (1993-94).

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- Bans on other waste, such as yard waste, packaging, and/or cardboard, from commercial rubbish (1995-96).

- Mandatory recycling ordinance, including possible source separation requirements (1995-96).

Mandates enacted in 1995-96 will be evaluated in 1996-97, corresponding with the beginning of the design of the next recycling and garbage collection RFP.

Phase IV - City Services

Historically, the City has been involved in providing or encouraging the provision of a number of recycling services, including its Model Cardboard and Mixed Recycling Collection Programs, in-house Recycling at Work, Schools Recycling, Downtown Multi-tenant Office Recycling Program, and Parks Recycling Program. The City will continue to provide some services, particularly those having to do with in-house recycling. However, it is the City's policy that, whenever possible, the private sector should assume responsibility for providing recycling opportunities for San Jose businesses. The role of the City, therefore, will be to fill gaps by providing services that cannot otherwise be provided by the private sector. Alternatively, if the private sector has not been sufficiently responsive to these clear City goals, the City could decide to provide all commercial garbage, rubbish and recyclables collection services under an exclusive franchise, beginning in 1999.

Market Development

The priorities for Market Development have been outlined in detail in the Market Development Strategy and Source Reduction and Recycling Procurement Policy highlighted above. In the Short-Term Planning Period, the priorities will be to:

- Implement the Procurement Policy within the City, then expand to promote its applicability to area businesses to use in their procurement practices.

- Apply to be designated as a Market Development Zone, to attract recycling manufacturers to San Jose. Develop information and support materials to respond to interested manufacturers quickly for their assessment of San Jose as the potential location for new manufacturing activities.

- Continue leadership in advocating state and federal legislation to provide more incentives for market development.

- Develop contingency plans for materials identified as most vulnerable to market fluctuations in the short-term. Work with other cities and the private sector within the region to implement those contingency plans.

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4.7 MONITORING AND EVALUATION

In order to assess the effectiveness of the Integrated Waste Management program, it is necessary to monitor and evaluate the selected alternatives. The following section describes the City's plans and methods for monitoring and evaluation.

Monitoring And Evaluation Objectives

1. Monitor construction of MRFs, and evaluate their usefulness and capacity. Make policy decision on source separation versus co-mingling collection, if necessary.

2. Analyze the effects of City incentives in terms of increasing the recycling of materials.

3. Analyze Commercial recycling system in terms of service gaps.

4. Analyze service provider permitting process so that 90 percent of service providers report accurate tonnages and that 95 percent of materials are tracked within ± 10 percent accuracy.

5. Determine if further mandates are required to achieve AB 939 goals.

Methods to Quantify and Monitor Achievement of Objectives

- Further waste generation studies and characterization studies to measure changes in both waste types and waste quantities, as well as program effectiveness.

- Improved record keeping on the quantity, waste type, and generators of recovered materials.

- An annual survey of businesses and municipal government to monitor procurement practices and, specifically, to identify increases in the purchase of recyclable materials and products, as compared to the previous year's purchasing practices.

- An annual residential and commercial survey to ascertain the participation rates for recycling programs, the general level of awareness regarding recycling issues and level of satisfaction with the City's programs.

- Continual monitoring of national trends in recycling with respect to new technologies, processes, and market development.

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Written Criteria for Evaluating Program Effectiveness

The following written criteria will be used:

- Are the recycling objectives being achieved?
- Are targets for material recovery and participation rates being achieved?
- Were the activities implemented on schedule?
- Are there more residents and businesses recycling?
- Have businesses' and public institutions' procurement practices changed?
- Are residences and businesses recycling more in terms of tonnage and material type?

Parties Responsible for Monitoring, Evaluation, and Reporting

The San Jose Office of Environmental Management (OEM) will be responsible for monitoring and evaluation. In addition, information on programs run outside of the OEM will be provided by the operators of such programs.

Monitoring and Evaluation Funding Requirements

A budget will need to be established to cover the costs of a recordkeeping system, waste generation studies, and surveying costs.

Measures to be Implemented if Monitoring Shows a Shortfall

If recycling objectives are not being met, the following measures will be undertaken:

- A re-evaluation of diversion goals.
- A quantitative evaluation of the effectiveness of the City's public education and outreach program.
- Further evaluation of alternative markets for recovered materials.
- Provision of additional incentives for commercial and residential recycling.
- Address any issues discovered by the monitoring surveys.

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- Adoption of a City ordinance making residential and/or commercial recycling mandatory.

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TABLE 4-1
SELECTED RECYCLING PROGRAMS
ESTIMATED DIVERSION BY WASTE TYPE
Shown in Tons and as a Percentage of Total Generation

Waste Type	Residential Program Short & Medium Term		Commercial Program Short Term		Commercial Program Medium Term	
PAPER	57,948	4.14%	12,409	0.89%	41,778	2.98%
Corrugated Containers	3,621	0.26%	4,056	0.29%	10,000	0.71%
Newspaper	29,791	2.13%	2,600	0.19%	3,466	0.25%
High Grade Ledger Paper	1,253	0.09%	2,553	0.18%	10,000	0.71%
Magazines/Glossy inserts	3,470	0.25%		0.00%		0.00%
Mixed Paper	19,652	1.40%	440	0.03%	15,000	1.07%
Other Paper	161	0.01%	2,760	0.20%	3,312	0.24%
PLASTICS	2,271	0.16%	996	0.07%	2,235	0.16%
HDPE Containers	1,025	0.07%	125	0.01%	1,000	0.07%
PET Containers	458	0.03%	255	0.02%	500	0.04%
Film Plastics	150	0.01%	169	0.01%	203	0.01%
Polystyrene Foam	49.07	0.00%	25	0.00%	25	0.00%
Other Plastics	590	0.04%	423	0.03%	507	0.04%
GLASS	11,395	0.81%	5,985	0.43%	6,802	0.48%
Refillable Beverage Containers	0	0.00%	300	0.02%	300	0.02%
CA Redemption Value	5,589	0.40%	2,846	0.20%	3,500	0.25%
Other Recyclable Glass	5,806	0.41%	2,837	0.20%	3,000	0.21%
Other Non-Recyclable Glass	0	0.00%	2	0.00%	2	0.00%
METALS	2,969	0.21%	27,514	1.96%	31,373	2.24%
Aluminum Cans	266	0.02%	2,285	0.16%	2,500	0.18%
Bi-metal Containers	3	0.00%	0	0.00%	0	0.00%
Tin Cans	2,199	0.16%	1,035	0.07%	1,500	0.11%
Other Ferrous	351	0.03%	15,394	1.10%	18,473	1.32%
Other Aluminum	42	0.00%	1,900	0.14%	1,900	0.14%
Other Non-Ferrous	44	0.00%	6,900	0.49%	7,000	0.50%
White Goods	65	0.00%	0	0.00%	0	0.00%
OTHER ORGANICS	136	0.01%	68,037	4.86%	82,151	5.86%
Food Wastes		0.00%	10,470	0.75%	13,088	0.93%
Wood Waste	0	0.00%	57,483	4.10%	68,979	4.92%
Textiles/leather	136	0.01%	84	0.01%	84	0.01%
OTHER WASTES	10	0.00%	255,209	18.22%	255,209	18.22%
Inert Solids			254,644	18.18%	254,644	18.18%
Batteries			528	0.04%	528	0.04%
Oil	10	0.00%	37	0.00%	37	0.00%
				0.00%		0.00%
TOTAL	74,967	5.35%	370,387	26.44%	419,785	29.97%

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Section Five

5. COMPOSTING COMPONENT

5.1 · INTRODUCTION

A well designed and operated composting program can play a major role in the overall success of a solid waste management strategy. As such, composting will be a major contributor to the City of San Jose's goals of 25 percent source reduction and recycling by 1995, and 50 percent by 2000. Composting can be defined as the biological degradation of organic matter under controlled conditions to produce a usable soil amendment. The results of the waste disposal characterization analysis indicate that approximately 27 percent of the City's municipal solid waste consists of compostable material; therefore, composting has the potential to become a primary means of managing solid waste.

Reliance on composting as a major component of a solid waste management plan has several environmental and economic benefits. For San Jose, economic benefits of composting include the following:

- Avoided disposal costs
- Reduced solid waste processing costs
- Reduced demand on landfill capacity
- Readily available organic soil amendments

Potential environmental benefits include:

- Landfill space savings
- Conservation of a valuable natural resource
- Water conservation through use of compost, mulch, and wood chips
- Improved soil fertility and enhanced aesthetics through the application of compost
- Reduced potential for leachate strength and methane generation from landfills

San Jose has planned for its yard waste composting program for five years (since adoption of the first Waste Reduction Strategy) because of the significant contribution it will make toward meeting the City's own waste reduction goals. This component, like the previous one, builds on the City's progress in achieving a City-wide yard waste composting program.

This component of the plan first outlines the short- and medium-term objectives of the composting plan, as well as the status of composting programs currently underway. It then provides a summary of the various composting strategies that can be adopted and presents a discussion for program evaluation, implementation and monitoring.

It should be noted that a detailed discussion of the technical and procedural guidelines for composting is beyond the scope of this document. More in-depth, technical discussions of composting methods can be found in References 1 to 5.

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5.2 OBJECTIVES

This section describes short- and medium-term objectives for the City's composting program. The program includes diversion of organic materials both by composting and by other methods of processing (e.g., the production of wood chips for landscaping purposes).

Short-Term Objectives

- Divert 14 percent by weight of the total residential waste stream generated.
- Divert, through municipal composting, approximately 52 percent by weight of the total yard waste generated in the City of San Jose.
- Locate and evaluate additional sites for composting.
- Develop the collection and processing infrastructure to deal with the City's source separated yard and wood wastes.
- Inform and educate residents about how to participate in the yard waste collection program.
- Identify particular sub-groups of potential end users and their anticipated product quality and quantity demands.
- Establish a yard waste drop-off site at the composting facility and/or at alternative convenient locations for materials not collected by the City's Yard Waste Recycling Pilot Program.
- Develop a plan for commercial and institutional food and food processing waste collection in anticipation of medium-term food waste composting.
- Investigate the feasibility of composting mixed paper as a contingency processing method in case of market failure.
- Investigate the feasibility of implementing full-scale mixed MSW composting, sewage sludge composting, or mixed MSW/sludge co-composting for medium- to long-term implementation.
- Encourage municipal departments to use compost products generated by the program and inform residents of their availability.
- Study the use of yard waste compost for landscaping.

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- Study the effect of collection and disposal rates on the quantity and quality of compostable materials collected.
- Encourage, via the source reduction component, residential backyard composting.
- Implement program to encourage use of compost by commercial businesses and developers.

Medium-Term Objectives

Objectives for the medium-term planning period include:

- Divert 20 percent by weight of the total generated waste stream.
- Divert, through composting, approximately 74 percent by weight of the total quantity of yard waste generated by the City of San Jose.
- Refine the yard and wood waste collection and processing systems.
- Implement food and food processing waste collection and composting.
- Study the feasibility of co-composting yard waste with other organic residues, including sewage sludge.
- Compost or co-compost a certain amount of the food waste generated in the commercial sector and, if possible, include other biodegradable materials.
- Divert self-haul, landscaper, and building contractor yard waste into composting program.
- Implement full-scale mixed MSW composting, sewage sludge composting, or mixed MSW/sludge co-composting.
- Continue program to encourage use of compost by commercial businesses and developers.
- Establish a backyard composting demonstration site.
- Mandate the use of compost to the degree necessary to supplement private sector marketing.

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5.3 EXISTING CONDITIONS

The disposed waste analysis for 1990 indicated that food waste accounted for 152,500 tons, yard waste for 118,000 tons, and wood waste for 6,300 tons of the total waste placed in landfills. Other materials such as mixed paper are also potentially compostable. The amount of compostable materials generated by the residential sector in 1990 was 131,800 tons and the commercial sector, 166,000 tons.

Yard waste materials from certain residential sectors in the City are collected separately using a wheel loader with a "claw" bucket, which grabs the pile and deposits it into a rear-loader packer truck. The yard waste and other biodegradable organic materials collected from the residential and civic sources are diverted from the landfill as discussed below.

The diversion of compostable wastes by the Yard Waste Recycling Pilot Program in 1990 from residential and civic waste sources is estimated to be 5 percent.

The following programs contribute to the diversion:

- Yard Waste Recycling Pilot Program.
- Civic "Leaf Bank" Composting Program.

The City has been operating a pilot program that involves the collection and processing of yard wastes generated in 22,400 households. In the program, the residents are requested to place their yard wastes loose on the street forming a pile not bigger than 5 ft in any direction. The yard wastes are collected once a week on the same day as garbage. Collection is carried out by means of a wheeled loader equipped with a "claw" bucket. The wheeled loader places the material in a conventional rear-loading packer truck. The material is transported to Zanker Road Resource Recovery where it is processed. Processing involves size reduction, screening, and composting. The material from the Pilot Program is now processed into soil amendment products.

The City has selected two collection contractors to expand the pilot program City Wide to collect residential and civic yard waste from the entire City. The waste is expected to be transported to Zanker for composting and recycling. This program will process on the order of 40,000 tons of yard wastes per year into compost, mulch, and wood chips when fully operational in FY 1992-93.

The Leaf Bank has been operating for several years at Prusch Farm Park. Leaves collected each fall by City crews from the streets and parks are deposited at Prusch and placed in windrows. Compost produced is periodically made available to residents at no charge and is also used in City parks.

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Compostable materials are currently being processed at the following sites:

Name:	Zanker Road Resource Recovery
Location:	705 Las Esters Rd. Zanker Road, San Jose
Method of Processing:	Grinding, screening, composting, recycling
Quantities Recycled:	4,500 tons annually from pilot

Name:	Prusch Farm Park Leaf Bank
Location:	San Jose
Method of Processing:	Composting in windrows
Quantities Recycled:	200 tons annually

5.4 PROGRAM ALTERNATIVES

Collection Options

The highest quality compost products are produced from the separate collection of compostable materials. The materials can be collected separately for subsequent processing into usable end-products through curbside collection, a drop-off program, or both. Collection programs should be accompanied by aggressive promotion of source reduction methods, such as home composting and landscaping standards, which generate less waste. A description of source reduction programs is presented in Section 3.

Residential Curbside Collection

Important considerations in designing an efficient system for the curbside collection of yard waste include: identification of the types of yard waste to be collected and the frequency of collection; method of set-out for yard waste; and type of collection vehicle.

The yard waste presently being generated in the City is estimated to be approximately 79 percent by volume prunings, 18 percent by volume leaves, and 3 percent by volume grass. It should be noted that these numbers will likely change if the current drought ends. Grass would likely increase to a much greater percentage as seen in the 1987 waste composition study at Newby Island Landfill. The collection system must be capable of handling these materials regularly and efficiently.

There are three primary options for setting out yard waste in a residential curbside collection program:

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- Loose yard waste raked into street 12" from the curb.
- Designated rigid containers.
- Gardeners tarp or blanket.

Advantages of containerized (versus loose) yard waste set-out include: 1) no significant behavior change is required of residents; and 2) standard existing waste collection vehicles can be used to collect yard waste. Disadvantages include: 1) debagging may be necessary; 2) collection crews may need to lift heavy bags or other containers; 3) use of bags or cans is difficult for prunings; 4) use of bags creates more wastes; and 5) potential contaminants are hidden from view, reducing the quality of the end product.

By contrast, collection of loose yard waste 1) requires no debagging; 2) does not cause collection crew strain from lifting heavy objects; 3) facilitates inspection of contaminants and is easy for the generator to use; 4) maximizes collection of large volume of materials; and 5) provides residents with unlimited recycling of yard waste. However, collection of loose materials may be more labor-intensive and more costly, may require parking regulations, and may result in residue left on the street. However, these problems have not been experienced in the San Jose Pilot Program and have not caused difficulties in those communities where the system has been used.

The inclusion of more highly putrescible types of compostable materials (e.g., food wastes) in the residential curbside collection program would necessitate a containerized collection system. The quantities and characteristics of the feedstock would be important considerations in determining the type of container.

The yard waste recycling program also includes multi-unit dwellings and civic yard waste generators. The multi-unit dwellings will be serviced by on-street collection of loose yard waste if possible, or by collection from 3 cubic yard mesh style bins. Yard wastes generated from civic maintenance operations will be collected loose on street at points of generation or at the four civic yards in 30-40 cubic yard mesh style roll of boxes.

Mixed MSW is being processed at several facilities in the United States for composting. The processing methodology varies among the facilities, but typically involves a series of processes such as size reduction, magnetic separation, air classification, and screening. Although the quality of the compost produced from mixed MSW is generally not as good as that produced from source separated compostables (e.g., yard waste), this type of program has the advantage of not requiring that the material be source separated.

Commercial Program

Food wastes comprise a significant portion of the overall waste stream. If properly managed, co-composting food wastes with yard waste would not introduce serious complications. These wastes have a high moisture content and must be promptly and properly mixed with bulky yard waste. This material would result in a high-quality compost.

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Although co-composting of yard wastes with sewage sludge is practiced in several areas in the United States, the introduction of sewage sludge complicates the composting operation. Processing technologies, especially those of the pre-processing and active composting stages, require greater refinement than is necessary in a yard waste only operation. Site construction costs would increase, based on the need for more extensive paving, water runoff collection, and a larger buffer zone. Facility permitting would become a more complex process due to potential environmental and health impacts that are more severe, or more difficult to mitigate, than those for yard waste composting.

Permanent Drop-Off Centers

A drop-off program relies on residents and/or private commercial haulers to transport clean (segregated) yard and wood waste to a designated site. This type of program keeps collection costs low, but generally results in less volume recovered than in a curbside collection program. This is a primary or sole collection method typically used in sparsely populated areas. If population density is sufficiently high, a drop-off program can be supplemented by both a curbside collection and by a backyard composting program for maximum recovery of yard wastes.

Key planning features for yard and wood waste drop-off sites include the following:

- A drop-off center can be easily located at a landfill, transfer station, or at a MRF.
- Sites are typically open only a few days a week, such as one or two weekdays and on Saturdays, to minimize staff time.
- Sites should only accept source-separated or uncontaminated yard and wood wastes.
- Materials should be delivered in loose form (or in compostable paper bags).
- A conveniently-located receptacle should be provided so that residents can dispose of their plastic bags or other containers used to transport yard waste to the sites.
- Instructional signs should be placed at sites to indicate acceptable materials, unloading location, and site hours.
- Acceptable materials should include leaves, grass clippings, brush, and branches less than 6 in. in diameter. Stumps and branches over 6 in. in diameter and construction and demolition wood should not be accepted.
- The tipping fee for commercial haulers and residential self-haul should be set at 25 percent to 50 percent less than tipping fees at disposal sites in the region.

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- One employee per site should monitor the site during hours of public access for quality control and organization.

Mobile Drop-Off Centers

These centers can be established using large collection trailers (approximately 40-cu-yd capacity) in neighborhoods for short, scheduled periods of time. When full or when appropriate to be moved to the next neighborhood, trailers are first emptied at a centralized composting or pre-processing aggregation site. A trailer with damp yard waste (especially grass) must be emptied frequently to avoid the unpleasant impacts of anaerobic decomposition. As with permanent drop-off centers, there should be a staff person at the site at all times for quality control and organization.

Residential Onsite Composting

Onsite composting can be defined as the process of managed decomposition of organic materials on one's own premises that produces a usable horticultural product.

Onsite composting in residential areas is also known as "home" or "backyard" composting. Yard waste can be composted successfully at home fairly easily with minimal odors or disturbance from animals. Often, yard waste is composted together with food scraps. This works well, provided that the composting is managed properly and that meat by-products are excluded from the compost pile. This approach is generally most suitable for single- or two-family residences which have available space in their backyards, but can also work in multi-family dwelling complexes. Another option well-suited for multi-unit dwellings is vermicomposting in a containerized system.

Source reduction through home composting can be encouraged by the implementation of a variable can rate system for garbage collection. Those who engage in composting at home will reduce their volume of waste and consequently reduce their disposal costs. The quantities of yard waste requiring disposal can also be reduced by leaving cut grass on the lawn, although this is technically not considered composting.

Since the state regulations classify onsite composting as a form of source reduction, further information on onsite composting is provided in the source reduction component.

Compost Processing Options

Generally, three stages of processing occur at composting operations: pre-processing, composting, and post-processing. For source separated compostable materials, pre-processing generally involves separation shredding and/or screening the incoming materials to produce a compost feedstock of a particle size that composts more readily. As discussed earlier, the processing involved for a mixed MSW feedstock is more involved. The composting stage involves the biodegradation of the material and is discussed in the following paragraphs. Size reduction

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and/or screening are used in the post-processing stage to produce a compost or mulch product with a more consistent particle size.

There are several composting methods, ranging from low to highly complex technology. The most appropriate technology depends upon the composition of the feedstock, the capital and labor requirements, and the existence of suitable markets for the end products. It is likely that a combination of technologies may be the most advantageous. A brief description of available technologies follows:

The **turned windrow** method of composting calls for stacking wastes into elongated piles known as windrows. The dimensions of the windrows can be adapted to the particular conditions and available equipment. In general, however, they are roughly trapezoidal in cross-section and sized to provide insulation while avoiding compaction of the material. Satisfying these criteria usually results in windrows from 8 to 15 ft wide, and 5 to 10 ft high, and whatever length is convenient to the site. Aeration is accomplished by agitating or turning the piles using a front-end loader or specially designed turning equipment. The turning frequency depends on many factors, including the nature of the feedstock, its particle size, moisture content, and the desired rate of decomposition. Generally, but not necessarily, the more frequent the turning, the more rapidly the material decomposes. It is extremely important that site managers monitor temperature, moisture, and oxygen content of the piles to ensure that the materials decompose aerobically and rapidly, without the production of offensive odors. This method of composting generally requires between 6 and 18 weeks to finish.

The major advantages of this method are its ability to process large quantities of materials at a cost competitive with other solid waste disposal options, while producing a marketable and useful product. Turned windrow composting can often be accomplished at existing processing facilities, without very large capital expenditures, and within the stipulated time frame. Potential disadvantages that must be managed are the dedication of relatively large land areas to the project, the possible production of offensive odors, the intensive pile management required to maintain favorable conditions, and the formation of leachate.

The **aerated static pile** or **forced aeration** method of composting is similar to the turned windrow method, except that oxygen is supplied to the windrows through a network of pipes and blowers that either force or draw air through the composting matter, rather than through turning. However, in practice, it is advisable that some mechanical turning of the piles be carried out to promote complete decomposition and avoid anaerobic pockets. The complexity and expense of this method is generally not justified to compost leaves, grass, and other yard wastes. It is appropriate and commonly used for stabilization of sewage sludge and is being applied in dedicated mixed MSW composting projects.

In-vessel composting entails the use of fully or partly enclosed vessels in which decomposition takes place under closely monitored conditions. Its relatively high capital and operating cost makes this method appropriate only for the decomposition of highly putrescible feedstocks, or feedstocks that could be the source of offensive odors such as food wastes. This method of

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composting is capable of producing a high quality end-product, but its expense makes it unattractive as a primary management option for yard wastes.

Size reduction of brush and wood waste (shredding and chipping), although not strictly composting, can be an important and useful element of a yard waste recycling program, a stand-alone means of handling woody wastes, or both. Small trees, branches, brush, broken pallets, clean used lumber, and other woody waste can be used, after size reduction, either directly as mulch or wood chips, or, if adequately reduced in size, included in compost piles. It is difficult to compost woody wastes without prior size reduction because the relatively high carbon-to-nitrogen ratio slows the decomposition process to impractical time periods. Shredding of woody wastes can generally be implemented in the short-term, with relative ease, and a minimum of uncertainty. No major new facilities should be needed for this operation in this area, as the private sector has invested substantially in such equipment at most area landfills and other sites. This issue is also addressed in the Recycling Component of the SRRE as it is technically classified as recycling.

Siting Options

The availability of suitable sites for composting normally poses major barriers to proceeding with operations. Technical, regulatory, economic, political, social, and environmental factors all play a role in the siting process. Potential sites may include:

- Unused portions or completed sections of existing landfills and other solid waste facilities such as transfer stations.
- Unused portions of wastewater treatment facilities.
- Large, unused or underutilized land, whether publicly or privately owned.
- Buffer areas around industrial sites and institutions, including airports.
- Utility rights-of-way.

Factors to consider when evaluating potential sites are dependent upon local environmental and development regulations, state requirements, and the specific concerns relevant to the proposed site. Generally, factors examined should include:

- Proximity to waste stream.
- Proximity to potential markets or transportation corridors.
- Availability and cost of the site.
- Accessibility.
- Potential for public acceptance.
- Physical condition of site, including topography, geology aesthetics, and other factors.

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- Availability of utilities.
- Current and planned adjacent land use.

The suitability of a given site will, of course, depend on the interrelationship of these characteristics. The various factors must be weighed against the proposed option's ability to divert waste. In San Jose, composting activities have already been sited at existing landfills and on City lands.

Market Development

Markets will be identified and established for the end-products from the selected composting program. The processing contractor will be responsible for developing a marketing plan which will identify the end-products and the quality standards. Quality standards are very important in the marketing of end-products. The standards which San Jose requires of its yard waste processing contractor for City purchase of products from that facility is documented and available from the City.

Local markets such as homeowners, municipal and county agencies, nurseries, sod farms, and landscaping supply firms are examples of potential end users. It is intended that marketing will be the responsibility of the processing contractor. The request for proposal stipulated that aggressive marketing be included in proposals and was a major component of the proposal selected.

The San Jose Yard Waste Composting Implementation Plan adopted the following strategies for developing markets in San Jose:

- Create a trade name to connect the product to the area, or a popular area feature.
- Provide high grading to improve nitrogen content and custom mixing with other materials to appeal to specific markets.
- Maintain the reliability of demand.

The plan also will include development of markets outside the immediate area. San Jose will explore the possibility of cooperating with other jurisdictions to market end-products. Overseas markets will be explored.

San Jose will also seek to include composting operations as eligible activities in the proposed Market Development Zone. Although draft regulations have restricted their participation in such zones, it is expected that either through revised regulations or legislation that this situation will be rectified.

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Public Information and Education

In order to have a successful composting program, the public will need to be informed as to the benefits of the collection program, the benefits of using compost products, and how to obtain San Jose-generated compost and other end products. The Public Information and Education Component covers in greater detail the process of educating and informing the public.

Once it has been determined what end-products will be generated, the cost to the public, and how the individual products will be made available, then a separate information program will be developed and implemented. This will be an important aspect of the overall composting component because the City must be able to market the finished products.

Solid Waste Rate Structure

In order to improve the overall quality of end-products, the City will establish service rates that encourage the maximum participation in collection programs with the least contamination. This is needed to assure the highest quality of compost products. Establishment of a variable can rate structure in FY 1993-94 with the introduction of the Recycling Plus! system is expected to increase yard waste recyclables from 40,000 to 60,000 tons per year. Reduced rates for clean self-haul loads are encouraged by permit language at several area landfills and should be adopted by all.

5.5 EVALUATION OF ALTERNATIVES

Collection Options

Residential Curbside Collection

Advantages of curbside collection, over drop-off programs, for yard waste or other compostables include: 1) convenience for residents; 2) high community profile and awareness; 3) high participation and recovery rates; 4) linkage with mixed waste collection; and 5) low contamination levels.

Disadvantages of curbside collection for yard waste or other compostables include: 1) higher cost; 2) greater complexity; and 3) longer implementation time than with a drop-off program.

Residential yard waste comprises a significant portion of the overall waste stream. Diversion of any part of this waste stream will result in a significant reduction of solid waste going to landfills.

Commercial Collection

Compostable materials generated by the commercial/industrial sector include yard waste, wood waste, and food waste. The advantages and disadvantages for segregated collection of

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compostable waste from commercial and industrial generators are similar to those outlined under the evaluation of alternatives for residential curbside collection. In addition to the considerations mentioned previously, separate or commingled collection of food waste may require the use of specialized collection equipment. The collection of food waste will also require changes in the way employees handle food waste disposal in restaurants and at other locations generating substantial quantities of food wastes. The local health department may place requirements on the on-site storage of food waste prior to collection.

The City's current codes define rubbish as not including putrescibles; the City charges a lower franchise fee for hauling/collecting rubbish to encourage the separation. Food waste could be collected separately for composting purposes.

Permanent Drop-Off Centers

A permanent drop-off program requires a minimal amount of financial investment and staff time, and can be implemented relatively quickly. Yard waste and wood wastes are self-hauled by small private haulers or individual residents to either the composting site or to a local drop-off center.

It is anticipated that drop-off sites could be established at an area landfill, and/or transfer station, and perhaps elsewhere, without the need to build new facilities. Site development costs are usually low. A materials recovery facility would also be a good location for a drop-off center.

To encourage self-haul, residents could be allowed to use the drop-off site at no or minimal cost, and could be given a voucher for finished compost or wood chips. Self-hauling reduces overall costs of collection.

Materials included in such a drop-off program could be limited to bulk leaves if specialized composting equipment (e.g., shredder) is not yet available for use at the composting facility. Disadvantages of these centers are: (1) they require staff to minimize contamination; (2) they do not serve the needs of all residents, as not everyone owns a pickup truck or could easily accomplish this task; and (3) if not at a landfill, impacts on adjacent land uses can be a problem.

Mobile Drop-Off Centers

Mobile Drop-Off Centers, using large collection trailers in neighborhoods for short, scheduled periods of time, can be an attractive alternative, particularly in areas with lower population densities or dispersed quantities of compostable materials. The cost generally ranges between that associated with curbside collection and permanent drop-off programs. Participation may need to be limited to residential generators to prevent commercial self-haulers from over-whelming the facilities.

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In more rural areas, where residential users self-haul yard and wood wastes, the convenience of not having to transport to the landfill or transfer station will increase participation and increase diversion of materials.

Some disadvantages are: (1) participation will be less than that of a curbside program; (2) location of centers might require changes in zoning ordinances; (3) the center would need to be staffed to prevent unauthorized disposal of unacceptable materials; and (4) additional equipment would be needed for collection and transportation. In addition, San Jose has relatively few low density areas that would benefit from such a system.

Residential Onsite Composting

Backyard composting can be an inexpensive food and yard waste management alternative. It reduces the public and private costs of collection, transport, tipping, and processing. Stopping the flow of materials before they become waste products that require outside handling is gaining recognition as a viable yard waste management option.

However, due to the fact that a large percentage of the yard waste stream consists of prunings, effective composting will be limited unless these prunings are shredded or reduced in size. If backyard composting piles are not properly managed, they can emit unpleasant odors, attract insects and small animals, and become a nuisance to the neighborhood.

One way to stimulate interest in residential onsite composting and promote proper management is through public education and publicity. Backyard composting can be encouraged on more than a strictly economic basis. The values of exercise, recreation, workmanship, science education, and community pride can be identified with home composting. A Master Composter Program, such as that developed by the City of Seattle, could be implemented in San Jose to foster this activity.

Refer to the source reduction component for additional information.

Processing Options

Turned Windrows

Turned windrow composting has minimal associated hazards; odors from poor site or process management is the most frequently mentioned concern. Other hazards, such as flow of runoff into surface water and fires, generally can be effectively controlled.

This method of composting can accommodate changing economic, technological, and social conditions rapidly and effectively. Turned windrow composting can be implemented in a short time frame, partly since site improvements are usually minor and new facilities usually need not be constructed. This approach supports local source reduction and recycling efforts and can be

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effectively developed by existing local institutions. Turned windrow composting is preferred over other methods for composting yard waste.

One common approach is to utilize a front-end loader to form and turn windrows. Alternatively, specialized equipment (e.g., a windrow turner) can be used to turn and aerate piles effectively and rapidly. Rudimentary operations tend to cost $10 to $20/ton (amortized capital and operating expenses), while sophisticated operations often cost approximately $30 to $40/ton. The cost of many operations nationwide is between these extremes.

Aerated Static Pile

Composting of strictly yard waste via the aerated static pile method is rare. Expense and needless complexity render this method generally inapplicable to yard waste. Aerated static piles are more commonly used to compost sewage sludge.

Aerated static pile composting has minimal associated hazards; odors from poor site or process management is the most frequently mentioned concern. Other potential hazards, such as build-up of ammonia gas in indoor facilities, generally can be controlled effectively by adequate ventilation and process monitoring.

The static pile method can accommodate changing economic, technological, and social conditions relatively quickly and effectively and does not interfere with or impede progress toward the State's waste reduction and recycling goals. A program using this method can be implemented in an intermediate time frame; construction of a new facility is usually needed. Institutional barriers to its development are few.

Given the same feedstock, static and turned windrows produce identical products if both operations are managed correctly.

Typical combined capital and processing costs for a 10,000 ton/year facility are approximately $25 to $50/ton.

In-Vessel Composting

Advantages of this method include rapid processing, avoidance of weather-related problems and inefficiencies, and more complete process and odor control. High capital costs and potential for system failure render this option unviable unless more than yard and wood wastes are composted and a rapid throughput time is employed. This technology cannot be implemented in the short-term, and is not particularly flexible in response to changing economic, technological, and social circumstances. Construction of a new facility is essential to support program implementation.

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This approach may impede progress toward the State's waste reduction and recycling goals, since it cannot be implemented in the short-term. In addition, institutional barriers may be significant, unless the facility is operated privately.

Typical combined capital and processing costs for a 10,000 ton/year facility are approximately $40 to $60/ton.

Brush and Wood Waste Processing

Shredding or grinding of woody yard waste supports local source reduction and recycling efforts, and can be implemented in the short-term with relative ease and a low level of uncertainty. However, finished products that are sold as fuel cannot be counted toward the State's 25 percent diversion goal in 1995. They can be counted for up to 10 percent of the State's 50 percent diversion goal in 2000.

The technology can be adapted to adjust to technological, social, and economic conditions. Hazards from flying projectiles can be minimized by locating the size reduction processing site at least 300 ft from public access. No new facilities would be required for the operation, although a covered structure for the equipment would be desirable.

Suitable grinders, both mobile and stationary, can process approximately 5 to 10 tons/hour. Regular maintenance and unplanned downtime for certain types of grinders can be significant.

Amortized capital costs (excluding labor and other operating costs) generally translate into a cost of approximately $10 to $20/ton for a 10,000 ton/year operation.

Siting Alternatives

A privately-owned and -operated (or publicly-owned and privately-operated) processing site has several advantages, including:

- Reduced allocation of staff and equipment by public sector.
- No public sector need to identify and develop composting facility (if privately-owned).
- Contractually fixed or per unit fee for processing services.
- Private responsibility for marketing of end-products.
- Better control over operating costs (if publicly owned).

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Disadvantages of this option include:

- Limited public sector control over end-product outlets.
- Possibly greater transport time and cost from collection point to processing location (if privately-owned and located in another jurisdiction).

CEQA Requirements

As a component of the overall SRRE, the selected composting program(s) will require an environmental review under the California Environmental Quality Act (CEQA). The environmental impacts of both collection and processing systems would require analysis. Depending upon the quantity and types of materials collected and processed, and the magnitude of potential environmental impacts, a negative declaration or an environmental impact report (EIR) would be prepared.

Both the Yard Waste Collection Program and the Yard Waste Processing Program have been given Negative Declarations.

Distribution and Marketing

Distribution and marketing of the end-products of the composting program is the critical link in a successful plan. Most programs will produce one or more of the following products for distribution and marketing:

Compost: used primarily as a soil conditioner, secondarily as a minor source of macro and micro nutrients, to aid in the ability of soil to retain water, and as an ingredient in commercial top soil and potting soil blends;

Mulch: used to retard weed growth, lessen water loss, and stabilize soil temperature;

Wood Chips: serves as a mulch or top dressing, a bulking agent for sludge composting, and as a boiler fuel.

In general, the markets for mulch and wood chips are well developed and predictable. However, compost markets are less mature, and considerable effort should be put into ensuring a reliable outlet for any compost product prior to program implementation. This program will first determine the specifications of the various materials that will be produced. This will be followed by the identification of the potential end-users for these products. The quality of the feedstock, the degree of source separation, and the processing methods ultimately selected will determine the quality and quantity of the different materials that will be produced, and therefore, the likely markets for them.

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Quality constraints associated with compost can include:

- Maturity - material has not fully decomposed.
- Contaminants - presence of sticks, stones, plastic, metals, etc.
- Low nutrient content - lack of value as fertilizer.
- Heterogeneity - lack of consistent, appropriate particle size.
- Soluble salts and improper pH - can limit use in nursery/potting mixes.
- Unappealing appearance - can limit acceptability.

Compost quality (good appearance, low concentrations of metals and toxic compounds, etc.) will be assured by thorough source separation, careful processing of the feedstock, and regular testing of the end-product. Although a high quality product generally assures more successful marketing, knowledge of the end-users will allow the production of a material of appropriate quality for its intended use. It is possible that the program may lead to the production of two types of composts having different quality. For example, nurseries demand a very high quality product, while highway departments can utilize a lower quality, less expensive product.

The following are potential end-users of compost products in Santa Clara County:

- Local parks and highway departments.
- Homeowners.
- Greenhouses.
- Landscapers.
- Farmers and farm suppliers.
- Golf courses.
- Sod growers.
- Cemeteries.
- Schools.
- Parks.

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- Public buildings.

If supply exceeds demand, public users of soil amendments can be mandated to give preferential treatment to compost products. The City could also consider giving the product to homeowners and landscapers willing to pick it up, as has been done in the past with the Prusch Leaf Bank.

5.6 SELECTION OF A COMPOSTING PROGRAM

Short-Term

In order to meet short-term goals, an estimated diversion of 14 percent (by weight) of the total generated waste stream will be necessary. The programs to achieve this goal are:

- Expand the residential curbside yard waste collection program city-wide. The collection method will be on-street collection of loose yard waste and blankets where off-street collection is necessary for single-family households, collection from bins for multi-family households, and collection from large roll-off boxes for civic maintenance operations. The material will go to a centralized composting using turned windrows and a size reduction facility. This program will result in a 14 percent (50,000 tons annually) diversion of the total generated waste stream or 52 percent diversion of the residential yard waste. Selection is based on ease of implementation and on cost-effectiveness.

- Provide information on backyard composting.

- Develop a drop-off program for yard wastes at a landfill or other existing site, focusing on self-haulers.

- The yard waste processing contractors will develop a marketing program, subject to City approval, for the distribution of finished products.

- Disseminate public education and publicity materials regarding yard and wood waste drop-off and curbside collection programs, home composting, and other yard waste reduction strategies. Refer to the Education and Public Information Component. The success of the program depends, to a great extent, upon how successfully the public is informed and educated.

Medium-Term

For the medium-term, an estimated diversion rate of 20 percent of the total generated waste stream will be necessary. The programs to achieve this goal are:

- Expand the residential curbside yard waste collection program. The program goal is a diversion of 20 percent of the total generated waste stream. An estimated 74

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percent diversion of residential yard waste will be needed to meet the overall diversion goal. The program is an ongoing one, and therefore any incremental costs associated with operating the program should be minimal. The educational programs will also have to be expanded.

- Implement a commercial program that will focus on the separate collection of food wastes. Restaurants and other large generators of food wastes will be targeted.

- Implement collection rates which assure highest collection participation and highest quality compost products. Production of high-quality end-products is essential in marketing and the generation of revenues. Rate adjustments for those who source separate yard waste or other compostable waste, and divert high quality compostable feedstocks, will have a positive impact on the overall goal of producing quality end-products.

- Continue drop-off programs at area landfills for self-haul generators. Locating a drop-off center for yard wastes is a practical and economical approach. This program will focus on self-haulers. Materials should be delivered in loose form. Acceptable materials should include leaves, grass clippings, brush, and branches less than 6 in. in diameter. Consider City subsidy of such drop-off activities, if needed, to meet these goals.

- Initiate a feasibility study to co-compost yard waste with sewage sludge or other organic materials.

- Establish a backyard composting demonstration site.

- Establish a backyard composting program/master composter program.

5.7 PROGRAM IMPLEMENTATION

This section identifies the division of responsibilities between government agencies, program tasks, timelines, and estimated costs.

The following section describes the tasks necessary to implement the selected program.

Government Agencies Responsible for Implementation

The City of San Jose, Office of Environmental Management, is currently responsible for operating the City's composting programs, including the curbside collection programs. The Office of Environmental Management will also be responsible for implementing the selected program. See Section 7, "Education and Public Information Component," for a discussion of the implementation of the selected education program.

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Tasks Necessary to Implement Program

The City will continue to expand the existing curbside yardwaste collection program. In addition, processing operations will be expanded to include increased processing activities. The processing and public education programs will be implemented in the short-term planning period.

Several steps will be required for implementation of the program:

- Determine compost product specifications.
- Develop compost process and facility design.
- Obtain funding.
- Perform facility/site improvements.
- Purchase and install screening equipment.
- Start-up.
- Perform lab analyses.
- Test market compost products.

Implementation Costs

The following costs are planning level estimates, developed for comparison only. The estimates are based on a number of broad assumptions. The actual costs may vary depending on the individual requirements of specific sites and engineering design.

It is estimated that the selected programs will cost from $4,170,000 to $6,860,000 per year over the short-term.

5.8 MONITORING AND EVALUATION

Methods to Quantify and Monitor Achievement of Objectives

To ensure that the composting program is meeting its goals and objectives, the program will be monitored and evaluated on a regular basis. Monitoring will include the following measures:

- Recording at the processing site of the estimated volume (cubic yards) or weight (tons) of materials accepted for processing at the composting site, on a daily basis.

- Recording at the processing site of the estimated volume or weight of reject materials that require disposal after pre- or post-processing, on an as-applicable basis.

- Recording by the hauler of the estimated volume or weight of materials collected and accepted at the composting site, on a daily basis.

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- Other supplementary measures as deemed necessary or desirable.

A waste generation study will be undertaken by San Jose to evaluate changes in the disposal levels of materials targeted or that could be targeted by the composting program. Data gathered in the waste generation study will be compared with data gathered in a similar study conducted for San Jose in 1990.

Written Criteria for Evaluating Program's Effectiveness

The effectiveness of the composting program (including on-site composting and other organic waste reduction techniques) will be gauged in the medium-term as follows, subject to modification in accordance with State guidelines:

- Less than 25 percent diversion of yard and wood waste, unsatisfactory
- Between 25 percent and 50 percent diversion of yard and wood waste, needs improvement
- Between 50 percent and 75 percent diversion of yard and wood waste, satisfactory
- Greater than 75 percent of yard and wood waste, effective

Agencies Responsible for Program Monitoring, Evaluation, and Reporting

The City of San Jose Office of Environmental Management is responsible for monitoring, evaluating, and reporting on the effectiveness of the composting program.

Monitoring and Evaluation Funding Requirements

- A budget will need to be established to cover the costs of a recordkeeping system, waste generation studies, and monitoring.

Measures to be Implemented if Objectives are Not Met

If it is determined that projected diversion rates will not be obtained, the community has several alternatives available. An evaluation of all selected programs might show the need for increased public information and educational materials. San Jose will look at potential measures to increase compost program efficiency, develop strategies for securing additional markets for finished compost products, and determine whether or not to increase diversion of certain compostable materials.

If it is determined that the anticipated diversion rates cannot be achieved, the community will increase diversion rates in one or more of the other components (e.g., curbside recycling).

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Section Six

6. SPECIAL WASTE COMPONENT

6.1 INTRODUCTION

Special waste is solid waste that requires unique handling and disposal methods because of health hazard, environmental impact, or physical characteristics. Special waste is defined in Section 18720, Article 3, Chapter 9, Title 14, California Code of Regulations (CCR).

As defined in Section 18720, special waste is any hazardous waste listed in Section 66740 of Title 22 of the CCR, or any waste that has been classified as a special waste pursuant to Section 66744 of Title 22 of the CCR, or:

> "... has been granted a variance for the purpose of storage, transportation, treatment, or disposal by the Department of Health Services pursuant to Section 66310 of Title 22 of the CCR. Special waste also includes any solid waste which, because of its source of generation, physical, chemical or biological characteristics or unique disposal practices, is specifically conditioned in a solid waste facilities permit for handling and/or disposal."

6.2 OBJECTIVES

The special waste objectives presented in this section have been developed to meet the goal of reducing the amount of solid waste generated in the City of San Jose. These objectives are to be implemented in the short-term planning period (1991-1995) and continued during the medium-term planning period (1996-2000). The City of San Jose can expect to divert a variable percentage of the total waste stream by implementing the following objectives:

- Continue existing programs that divert recyclable special wastes from landfilling.
- Continue to provide for environmentally safe management or disposal of special wastes that cannot be recycled.
- Increase collection, recycling, and salvaging through the Recycling Plus! and other current and future programs.

Target waste types for special waste have been identified, based on three factors: (1) the results of solid waste generation studies; (2) the effectiveness of meeting the special waste objectives; and (3) criteria that include the volume and weight of the material, the hazard created by the material, the percent content of non-renewable resources, the durability of the material, and the recyclability of the material. These target waste types are:

- Sewage sludge
- Asbestos
- Abandoned vehicles

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- Tires
- Dead animals
- White and brown goods

Alternatives for diverting the targeted special waste types from landfilling (as well as alternatives for managing by collecting, treating, and disposing of the targeted special waste types listed) are evaluated below in the section entitled "Evaluation of Alternatives" according to their effectiveness in meeting the special waste objectives.

6.3 EXISTING CONDITIONS DESCRIPTION

Program Description and Wastes Diverted.

This section describes existing special waste diversion and management activities and programs in the City. The City has carefully reviewed and documented all potential and ongoing special waste efforts, including all the City programs.

Sewage Sludge

The San Jose/Santa Clara Wastewater Plant treats wastewater from San Jose, Santa Clara, Milpitas, Monte Sereno, Campbell, Los Gatos, and Saratoga, and from surrounding unincorporated areas. The plant performs primary, secondary, and tertiary treatment of water. Sludge is spread over 640 acres of lagoons, producing around 110 dry-tons of sludge per day. Dried sludge is stockpiled and tested for agriculture, physical, and chemical parameters.

The San Jose/Santa Clara Plant is regulated by the State of California Water Resources Control Board, which governs all waste to land under Subchapter 15. The local San Francisco Bay Regional Water Quality Control Board regulates the San Jose/Santa Clara Plant through the National Pollution Discharge Elimination System NPDES Permit. The current permit requires a Characterization Study of the two sludge lagoons and a Waste Minimization and Source Control Study of influent into the sanitary sewer. The Bay Area Air Quality Management District (BAAWMD) regulates the plant as an Air Pollutant Emitting Source.

Asbestos

Friable asbestos is defined by Bay Area Air Quality Management District regulations as "any material that contains more than one percent asbestos by weight and that can be crumbled, pulverized, or reduced to powder, when dry, by hand pressure."

Because of the recognized health risk, manufacture and use of asbestos products have rapidly decreased in recent years. However, much of the material is still present in residential, commercial, and industrial buildings and must be removed, encapsulated, and properly disposed.

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According to the California Department of Health Service's Hazardous Materials Report Manifest Information System, 2866.8 tons of friable asbestos-containing waste was generated in Santa Clara County during 1987. Of that amount, 7.7 tons was handled by three local companies (Solvent Services, HazControl, and IBM) who shipped the waste to other disposal facilities out of the county. The remaining wastes were shipped directly to out-of-county facilities. None of the asbestos-containing waste was disposed of in this county. See Figure 6-1 for a list of California counties that received asbestos-containing wastes from Santa Clara County generators.

According to state regulations, asbestos may be disposed in Class III landfills provided wastes are properly contained and appropriate disposal precautions are taken at the landfill site. Within San Jose area, two landfills will accept non-friable asbestos-containing wastes for disposal: the Guadalupe Landfill and the Zanker Road Landfill.

Used Tires

Oxford Tire Recycling of Northern California collects tires from service stations, and tire dealers in San Jose and transports the tires to its facility in Union City, California; there the tires are separated for delivery to an appropriate end user. Oxford collected 231,000 tires in San Jose in 1990. Tires in resalable condition and casings that can be used for retreaded tires are taken to tire distributors. The tires can also be used to obtain tire-derived products such as playground covering, floor mats, dock bumpers, floor tiles, asphalt rubber, and rubber modified asphalt. Fifteen to twenty percent of the tires are recycled for the uses described below.

Tires that are not reused, or used for tire-derived products or shredded fuel, are taken to the Tire-to-Energy Plant in Westley, California. This facility, operated by the Oxford Energy Company, incinerates whole tires to produce steam to generate electricity. The plant recovers incineration by-products including fly ash and gypsum. Fly ash containing zinc is shipped to a smelting facility. Gypsum has nonagricultural land applications. Slag from the steel and fiberglass belts in the tires is recovered and used for road base (i.e., under asphalt). Approximately 25% by weight of the tires are not recovered.

Bulky Goods

Individuals wishing to dispose of bulky goods can call a refuse hauler, charities (such as the Salvation Army and Goodwill Industries) or junk collectors; haul the items to the landfill; or use the materials as a trade-in for new items at the Guadalupe and Zanker landfills. At some landfills, controlled salvaging is authorized by the site operator if salvaging does not interfere with proper operation of the landfill. Salvaging results in reuse of variable materials and decreases wastes requiring landfill disposal.

Bulky goods taken to scrap processing centers are utilized primarily for ferrous and non-ferrous metal content. Motors, insulation, upholstery, paint, plastics, and other non-metallic substances, commonly referred to as "fluff," are removed. Remaining metals are shredded, separated, and

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sold to re-smelters. Motors are sometimes processed separately for copper content. Most insulation removed from appliances is classified as a hazardous material, so special handling and disposal is required.

Abandoned Vehicles

Scrap automobiles are generally handled by firms specializing in auto dismantling, where usable parts are salvaged, scrap metal is recycled, and other components are disposed as appropriate for the waste type.

The City of San Jose recently implemented an abandoned automobile program funded by an allocation from the City's Revenue Sharing Fund. The project is a joint effort among City Traffic Operations, the San Jose Police Department, and the Department of Neighborhood Preservation. City residents may trade-in their abandoned vehicles at selected salvage yards belonging to the Santa Clara County Auto Recyclers Association, and receive up to $75.00 ($25.00 from the City and up to $50.00 from the auto salvager). Salvagers will tow inoperable vehicles, but owners are not paid if the vehicle must be towed to a lot. The program will be monitored by the City for three months to determine if it should be continued.

Dead Animals

The primary management practice for small dead animals in the City is to contract for disposal with Koefran Services of Sacramento. Koefran provides a freezer at City animal shelters and the Humane Society of Santa Clara for storage of animal remains. Koefran collects the remains periodically and transports them to Sacramento, where the remains are recycled into bone meal and fertilizer by a rendering company. Large animals must be collected and processed by a rendering plant within 48 hours of death. Rendering firms serving local needs include one in San Jose and firms located in Salinas and Sacramento.

6.4 EVALUATION OF ALTERNATIVES

Management practices should take advantage of all viable markets and end uses for recyclable special wastes. In the City, the recyclable special wastes include abandoned vehicles, ash, dead animals, sewage sludge, tires, and white goods. With the exception of the first alternative, the waste management methods evaluated in this section address the objective of increasing the recovery of recyclable special waste from the waste stream.

Alternative 1 - Disposal of Special Wastes

Special waste generated by the City can be disposed of at solid waste landfills in accordance with the facility's Waste Discharge Requirements (WDR), issued by the Regional Water Quality Control Board. The alternative of disposing of special waste in an environmentally safe manner in accordance with pertinent regulations is evaluated below to determine whether this alternative is appropriate for the City, as well as to compare it to other alternatives.

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Effectiveness

This alternative does not reduce quantities of special wastes currently disposed of.

Hazard

Workers responsible for the disposal of special waste are subjected to both health and safety risks from the handling of potentially hazardous materials and bulky items. To reduce the hazard potential, workers should be properly equipped and trained in handling hazardous wastes. In addition, workers should receive basic safety training.

Flexibility

With relatively minor changes in the management of special wastes (excepting sewage sludge), disposal of special wastes can be adjusted to conform with changing conditions.

Consequences on the Waste Stream

This alternative would not affect the waste stream.

Implementation Period

No "startup" period would be required.

Facility Requirements

This alternative would not require any new or expanded facilities.

Consistency with Local Conditions

Disposal of special waste is not consistent with local plans and policies (with the exception of asbestos).

Institutional Barriers

There are no significant institutional barriers to this alternative.

Estimated Cost

No significant costs are associated with this alternative.

End Uses

Not applicable.

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Alternative 2 - Sewage Sludge Composting

Composting is the controlled biological decomposition of solid organic materials. The end product of composting is a stable humus or soil-like material that can be used as a soil conditioner, mulch, or fertilizer, depending on its physical properties. Sewage sludge generated in the City can be composted and sold to the general public for such uses. The benefit of composted sludge, as compared to non-composted sludge, is that most odors are eliminated during the composting process, making a more appropriate product for general public use.

Effectiveness

This alternative would be effective in diverting sewage sludge from disposal.

Hazard

Assuming that the composted sludge is not applied to land used for agricultural crops, this alternative does not have any known hazards.

Ability to Accommodate Change

The ability of this alternative to accommodate change is limited to the amount of composted sludge that can be stockpiled during unfavorable market conditions.

Consequences on the Waste Stream

This alternative will not shift the waste stream toward non-recyclable or unmarketable materials.

Implementation Period

Implementation of this alternative can be accomplished in the short-term.

Facility Requirements

No additional facilities are needed.

Consistency with Local Plans and Policies

This alternative is consistent with local plans and policies.

Institutional Barriers

There are institutional barriers to this alternative.

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Estimated Cost

This alternative normally requires minimal implementation and operating costs. Annual operating expenses are expected to range between $50,000 and $100,000.

End Uses

A relatively stable market is anticipated to be available.

Alternative 3 - Land Application of Sewage Sludge

Sewage sludge generated in the City can be used beneficially as soil amendment or fertilizer for agricultural purposes. Such uses include reduced need for inorganic fertilizers, improved soil fertility and tilth, decreased consumption of energy, and reduced hazardous air emissions.

Effectiveness

This alternative would be effective in diverting sewage sludge from the waste stream.

Hazard

Uptake of heavy metals (Cd, Pb, etc.) in food crops could pose a potential health hazard. The characteristics of the sludge will determine its suitability for application at a particular site.

Ability to Accommodate Change

This alternative can be limited by changing conditions, particularly social acceptance of the use of sewage sludge for application to land.

Consequences on the Waste Stream

This alternative would not affect the waste stream since sludge is not currently disposed of a landfill.

Implementation Period

This alternative can be implemented during the short-term planning period.

Facility Requirements

A facility would be required where the sludge could be stabilized in order to be transported.

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Consistency with Local Plans and Policies

This alternative is not consistent with local plans and policies.

Institutional Barriers

This alternative would require the acceptance of local farmers and farm bureaus.

Estimated Cost

Costs are anticipated to be minimal, with the cost of transporting the sewage sludge to the site of application being the most significant. Depending on the exact quantities of sludge diverted, current sludge handling costs are estimated to increase from about 5 to 20 percent.

End Uses

The southern portion of Santa Clara County is a potential significant market due to the extensive agriculture in the area.

Alternative 4 - Divert Tires from Landfilling for Ultimate End Use

Used tires generated in the City can be reused or recycled as a variety of end products including floor tiles, dock bumpers, and playground coverings. An important component of this alternative is the availability of a facility to stockpile used tires. The City would develop a contractual arrangement with a firm such as Oxford Tire Recycling of Northern California to collect used tires generated by the City. The collected tires would ultimately be recycled as specific end products or would be used as tire-derived fuel for the generation of electricity.

Effectiveness

This alternative could be effective in reducing the quantity of used tires in the waste stream.

Hazard

Prior to being processed, waste tires are stockpiled. When exposed to the elements, stored tires collect rainwater and serve as breeding grounds for disease vectors; they can also be a fire hazard. To minimize the hazard potential, the storage times should be limited. Additionally, the stockpiled tires can be protected from the elements by a tarp.

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Ability to Accommodate Change

Provided that waste tires can be sent to a regional facility for storage during unfavorable market conditions, this alternative can accommodate changing conditions. However, if a regional waste tire facility (such as that operated by Oxford Tire Recycling) were not available, this alternative would be limited in its flexibility.

Consequences on the Waste Stream

This alternative would have a positive effect on the waste stream by diverting a problem waste from landfilling.

Implementation Period

Implementation would be dependent on the establishment of a regional facility permitted to accept only shredded tires. It is anticipated that this could occur within the short-term planning period provided that there is strong support on the regional level.

Facility Requirements

A facility for the stockpiling would need to be established. The waste tire facility would be developed and permitted in accordance with the requirements of Assembly Bill 1843, codified in Public Resources Code Section 42800, et seq. This facility would stockpile used tires for future processing, including shredding and transport to a regional facility permitted to accept shredded tires. The purpose of the proposed waste tire facility would be to receive the tires that are currently being disposed of by the City.

Consistency with Local Plans and Policies

Diversion of tires for ultimate end use is consistent with plans and policies and ordinances of the City.

Institutional Barriers

Existing waste hauling and disposal contracts may be affected if used tires are diverted to a waste tire facility for ultimate recycling. There could be resistance from these companies in diverting this waste from the universe of disposed wastes because of the potential for reduced revenues.

Estimated Cost

Not available at this time.

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End Uses

Used tires in good condition can be resold, and casings usable for retreaded tires can be marketed to tire distributors. Used tires can also provide the raw material for tire-derived products such as playground covering, floor mats, dock bumpers, floor tiles, asphalt rubber, and rubber-modified asphalt. Additionally, tires can be shredded at a shredding facility and ultimately used as playground cover material, or as tire-derived fuel.

Tires that are not reused or are used for tire-derived products or fuel can be taken to a Tire-to-Energy Plant. Here whole tires are incinerated to produce steam to generate electricity. Tire-to Energy Plants can recover incineration byproducts that include fly ash and gypsum. The fly ash (which contains zinc) can be shipped to a smelting facility; gypsum can be used for nonagricultural land applications. Slag from the steel and fiberglass belts in the tires can be recovered and used for road base (i.e., under asphalt). There is currently a fairly stable market for used tires in northern California.

Alternative 5 - Prohibit Disposal of Used Tires at Landfills

Used tires could be accepted at a landfill but would be banned from disposal. The landfill would require waste haulers to identify used tires in the incoming loads and to deposit them at a specified stockpile location at the landfill site. Stockpiled tires could then be recovered by a tire recycler, such as Oxford Tire Recycling of Northern California.

Effectiveness

This alternative would be effective in diverting tires from disposal, provided that transport, processing, and ultimate recycling can be arranged.

Hazard

Stockpiled used tires can collect rainwater and serve as breeding grounds for disease vectors, and can also be a fire hazard. These hazards are difficult to control; limiting the storage time and protecting the tires from exposure to the elements by covering with a tarp are recommended control mechanisms.

Ability to Accommodate Change

The ability of this alternative to accommodate change is limited to the quantity of tires that can be stockpiled on site during unfavorable market conditions.

Consequences on the Waste Stream

This alternative would divert tires from the waste stream.

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Implementation Period

A landfill ban on tires could be implemented in the short-term planning period.

Facility Requirements

No facilities are necessary for this alternative. However, space would need to be made available at the landfill.

Consistency with Local Plans and Policies

This alternative is consistent with local conditions for stockpiling of tires.

Institutional Barriers

Waste hauling and landfill operating contracts may provide a barrier to this alternative because of the potential for reduced disposal revenues.

Estimated Cost

There are no significant costs associated with this alternative. Stockpiling of tires can take place with current landfill staffing.

End Uses

There is currently a fairly stable market for used tires in northern California. See the discussion of end uses provided with Alternative 4.

Alternative 6 - Prohibit Disposal of White and Brown Goods at Landfills

White and brown goods could continue to be accepted at the landfill but would be banned from disposal. The landfill would require waste haulers to identify white and brown goods in the incoming loads and to deposit them at a specified stockpile location at the landfill site.

Effectiveness

This alternative would be effective in diverting white and brown goods from disposal.

Hazard

Stockpiled white and brown goods may pose health risks to workers as a result of exposure to PCBs. To reduce the potential for hazard, workers should be properly trained in handling PCBs and provided with appropriate safety gear and equipment.

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Ability to Accommodate Change

The ability of this alternative to accommodate change is limited to the quantity of white and brown goods that can be stockpiled on site during unfavorable market conditions.

Consequences on the Waste Stream

This alternative would divert white and brown goods from the characterized waste stream.

Implementation Period

A landfill ban on white and brown goods could be implemented in the short-term planning period.

Facility Requirements

This alternative requires an area at the landfill for stockpiling white and brown goods but does not require any new facilities. Existing landfill staffing is considered sufficient to implement this alternative.

Consistency with Local Plans and Policies

This alternative is consistent with local plans and policies.

Institutional Barriers

Existing waste hauling and landfill operating contracts may provide a barrier to this alternative unless modifications can be readily implemented.

Estimated Cost

There are no significant costs associated with this alternative. White and brown goods can be stockpiled by existing landfill personnel.

End Uses

White and brown goods can be repaired and reused; they can also be used for scrap metal following the removal of electrical capacitors and cooling units. The metal components of the white and brown goods are processed for reuse in mills and foundaries to produce new steel.

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Alternative 7 - White and Brown Goods Processing Operation

White and brown goods can be diverted from the waste stream at the transfer station and/or the landfill by facility personnel. As incoming loads are discharged, the spotter and the equipment operator could separate identified white and brown goods from the discharged load. The white and brown goods could then be moved to an area clear of operations in the transfer station or to an area removed from the active face at the landfill. At the end of each day, the collected white and brown goods could be moved to a designated white and brown goods stockpile area. At the stockpiled area, electrical capacitors, cooling units, insulation, and wiring could be removed. The electrical capacitors and cooling units could be recycled and the insulation and wiring landfilled. The scrap metal could be sold to a scrap metal dealer.

Effectiveness

This alternative would be effective in diverting white and brown goods from disposal. To reduce the potential for hazard, workers should be properly trained in handling PCBs.

Hazard

Potential hazards include risk of injury to landfill personnel from removing the white and brown goods, working around heavy equipment, and exposure to PCBs.

Ability to Accommodate Change

This alternative is limited by the quantity of white and brown goods that can be stockpiled on site during unfavorable market conditions.

Consequences to the Waste Stream. This alternative would divert white and brown goods from the waste stream.

Implementation Period

Immediate implementation appears feasible using equipment and personnel that are currently available at the landfill.

Facility Requirements

This alternative requires an area at the landfill for stockpiling white and brown goods but does not require any new facilities.

Consistency with Local Plans and Policies

This alternative is consistent with local plans and policies.

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Institutional Barriers

Changes to the union contract and landfill personnel job descriptions may be necessary. Some unions (and personnel) may be reluctant to handle the hazardous components of white and brown goods (capacitors and cooling units).

Estimated Cost

There are no significant costs associated with this alternative; however, additional labor would be required to dismantle the white and brown goods. An additional staff person on a part-time basis is expected to be sufficient. Costs are not expected to exceed $15,000 per year.

End Uses

The electrical capacitors and cooling units that have been removed from the white and brown goods can be recycled.

6.5 SELECTION OF A SPECIAL WASTE PROGRAM

In the previous section, seven alternatives were presented for consideration; each was evaluated according to a range of criteria mandated by the regulations governing AB 939. Each alternative has inherent qualities that makes it either more or less attractive to the City. In addition, each alternative has aspects that may be more or less appropriate to the City's goals, objectives, policy environment, waste stream, and solid waste management system. The alternatives selected to meet the goals and objectives of this component in the short-term and medium-term planning periods are presented below.

Short-Term Planning Period

In order to meet the goals and objectives outlined in this component, the City has selected the following alternatives:

- Continue review of disposal of special wastes. This program will not result in any diversion of the total generated waste stream.
- Develop a program to divert tires from landfilling for ultimate end use. This selection is based on impact and effectiveness, as well as ease of implementation in the short-term.
- Develop incentives to support one or more white and brown goods processing operations at the landfill. This selection is based on impact and effectiveness, as well as ease of implementation in the short-term.

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Medium-Term Planning Periods

If the goals and objectives of the short-term planning period have not been met, the City will prohibit white and brown goods and tires from landfills.

6.6 PROGRAM IMPLEMENTATION

Organization Responsible

The City of San Jose Office of Environmental Management will be responsible for coordinating the Special Waste Program.

Multi-jurisdictional special waste efforts may be needed to implement some of the programs. For example, dead animals are currently handled at the County level. Other potential efforts include (1) multi-jurisdictional waste tire facilities, (2) establishment of a county landfill permitted to accept only shredded tires, and (3) alternative uses for sludge.

6.7 MONITORING AND EVALUATION

Methods to Quantify and Monitor Achievement of Objectives

To ensure that the selected special waste alternatives and programs are meeting the goals and objectives of this component, the City will implement a monitoring and evaluation program. Because the objectives of this component extend throughout both the short-term and medium-term planning periods, the City's monitoring and evaluation program will continue, as needed, during both planning periods.

Periodic inspections of handling methods for special waste will be conducted at the landfill. These will focus on (1) determining whether waste handling methods required by the regulatory agencies are being implemented, (2) checking to ensure that facility staff is properly outfitted and equipped to handle specific "problem" wastes, and (3) verifying that staff is properly trained in safety and hazardous waste handling methods. In addition, further waste characterization studies will be conducted at the end of the short-term planning period to measure changes in both waste types and waste quantities. These studies will be combined with more informal "spot check" assessments of waste composition to monitor reductions in non-recyclable and disposable materials. Specific emphasis will be given to quantifying the reduction in landfilling of special waste that poses health and safety hazards.

Written Criteria

The City will prepare annual reports describing the findings of the monitoring activities described above. The report will provide written criteria evaluating the effectiveness of the special waste alternatives by reporting on whether (1) the special waste objectives are being

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achieved; (2) the selected programs and activities were implemented on schedule; and (3) waste handling practices have changed.

Responsible Agency for Monitoring, Evaluation, and Reporting

The monitoring and evaluation activities described in this section will be implemented by San Jose Office of Environmental Management.

Monitoring and Evaluation Funding Requirements

Funding for the monitoring and evaluation program described in this section will be provided by the City through AB 939 fees as described in the Funding Component. Funding for this program includes the costs of (1) administrative activities, (2) recordkeeping, (3) program monitoring and surveying, (4) tracking of survey results, and (5) annual report writing.

Measures to be Implemented if Special Waste Objectives are Not Met

If the programs described above fail to meet the goals and objectives of this component, the following tasks can be implemented:

- Introduce additional waste acceptance procedures at the landfill in order to divert special wastes from disposal.
- Increase staffing at the landfill for salvaging materials at the active dumping area of the landfill.
- Locate new/additional markets for recovered recyclable special wastes.
- Amend special waste disposal practices.
- Analyze existing programs and alternatives for obstacles to successful implementation.
- Modify selected alternatives, including degree, scope, or extent of source reduction activity and implementation schedule.
- Seek additional funding.
- Select additional alternatives.
- Consider regulatory programs or mandatory programs.

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FIGURE 6-1

DISPOSAL OF ASBESTOS WASTES GENERATED IN SANTA CLARA COUNTY DURING 1987*

County Receiving Asbestos Waste	Amount Shipped
Alameda County	1.68 tons
Contra Costa County	416.01 tons
El Dorado County	.45 tons
Kings County	127.28 tons
San Joaquin County	58.98 tons
Santa Barbara County	109.51 tons
Shasta County	1934.13 tons
Unknown	218.80 tons
TOTAL	2866.84 tons

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Section Seven

7. EDUCATION AND PUBLIC INFORMATION COMPONENT

7.1 INTRODUCTION

Education and public information is one of the most important components of AB 939. All sectors of the public--residential, commercial, and industrial--must be informed of the need to manage solid waste, and must be involved in developing and implementing the programs that will lead to source reduction, recycling, and composting.

This component documents current education and public information activities carried out by the City of San Jose and describes how the needs of the jurisdiction and the requirements of the State will be met through a combination of approaches in the future. Examples of education and public information materials used by the City are presented at the end of this section.

7.2 GOALS AND OBJECTIVES

Goals and objectives must relate to and assist in the attainment of overall program goals. Specifying clear goals at the outset of any activity enhances public and agency understanding of its role, and leads over the long-term to more effective monitoring, evaluation, and improvement.

Goals identified by the City include:

- Increase public awareness of the need for source reduction, recycling, and composting programs.
- Increase public participation in current programs.
- Secure public participation in the development and implementation of new programs.
- Increase public awareness of the relationship between solid waste issues and other environmental protection programs.

The following sections describe short- and medium-term objectives for the City's education and public information component.

<u>Short-Term Objectives</u>

- Develop periodic surveys that measure changes in attitudes and behaviors among targeted sectors, and use this information in devising educational materials.

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- Participate in countywide and regional environmental education programs, as appropriate.
- Expand outreach activities among racial and ethnic minority communities, using bilingual news media and materials.
- Develop messages and materials tailored to the residential, commercial, and industrial sectors that stress "closing the loop" through "buy recycled" campaigns.
- Determine the impact of speakers bureaus and volunteers on participation rates of targeted sectors, and expand or eliminate these efforts as indicated.
- Develop an appropriate balance among educational efforts aimed at the residential, commercial, and industrial sectors based on their relative impacts on the waste stream.

Medium-Term Objectives

- Evaluate results of short-term objectives in terms of impact on the waste stream.
- Revise medium-term environmental education objectives as indicated.
- Maintain, expand, or modify educational activities as indicated.

7.3 EXISTING CONDITIONS

The City has established a Community Relations program within its Office of Environmental Management, and one of its primary roles is to support the Integrated Waste Management Program through outreach activities aimed at key public sectors.

To heighten the effectiveness of the various programs, and ensure an efficient use of resources whenever possible, public education and information resources should be targeted to specific audiences. Segmenting the community into various categories of waste generators provides a simple and useful means of directing specific messages.

The Solid Waste Generation Study for the City of San Jose indicated that the following are major categories of waste generation in the City: residential, commercial, industrial, and institutional.

Residential

In residential areas, door hangers and brochures are distributed to all households. This activity is coordinated between the City of San Jose's Office of Environmental Management (OEM) and Waste Management, Inc. (WMI). Educational materials used include:

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- "San Jose Recycles!" discusses the curbside recycling program, distributed to residents as a bill insert and can also be obtained by calling OEM or WMI. This insert explains what can be put in curbside bins and explains the Recycle Grove or tree plantings for every ton recycled from the curbside program.

- "At Your Service" is a quarterly newsletter distributed as a bill insert. The newsletter contains helpful information to residents about curbside recycling, garbage pickup, and has a kids' page used to educate children about recycling.

- "Santa Clara County Recyclers" is a brochure distributed to residents who call in and is handed out at community events. This brochure contains a listing of drop-off and buyback recycling locations.

- "We're Number One!" is a doorhanger reminding residents to continue their efforts by sorting their recyclables. It also informs residents that San Jose has the largest voluntary recycling program in the nation.

- "It's 6 a.m., do you know where your recyclables are?" is a doorhanger shaped like the three stacking recycling bins informing residents that recyclables pick-up begins at 6 a.m.

- "Recycling is the Way for San Jose" is a doorhanger shaped like a PET soda bottle container. It informs residents that the curbside program has been a City success and tells residents who to call if they have questions.

- "San Jose Yard Waste Recycling Comes to You!" is a booklet in English, Spanish, and Vietnamese describing the Yard Waste Recycling Pilot Program. It describes pick-up schedules, what can be recycled, and how to do set-outs. This booklet was distributed door-to-door within the pilot area.

- "Your Yard Waste is Too Close to the Curb" is a doorhanger explaining through diagrams proper distances from the curb for yard waste pickup.

- "If you Rake Them We'll Take Them" is a doorhanger briefly reminding residents how to set out their recyclables.

- "Recycling is the Way for San Jose" is an activity book for elementary school children. The activity book explains the curbside program and how kids can help, what happens to recyclables after pickup and why recycling is important.

- "Your Home and Hazardous Materials" is a booklet in English, Spanish, and Vietnamese that provides information on safe use, storage, and disposal of household hazardous wastes.

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The City of San Jose participates in special events such as Earth Day (especially if follow-up activities are planned), Recycling Week, County Fair, Garlic Festival, Mushroom Festival, Art and Wine Festivals, and local events including employees picnics, holiday parades and celebrations. In addition, the City has held meetings with various community groups to discuss current programs. Community groups that have met with the City include:

- Environmental organizations
- Homeowners' and neighborhood associations
- Business associations and chambers of commerce
- Ethnic organizations
- Mobilehome residents and owners
- Senior citizens organizations
- Apartment owners
- Renters
- Civic groups (e.g.; League of Women Voters)
- Service clubs
- Labor organizations

Multi-family

The City initiated a multi-family recycling program in July 1990. As part of that program, information was developed and sent to all multi-family customers to outline the program. The information included door hangers and recycling fact sheets.

For multifamily units, the educational approach has focused on encouraging recycling of mixed glass, aluminum cans, plastic bottles (HDPE and PET), and newspaper.

Commercial and Industrial

The City initiated a commercial recycling program in June 1987. As part of that program, information was developed and sent to all commercial customers to outline the program. For

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businesses, the educational approach has centered on office paper, cardboard, and mixed glass recycling.

The City established a committee made up of industrial generators to develop educational materials specifically for industrial users. The purpose is to educate and inform the individual companies and workers about solid waste management and the various community programs available to them.

A number of businesses and industries have participated in the Santa Clara County Manufacturing Group, which recently published the "Guide to Commercial Recycling."

The City was one of several communities to cosponsor the "Business Environmental Networks Conference," held April 22, 1991 (Earth Day). This one-day conference for the business community addressed a number of issues pertaining to solid waste management.

Institutional and Municipal

The City, in cooperation with the San Jose Unified School District, has developed educational materials for school age children. These materials have been made available to private schools upon request. Volunteers are used to distribute the materials to the schools. A curriculum is also available to San Jose elementary school teachers. The curriculum contains guides for classroom activities.

An educational program for City employees was begun to educate the employees about the importance of recycling and to respond to questions from residents.

7.4 PROGRAM ALTERNATIVES

Public information decisions are continually being evaluated to maintain and increase awareness and participation rates to support existing and new City programs.

General approaches to education and public information include the following:

- Create a small community advisory committee to assist in developing and implementing educational programs.
- Develop a comprehensive program that addresses solid waste management in general and AB 939 specifically. The program would be geared to all waste generators.
- Assess the size of the community's non-English speaking or reading populations, in order to tailor education and publicity materials accordingly.

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Numerous avenues of communication are available that would allow the transmission of education and public information to the targeted waste generators. Examples are:

- Mass mailings (community newsletters), either alone or with utility bills.
- Placement of door-knob hangers.
- Recognizable theme, logo and message. The logo should appear on all printed and outdoor advertisements as well as waste collection vehicles and equipment. Outdoor advertising can be placed on billboards, buses, bus shelters, benches, banners, posters, and litter receptacles.
- Use of a celebrity spokesperson or mascot as part of these efforts.
- Press coverage of as many promotions, program introductions and effectiveness updates and other notable events as possible.
- Press coverage through news conferences, feature stories, press kits and press releases.
- Newspaper articles and inserts.
- Awareness shows or public service messages and outdoor advertising produced by local radio and TV stations.
- Seminars, workshops, and related programs.
- Slide shows, videos, and speakers bureaus made available to community groups.
- Recycling curriculum and other information distributed to public and private schools.
- Participation in community events.
- Cooperation with community service organizations.
- Education and public information approaches organized by waste sector.

<u>Residential Sector</u>

Approaches to consider when developing public education programs for the residential sector are:

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Meetings and Forums

- Sponsor town meetings, community forums, and public hearings to present and discuss reduction, reuse, recycling and composting ideas.

- Appoint citizen advisory boards or task forces to monitor events and report to the public.

Volunteer Networks

- Expand a network of motivated and committed volunteers to help "spread the word." This method has been proven particularly successful in disseminating composting information through gardening clubs and community gardens in what are often called "Master Composter" programs.

Exhibitions

- Exhibit source reduction, recycling, and composting programs at county fairs, shopping centers, parks, community gardens, and other public sites.

- Conduct tours, open houses, and publicity events at recycling centers and waste processing facilities to give the public a better understanding of the issues.

Commercial and Industrial Sector

The tactics available for reaching the commercial and industrial sectors are generally simpler and more direct. The City can develop materials specific to individual industries or businesses and disseminate these to the businesses in question via a number of approaches.

- Mailings to businesses.

- Work with Chamber of Commerce and other business and professional associations.

- Expand a speakers bureau of educators, industry and technical representatives, and governmental officials to talk to professional organizations, the Chamber of Commerce, major employers, conservation groups, social clubs, and other groups.

- Develop a commercial waste audit kit. Once the audit has been conducted, the City can work with businesses to improve their disposal activities and, in doing so, will provide direct education and information to these waste generator.

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- Work with various unions to encourage members to get involved through union sanctioned functions or workshops.
- Develop specific programs tailored for the need of individual businesses.
- Establish programs for specific business parks and centers.
- Prepare employee kits that explain the various programs. These can be passed out by employers.
- Require refuse hauler(s) to do waste audits and contact customers periodically offering recycling services.

Institutional Sector

The City will need to work in cooperation with the San Jose Unified School District to develop innovative approaches to educating the youth of the community.

The following approaches can be utilized specifically for schools:

- Sponsor special events in school.
- Initiate student-run recycling programs at each school.
- Where feasible, establish student-run pilot composting program.
- Expand environmental and waste management awareness in schools by integrating relevant topics into school curricula.
- Target non-English speaking youth through bilingual education programs.

The City will need to work in cooperation with the local hospitals, colleges, jails, municipal, county, and state agencies, to develop appropriate programs, such as:

- Conducting waste audits and upon completion, assist in developing recycling, source reduction, and composting programs.
- Initiating training programs for municipal and county employees to assist in answering questions from residents about existing and anticipated programs as outlined in the SRRE.
- Cooperating with county and state to develop programs to manage solid waste for agencies located within the community.

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Specific approaches based on programs

A well-integrated education and public information program is necessary. The initial educational campaign must be followed up by additional information about specific components. The following areas have been identified as needing specific information and educational programs: source reduction, recycling, composting, household hazardous waste, and special waste.

Source Reduction

The emphasis will be to inform the public that alternatives to many products and uses are available and that these alternatives will reduce the amount of material requiring disposal at the landfill.

To a great extent, source reduction can be accomplished only through legislative means. Requiring manufacturers to reduce the amount of packaging or change the type of packaging must be left up to state and federal governments. One problem that will be difficult to overcome is concern about product safety and integrity. Over the years, there has been product tampering, most noteworthy in the pharmaceutical industry. This has caused manufacturers to adopt tamper-proof packaging which, in some cases, has actually increased the amount of packaging. A number of educational alternatives are available that will address residential and commercial source reduction. The use of brochures, the media, and public meetings are several avenues that can be used to inform the public. Program possibilities are:

Residential

- Educate residents about the benefits of buying and using cloth shopping bags instead of plastic and paper.

- Explain to residents about how they can launch a letter-writing campaign requesting manufacturers and businesses, such as fast food outlets, to reduce the amount of packaging materials and/or switch to materials that are more sensitive to the environment.

- Distribute to residents the necessary information so they can write to their elected representatives at both the state and federal levels, requesting that action be taken to reduce the amount and type of packaging materials being used.

- Encourage the use of onsite composting and grass clipping programs through demonstration programs at neighborhood parks, use of Master Gardeners, and/or initiating a Master Composter program and develop accompanying information to explain the benefits of programs.

- Encourage the use of cloth diapers, in cooperation with a local medical association and diaper services.

Recycled Paper

- Provide a directory of reuse and repair businesses.
- Provide information on how to get off junk mail lists.

Commercial, Institutional & Industrial

- Promote source reduction, for example, through trade unions, business and industrial organizations, PTA meetings, and onsite presentations.
- Encourage supermarkets and other large retailers to reduce the use of plastic shopping bags (and other plastic bags) by switching to paper bags and encouraging the use of cloth bags.
- Publicize businesses, such as thrift stores that reuse and repair materials
- Develop materials and provide technical assistance to allow "do-it-yourself" waste audits.
- Develop materials and provide technical assistance to encourage the use of onsite composting and grass clipping programs.

Recycling

The emphasis will be to enhance the planned and current recycling education and information programs. The following are recommended approaches:

Commercial, Institutional & Industrial

- In cooperation with the San Jose Unified School District, expand educational programs for grades K-12. Specific programs for the different age groups and/or grade levels would be appropriate. Part of the program would be an actual onsite recycling program. These programs will also be available for use at private schools.
- Expand the commercial and industrial recycling education programs.
- Expand pre-planned educational programs for specific businesses including dry cleaners, bakeries, and service stations.
- Use mailings to businesses giving information about the commercial recycling program.
- Work with the Chamber of Commerce, unions, and other business groups to inform the business community.

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- Develop a list of brokers who deal with recyclables and mail to businesses and industries.

Residential

- Enhance the residential curbside education program. Part of this would include a study to determine whether bilingual materials will be needed.

- Expand information that explains the various enforcement procedures that the City has initiated. Examples include ordinances that prohibit the removal of recyclable materials from curbside by other than a licensed haulers and discourage the destruction of recycling equipment.

- Work with recycling service providers and community groups to publicize the locations and promote the use of buyback/drop-off collection centers.

- Provide feedback to the public on the success of the recycling programs by reporting the amount of materials recycled/resources saved, and the economics of the programs. Provide feedback by placing ads in local newspapers and publishing annual reports.

Composting

A limited portion of the population understands what compost is or the benefits of using it. The information and education program will consider these approaches:

Residential

- Expand educational materials that address the residential yard waste collection program for leaves, grass clippings, and other vegetative material with corresponding information on handling.

- Inform the public about obtaining compost and mulch from the program.

- Work with local garden clubs and Master Gardeners to help promote and educate the public.

- Work with the University of California cooperative extension to develop educational materials.

- Provide feedback to the public on the amount of yard waste collected and composted and how this material is used information vehicles include publishing of annual reports and placing reports in local newspapers.

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- Educate the public on the benefits of using compost and mulch for home purposes.

Commercial, Institutional, and Industrial

- Expand information and educational materials to support commercial, institutional, and industrial yard waste collection programs.

Special Wastes

Special wastes, like infectious wastes, sludge, and ash, are quite specific and would not necessarily be impacted by an educational program. Other special wastes may require that educational materials be developed. Examples of programs to consider are:

Residential

- Expand materials that inform the public how to properly dispose of such things as tires, white goods, auto bodies, and certain wood wastes. One approach is to publish a brochure on special wastes and mail it to all residents;

Commercial, Institutional, and Industrial

- Expand materials that provide information on how to properly dispose of such things as tires, white goods, auto bodies, and certain wood wastes. One approach is to publish a brochure on special wastes and mail it to all industries, institutions, and businesses.

- Expand information for commercial and self-haul generators that will explain about disposing of construction and demolition debris.

Household Hazardous Waste

The Household Hazardous Waste Element addresses education and information. Most of the same avenues available for disseminating information in the other components can be utilized to educate the public about the handling and disposal of household hazardous waste. Refer to the Element for detailed discussion on education and information.

7.5 SELECTION OF AN EDUCATION AND PUBLIC INFORMATION PROGRAM

Short-Term

General Approaches

- Expand the office of education and public information;

Recycled Paper

- Expand the program that addresses solid waste management in general. The program should be directed to residential, commercial, and industrial generators.

- Provide feedback to the public on the success of all implemented programs. Methods include publishing an annual report and placing newspaper articles.

- Assess the need to develop educational materials for the non-English speaking or reading population.

- In cooperation with local schools, develop educational materials for school age children and make the materials available to private schools as well. Topics to be covered are recycling, composting, source reduction, and household hazardous waste.

- Expand information for commercial and self-haul generators to explain various options for the disposal of construction and demolition debris.

Source Reduction

- Expand the backyard composting program by establishing demonstration plots, making composting kits available, "How-to" literature and materials describing the uses for compost, and establishing of a Master Composter program.

- Expand materials that explain the grass clipping program;

- Publish a directory of all reuse and repair businesses.

Recycling

- Enhance educational materials for the residential curbside recycling program.

- Enhance materials for commercial and industrial recycling programs. Include a "Recycling Kit," cooperative efforts with Chamber of Commerce, and establishment of a recycling committee made up of businesses leaders.

- Publish a directory that lists brokers and end users of recyclable materials.

- Expand information that explains various enforcement measures that have been taken to protect recycling equipment and the illegal removal of recyclable materials from curbside collection programs.

- Enhance educational materials for residential curbside collection of yard waste. Include information about how residents can obtain compost from the program.

Recycled Paper

- Expand materials to support a commercial yard waste collection program.

Special Waste

- Enhance educational materials that describe how to properly dispose of special wastes.

Household Hazardous Waste

- Expand materials to support the Household Hazardous Waste program.

Medium-Term

To a great extent, the various programs outlined under short-term are ongoing in nature. Once developed and initiated, they will need to be updated on an annual basis. Specific programs for the medium-term are:

General Approaches

- Develop information about the material recovery facility, its functions, and services provided;

- Develop materials to support the various self-haul programs.

Household Hazardous Waste

- Develop educational materials to describe the permanent household hazardous waste facility, its functions, and how to use the various services.

- Develop a program for small quantity generators of household hazardous waste.

Cost

Whenever possible, volunteers will be encouraged to assist in the education and public information outreach programs. The City will provide guidance for the staff of volunteers.

7.6 PROGRAM IMPLEMENTATION

Each component requires the implementation of certain educational tasks to support the objectives of the component. While these stand-alone programs need to be developed, an integrated approach is also needed. It will be necessary to make sure that the public receives proper information in a phased approach. In some instances, the information and education provided will be appropriate for more than one issue. The way information is disseminated might be similar for several components (brochures, newspaper), but what is actually said, and

Recycled Paper

how, is important. Due to the nature and flexibility of the selected education and information alternatives, it will be relatively easy to modify or refocus attention to a specific area of diversion short-fall.

7.7 MONITORING AND EVALUATION

The San Jose Office of Environmental Management will be responsible for monitoring the success of the programs.

Qualifying the results of the various programs can be accomplished through more of the following approaches:

- Record number of schools and students exposed to various programs.
- Record number of businesses taking part in programs.
- Record number and size of community events and activities.
- Record number and frequency of media advertising purchased.
- Conduct surveys to determine awareness and participation levels for the various components.
- Record complaints and requests for information received by OEM and/or the contractors providing the various services.
- Gather qualitative feedback from waste generators about the information program.
- Monitor the quantity of waste diverted by programs publicized through education and public information activities.
- Determine the costs per generator, per ton, or per "impression" for education and public information programs.
- Compare the progress of the overall program toward diversion goals.

Evaluation of Program Effectiveness

The Office of Environmental Management will be responsible for evaluating the success of the programs. An annual report, outlining the successes of individual tasks, comparisons with neighboring communities, and plans for next year, will be the responsibility of this office.

Evaluation can occur at various stages of the public education and public information process depending on the objective to be measured. The criteria used to evaluate the effectiveness of

Recycled Paper

the education and public information efforts will be determined in advance and will be appropriate to the monitoring methods that have been chosen.

An effort should be made to identify the strengths and weaknesses of the messages, materials, and educational or informational strategies before proceeding to full production, distribution or implementation. This is particularly important in the parts of a program that will require significant resources. Paid advertising, for example, can use up a great deal of a budget, and will be evaluated carefully before funds are committed. .

A process evaluation assesses the organizational and administrative aspects of a program. Outcome and impact evaluations identify the immediate and longer term effects of efforts on the intended audience.

Monitoring Shortfalls

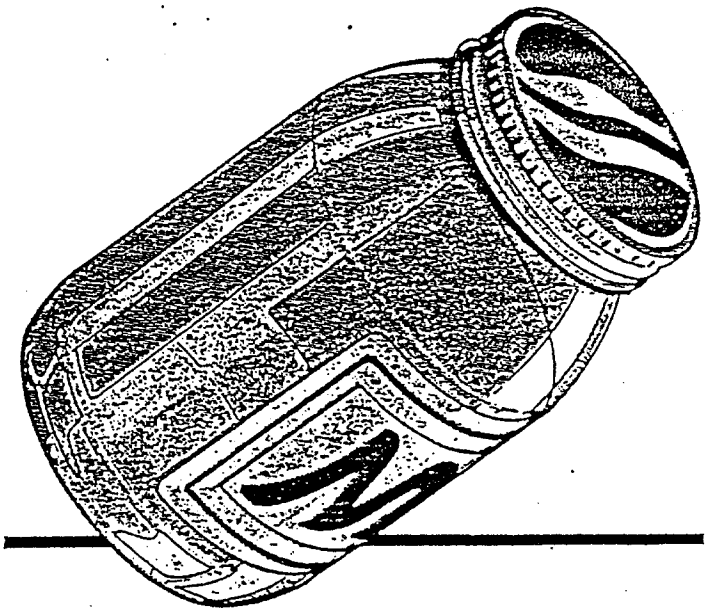
If the evaluation shows that specific diversion rates are not being achieved for certain programs and/or components, then expanding the education and information programs might be necessary. Methods that will be used include:

- Increase the frequency, type or extent of program monitoring and review to discover the reasons why diversion rates are not achieved;
- Revise education and public information efforts to make them more effective based on results of evaluation;
- Expand the education and public information programs by adding new components or increasing frequency; or
- Publicize new or additional incentives for participation in reduction, recycling or composting programs.

It might be determined that the education and information aspects of the program are not what is preventing the individual programs from reaching their goals. If that is the case, the other programs will be modified accordingly to increase diversion.

Recycled Paper

GLASS JARS SAVE COUPLE'S MARRIAGE



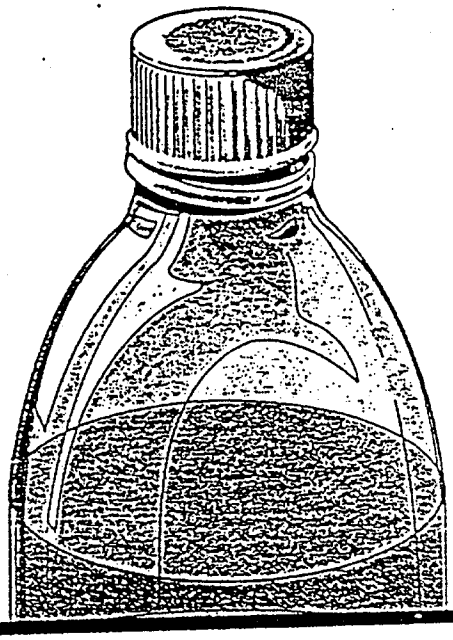
Family time is up and recycling time is down in San Jose. There's no need to argue over whose job it is to remove the lids or scrape the labels off. Because in San Jose, all it takes to recycle glass jars and bottles is to put them in your recycling bin—lids, caps, neckbands, labels and all. You don't even have to rinse unless you want to. Just scrape food out with a spoon. Start recycling your glass jars and bottles today and you'll be happy too.

Please no ceramics, windows, or mirrors. Call Waste Management if you need a recycling bin.

(408) 748-1616

SAN JOSE RECYCLES

AMAZING BOTTLE RUNS T.V. FOR 3 HRS.



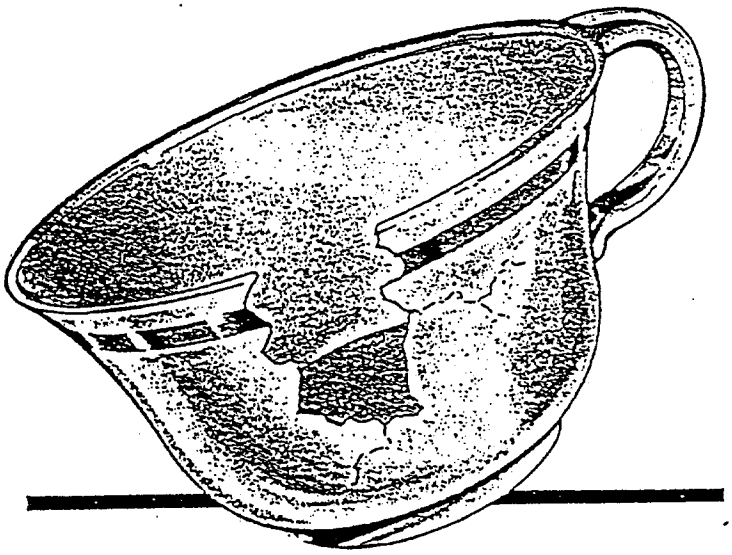
Some people think they don't have enough bottles to make a difference by recycling. But the fact is, even one ordinary glass bottle turns into an amazing energy saver when recycled. One bottle put in your recycling bin will save enough energy to run a television set for three hours. And it's easy to do. Just put them in your bin with caps, neckrings, labels and all.

Glass recycling in San Jose. Do it for the big picture.

Please no ceramics, windows or mirrors. Call Waste Management if you need a recycling bin.
(408) 748-1616

SAN JOSE RECYCLES

SAN JOSE FAMILY NOT GUILTY IN TEACUP INCIDENT



We know they didn't mean to do it. But the family didn't realize that even a chip of the teacup, if missed by our recycling sorters, could ruin a batch of recyclable glass. Ceramics, window glass, and mirrors cannot be recycled because they don't melt like the glass used in bottles and jars.

So, please, don't put any cups in your recycling bin. Discard dishes, Pyrex and other ceramics, drinking glasses, windows and mirrors in your garbage can.

And thanks for continuing to recycle glass bottles and jars in our curbside recycling program. Call Waste Management if you need a recycling bin. (408) 748-1616

SAN JOSE RECYCLES

as narices. De esta
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a droga más adicta.
que la droga es un
y seriamente adicta
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padre debe notar
en sus hijos para
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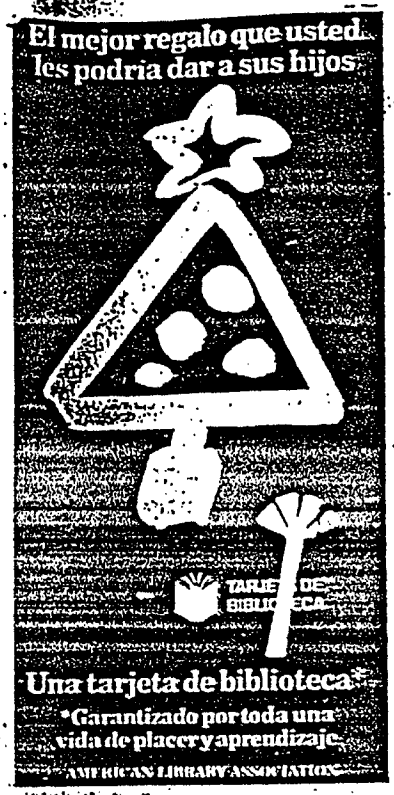

GRA AIRADA
N CUBANO

Miami

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con los vidrios rotos
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visita del líder
elson Mandela
ar ometió la im-
bar a Fidel Castro.
negra haitiana, aún
lida de Mandela, tuvo
con los cubanos.

un policía de

sangrantes.

Los haitianos se quejan de que ellos son deportados, rechazados por la Inmigración, capturados en el mar y devueltos a Haití, en cambio los cubanos son bien recibidos, se les facilita el ingreso a USA, se alienta la unificación familiar y los cubanos recogidos en el mar son traidos por la Guardia Costera de USA a Miami, donde reciben trato de asilados políticos de inmediato. Inmigración alega que los cubanos huyen del comunismo y que los haitianos huyen del hambre y la pobreza.

Lo cierto es que se vive un estado de angustia, miedo y temor por

BOTELLA ASOMBROSA HACE FUNCIONAR T.V. POR 3 HORAS

Algunas personas piensan que no tienen suficientes botellas para hacer alguna diferencia en el reciclamiento. La verdad es que el reciclar una simple botella puede resultar en una asombrosa fuente de economia de energia. Una sola botella que usted recicle, economizára suficiente energia para hacer funcionar su televisor por tres horas. Y es tan fácil reciclarlas. Todo lo que tiene que hacer es poner las botellas en su cajón de reciclaje con los tapones, collarives, etiquetas y todo.

Reciclaje de vidrio en San Jose. Una visión completa.

Por favor, no recicle articulos de cerámica, ventanas de vidrio ó espejos. Llame la oficina de Waste Management si necesita un cajón para reciclar.

(408) 748-1616

SAN JOSE RECYCLES

Council on any and all matters affecting San Jose disabled citizens.

Fine Arts Commission (11 members/4-year Terms). The Commission advises the Council on matters relating to the arts and cultural life of the City.

Historic Landmarks Commission (9 members/3-year terms). The Commission advises and makes recommendations to the City Council and the City Administration on issues relating to historic preservation, designates City landmarks... and advises on matters relating to the acquisition, disposal, preservation, and exhibition of artifacts and other property of historical significance and value located at the San Jose Historical Museum.

Housing Commission (7 members/3-year Terms). The Commission hears appeals relating to the enforcement of the City's Housing Code and the State Health and Safety Code.

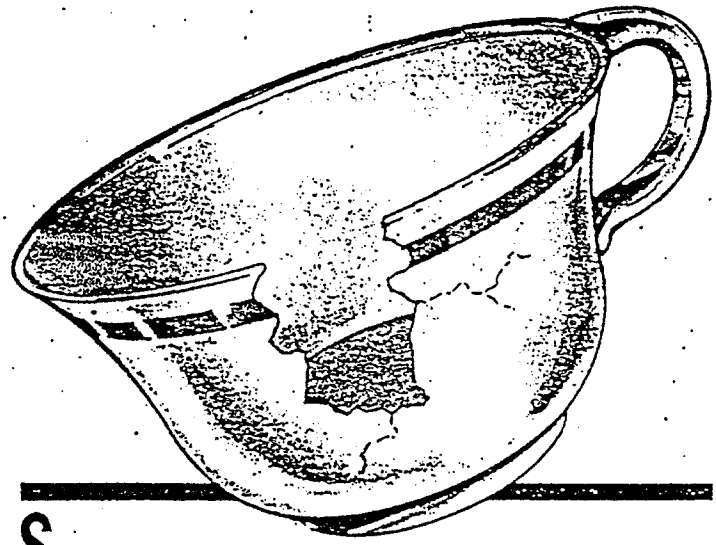
Human Rights Committee (13 members/3-year Terms). The Committee implements the San Jose Human Rights Policy and assists in developing programs that promote the fulfillment of human rights in the City.

Library Commission (9 members/4-year Terms). The Commission makes recommendations to the City Council regarding existing or proposed library facilities, programs, operations, services and financing.

Mobile Home Advisory Commission (7 members/2-year Terms). The Commission makes recommendations to the City Council regarding the successful operation and administration of the City's Mobile Home Rent Ordinance.

Parking Advisory Commission (7 members/3-Year Terms). The Commission makes recommendations regarding the City's off street parking programs.

FAMILIA EN SAN JOSE NO ES CULPABLE EN EL INCIDENTE DE LA TAZA



Sabemos que ellos no tenian la intención de hacerlo, pero si los que separan el vidrio dejan pasar tan siquiera el aza de una taza rota en una tonelada de vidrio reciclable, todo el cargamento se echa a perder y no se puede convertir en material nuevo. La cerámica, el vidrio de ventanas y los espejos no se pueden reciclar porque estos materiales no se derriten de la misma forma que el vidrio utilizado en las botellas y otros jarros de vidrio.

Por lo tanto, por favor, no deposite ninguna taza cerámica rota en su cajón de reciclaje. Ponga en el bote de la basura platos, vasos y ventanas de vidrio, Pyrex y otros objetos de cerámica y espejos que desee descartar.

Gracias por continuar reciclando sus botellas y jarros de vidrio en el programa de reciclaje a la orilla de la acera. Llame la oficina de Waste Management si necesita un cajón para reciclar.
(408) 748-1616

San Jose, CA
(Santa Clara Co.)
Mercury News
(AM Edition)
(Cir. D: 271,787)

JAN 22 1991

Allen's P C B 1888

S.J. starts program to recycle used motor oil

F-68

By Francisco Garcia
Mercury News Staff Writer

San Jose has made it easier for residents to dispose of used motor oil in an attempt to keep it from flowing into the bay.

Through March, up to five quarts can be sealed in any plastic container with a screw-top lid tight enough so that it won't spill during the trip to the recycling tanks. The container should be placed next to recycling bins for collection along with paper, cans and bottles. After then, residents must use free recycling containers available from Waste Management Inc.

By recycling motor oil, San Jose residents could help reduce the 500,000 gallons a year of used motor oil that flows into San Francisco Bay via the sewer system, said Gary Liss, manager of the city's solid waste program. Every year, about 3 million gallons pour into the bay, killing wildlife.

When people dump used motor oil down a sink, it goes into sewage treatment plants and kills the bugs that consume raw sewage, ruining the water-treatment process, Liss said.

Used motor oil can easily be recycled through a simple refining method, and it gets better every time it's recycled, Liss said.

"It can be recycled indefinitely," Liss said. "It literally improves with age."

'It can be recycled indefinitely. It literally improves with age.'

— Gary Liss, San Jose solid waste program

The city started recycling used motor oil because it was getting more difficult for people to dispose of it. Businesses such as gas stations were getting out of recycling because they didn't find it profitable, Liss said.

IF YOU'RE INTERESTED

Containers for used motor oil can be obtained by calling Waste Management Inc. at (408) 748-1616.

San Jose, CA
(Santa Clara Co.)
Mercury News
(PM Edition)
(Cir. D. 268,700)

JAN 22 1991

Allen's P.C.B. Est. 1888

Motor oil recycling aimed at stanching flow into bay

By Francisco Garcia
Mercury News Staff Writer

San Jose has made it easier for residents to dispose of used motor oil in an attempt to keep it from flowing into the bay.

Through March, up to five quarts can be sealed in any plastic container with a screw-top lid tight enough so that it won't spill during the trip to the recycling tanks. The container should be placed next to recycling bins for collection along with paper, cans and bottles. After then, residents must use free recycling containers available from Waste Management Inc.

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The city started recycling used motor oil because it was getting more difficult for people to dispose of it. Businesses such as gas stations were getting out of recycling because they didn't find it profitable, Liss said.

No other substances such as gasoline, anti-freeze or automatic transmission oil should be mixed with the motor oil. Contaminated motor oil cannot be refined.

IF YOU'RE INTERESTED

Containers for used motor oil can be obtained by calling Waste Management Inc. at (408) 748-1616.

Environmentally Responsible... Printed With Non-poisonous Soy Inks

The Willow Glen Times

NOTICE

OIL RECYCLING ADDED TO SAN JOSE'S CURBSIDE RECYCLING PROGRAM

Free curbside collection of used motor oil is now being provided by the City of San Jose. This new service will initially be available to all residents served by the Curbside Recycling Program. San Jose's Curbside Recycling Program contractor, Waste Management, will collect waste oil on your regular collection day for recyclables. Call Waste Management at 748-1616 to get your free plastic oil recycling jug before you do your next oil change. Please follow these simple steps when recycling your used motor oil.

- Place motor oil in the container provided by Waste Management and seal tightly. From January through March 1991, you may use your own containers, but they will not be returned. They must be plastic, have no leaks, have a screw-top lid, and hold no more than five quarts. Your bottles will be replaced with a free container. During this period you may set out no more than <u>two</u> containers per week. <u>Oil in improper containers cannot be collected.</u>

- **Put only used motor oil in the container.** No other substances are permitted: no gasoline, anti-freeze, or automatic transmission fluid.

- **Set at curbside on your regular collection day.** Set alongside your recycling bins so the driver can see your container. Please save your oil until you have other recyclables to set out.

To clean up a spill, absorbent material such as cat litter can be used and then disposed of in the garbage along with the well-drained oil filters.

For container delivery and further information, or for recycling bins, please call Waste Management's customer service office at 748-1616.

SAN JOSE RECYCLES

NO POSTAGE NECESSARY IF MAILED IN THE UNITED STATES

BUSINESS REPLY MAIL

FIRST CLASS PERMIT NO. 4337 LONG BEACH, CA.

POSTAGE WILL BE PAID BY ADDRESSEE

SAN JOSE STATE UNIVERSITY
Center for Development of Recycling (-0204)
Department of Geography and Environmental Studies
One Washington Square
San Jose, California 95112-9983

CDR Mission Statement

Center for Development of Recycling (CDR) is a nonprofit university-based organization committed to fostering the sustainable use of Earth's resources. CDR provides information to the public about a wide variety of topics relating to the manufacturing, use, and disposal of material goods with an emphasis on the "reduce, reuse, recycle, and buy recycled" philosophy. We also conduct research into alternative waste reduction strategies with economic and environmental benefits for society.

Center For Development of Recycling
Department of Geography and Environmental Studies
San Jose State University
One Washington Square
San Jose, CA 95192-0204

Phone (800)533-8414
Local (408)924-5453
FAX (408)924-5477

THIS PUBLICATION PRINTED ON RECYCLED PAPER

SJSU SAN JOSE STATE UNIVERSITY

PUBLICATION # 1001

CDR CENTER FOR DEVELOPMENT OF RECYCLING

Public Service Through:

- •Information
- •Education
- •Research
- •Publications
- •Referrals

•CENTER FOR DEVELOPMENT OF RECYCLING•

CDR BACKGROUND

The Center for Development of Recycling (CDR), a university-based educational organization, plays an important role in analyzing and helping to solve recycling problems. CDR is dedicated to disseminating information on recycling, and producing innovative and much-needed research in waste reduction, recycling, and recycled products procurement.

CDR was created in 1989 by a grant from the California State Division of Recycling, through the City of San Jose's Office of Environmental Management. Current funding comes from a combination of grants, contracts, corporate and individual donations, and in-kind support from public and private sources.

CDR also receives academic reinforcement and guidance from the San Jose State University (SJSU) Environmental Studies Program, and provides a valuable employment opportunity for graduate and undergraduate staff. The information resources of the CDR are complemented by the SJSU Environmental Resource Center (ERC), an on-campus environmental library and information center, and the SJSU Foundation provides additional administrative support, such as grant and contract management.

Recycling Information Resource

CDR is an information clearinghouse, responding to requests from individuals, businesses, government agencies, and nonprofit organizations on a daily basis. CDR maintains a comprehensive database of recycling resources, including recycling centers, recycled product sources, and agency and industry referrals.

"Buy Recycled" Guide

CDR publishes the California "Buy Recycled" Guide, a listing of companies in the United States that use post-consumer recycled materials to manufacture new products.

Publications

CDR offers publications on a variety of topics, including:

- recycling and mixed waste collection
- hazardous waste management
- market development
- yard waste composting
- recycling facility fact sheets
- recycled products procurement

Project descriptions and contracts for the model recycling and composting programs operated by the City of San Jose's Integrated Waste Management Program are available. Publications include:

- implementation studies and surveys
- sample evaluation techniques
- program budgets
- job descriptions
- question-and-answer sheets
- office recycling guidelines
- promotional and educational plans
- waste reduction strategies

Speaker's Bureau

CDR provides a speaker referral program wherein schools, civic and business groups, print and electronic media, and others will be able to contact CDR and be put in touch with professionals in the waste reduction and recycling field who are willing to speak to them about related topics.

YES, I'm interested in recycling!

- ☐ Please send me general information on CDR
- ☐ Please call me with information on how I can become involved with CDR
- ☐ Please send me the CDR Publications List
- ☐ Please send me _____ copies of the California "Buy Recycled" Guide. I've enclosed a check for $9.00 for each copy. Total enclosed: $_____

Name _____

Company _____

Address _____

City _____ State _____ ZIP ____

Work Phone _____ Home Phone _____

✂ TEAR CAREFULLY ON PERFERATION AND MAIL ✂
YOUR 1ST CLASS STAMP EXTENDS CDR'S EFFECTIVENESS

after head injuries
Part 2

Page 10

Extra

San Jose Mercury News

Wednesday, March 20, 1991

Recycling message directed at Hispanics

By Francisco Garcia
Mercury News Staff Writer

In Spanish the word for recycling is *reciclamiento*.

And recycling is the message that Councilwoman Blanca Alvarado wants to bring to Hispanics citywide during the series of informational meetings to get input on proposed changes for its new curbside recycling contract.

The current contract will expire in 1993, and Alvarado says that because more than 200,000 San Joseans are Hispanic it is important to reach them in Spanish so that they participate.

"I have already directed the department that they need to develop an awareness program in Spanish," Alvarado said.

There is also a need to reach other minority group communities, such as the Vietnamese and other Asians, to make sure they now how vital recycling is, Alvarado said.

In 1988 the city developed an outreach program in English, Spanish and Vietnamese after recycling officials discovered that families in some ethnic neighborhoods weren't leaving their bottles, cans, newspapers and plastic containers on the curbside to be picked up.

The city is mandated by the state to reduce by 50 percent the amount of garbage that goes to the landfills by the year 2000. And one of the ways to reach that goal is by recycling, said J. Lindsay Wolf, community relations manager for the city.

The proposals for the new contract include dividing the city in three districts and open the bidding to more than one recycling firm, Wolf said. Currently, one company handles recycling for the city.

Other proposed changes include reducing the unlimited garbage pickup that currently exists in San Jose to one garbage can per household.

Large items could be left on the curb three times a year to be picked up free. Currently, people have to call the city when they want to dispose of large items such as mattresses or refrigerators. The city charges about $20 per item.

The city also proposes to establish a special rate for people with limited incomes, such as the elderly or the handicapped.

There is also a proposal to change the way yard waste is picked up. Now, tree trimmings and leaves have to be bundled and left on the curb. The plan calls for the trimmings to be left in piles on the streets. The city will have special equipment to pick up the refuse and then send it to a composting site instead of mixing it with trash.

"There is a huge amount of yard material that now goes to the landfill," Wolf said.

Alvarado wants Hispanics and other minority group members to attend the meetings to give their views on the proposed changes.

San Jose's recycling program is one of the largest weekly voluntary recycling projects in the country.

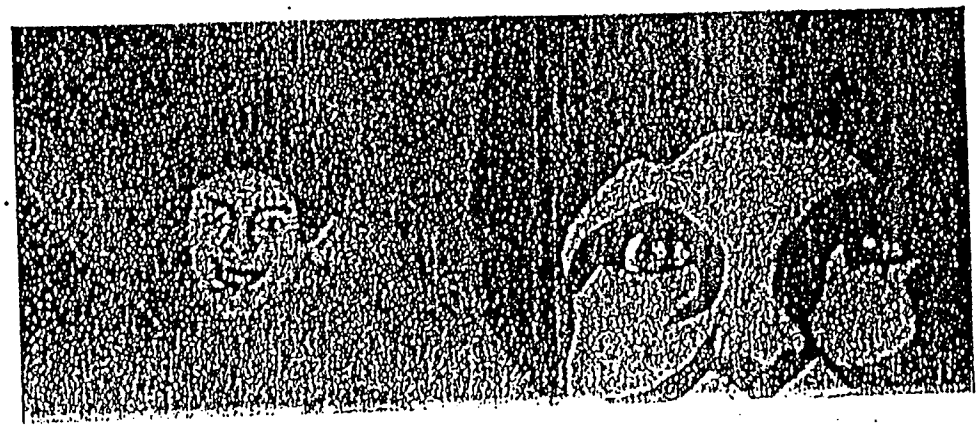
The next community meeting will be at 7:30 p.m. Thursday at the Willows Senior Center, 2175 Lincoln Avenue.

The city council will discuss the recycling program in its March 26 meeting in the City Hall Council Chamber at 1:30 p.m.

For more information about the city's recycling program call (408) 277-5533.

"I feel very happy. From 1981, I try to find children to train on the drum. This is the first time I find one boy."

— Hoa Nguyen



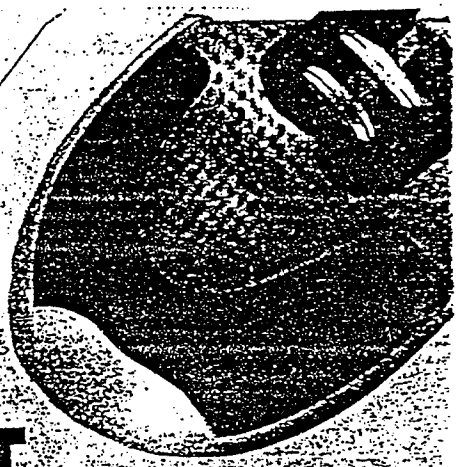
Old park to reopen refurbished

By Lori Aratani
Mercury News Staff Writer

The dust has lifted and Willow Glen residents now have a sparkling new — or rather sparkling old — River Glen Park.

The construction equipment that has occupied various parts of the nine-acre park for the past year is

It's time to STEP ON IT!



Along with plastic soda bottles and plastic milk and water jugs, any container with a 1 or a 2 symbol on the bottom can be recycled in this program!

Just Follow these 3 Easy Steps..

1 Turn the container over to see if it has a 1 or a 2 on the bottom.

2 Stomp on It!

It is very important that you crush your recyclable plastic before depositing it in the recycling cart or bin. This will enable the collection of more materials.

3 Deposit it into the recycling bin or cart located at your complex.

DON'T FORGET!

You can also recycle the following materials in this program:

1. Newspaper
2. Glass Jars & Bottles
3. Aluminum and metal cans

THANKS. . .

to all of you who have been participating in the multi-unit recycling program. Your efforts so far, helped save over 2,976 trees and 1,523 gallons of gasoline. GOOD JOB!

SAN JOSE RECYCLES

Printed on Recycled paper

City of San Jose
Office of
Environmental Management
For more information call
277-5533

Đã tới lúc chúng ta phải dãm bẹp chúng!

Từ nay, các loại chai hoặc bình đựng nước ngọt, nước lọc hoặc sữa tươi làm bằng chất nhựa (plastic) có dấu hiệu △1 hoặc △2 ở dưới đáy đều có thể được thu-lượm để tái-biến-chế!

Sau đây là 3 bước rất dễ chúng ta phải theo:

1 *Hãy lật đáy chai hoặc bình xem có dấu △1 hoặc △2 không?*

2 *Hãy dãm bẹp các chai hoặc bình có dấu dưới đây. Việc phải dãm bẹp các chai hoặc bình trước khi bỏ vào các xe hoặc thùng chứa là một điều rất quan-trọng, bởi vì làm như vậy, chúng ta có thể thu-lượm được nhiều vật liệu hơn.*

3 *Hãy bỏ những chai hoặc bình đã được dãm bẹp vào các xe hoặc thùng chứa thuộc Chương-trình Thu-lượm Đồ Phế-thải để Tái-biến-chế đặt tại khu-vực bạn đương cư-ngụ*

Xin quý bạn đừng có quên:

Quý bạn có thể thu-lượm các đồ phế-thải khác cho chương trình tái-biến-chế, thí-dụ như:

1/ Giấy báo cũ
2/ Các chai lọ thủy-tinh
3/ Các loại lon bằng nhôm hoặc kim-loại khác.

Xin thành-thực cám ơn quý-vị.

hết thảy Quý-vị đã tham-dự vào Chương-trình Thu-lượm Đồ Phế-thải thuộc đủ mọi loại để tái-biến-chế. Sự cố gắng của Quý-vị từ tháng 7 tới tháng 11, 1990 đã tiết-kiệm được 2,976 cây cối và 1,523 gallons nhiên-liệu. Thiệt là một công-cuộc hết sức tốt đẹp.

SAN JOSE RECYCLES

Giấy in thuốc loại 100% tái-biến-chế

TOÀ THỊ-CHÁNH SAN JOSE
Văn-phòng Quản-trị Môi-sinh
Muốn biết thêm chi-tiết, xin vui lòng gọi Điện-thoại số 277-5533

¡Ya Es tiempo de APLASTARLOS!

Junto con los envases plásticos de soda, de leche y de agua, cualquier otro envase con el simbolo △1 o △2 marcado en el fondo del envase, se puede reciclar en este programa.

Solamente Siga Estos Tres Pasos.

1 Voltear el envase y fíjese si el símbolo △1 o △2 se encuentra marcado en el fondo del recipiente.

2 Ahora aplástelo.
Es muy importante que aplaste los envases antes de depositarlos en la carreta o en el recipiente de plásticos reciclables. Esto ayudará en la colección de mas envases.

3 Depositelos en la carreta o recipiente de plásticos reciclables de su complejo.

¡No Hay que Olivarse

Usted también puede reciclar los siguientes materiales en este programa:

1. Papel periódico
2. Botellas y garrafones de vidrio
3. Botes de aluminio y de metal

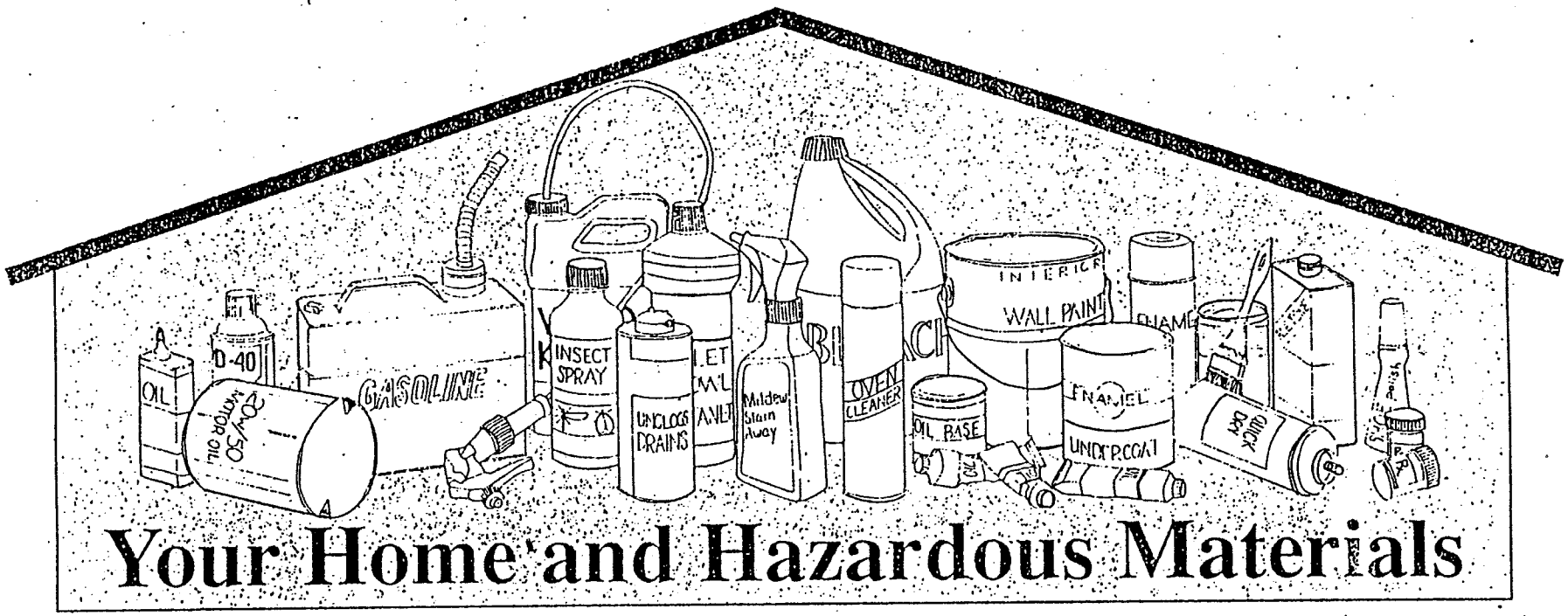
MUCHAS GRACIAS. . .

A todas las personas que participan en el programa de reciclajeen complejos de multiviviendas. Sus esfuerzos entre julio y noviembre de 1990, han conservado un total de 2,976 arboles y 1,523 galones de gasolina. ¡BUEN TRABAJO!

City of San Jose
Oficina de Administración Ambiental de la Ciudad de San José Para mas información, llame al 277-5533.

SAN JOSE RECYCLES

100% Papel reciclado



Your Home and Hazardous Materials

Use it up. Use something else, or dispose of it safely.

HANDY REFERENCE CHART

Section Eight

8. SOLID WASTE FACILITY CAPACITY COMPONENT

8.1 INTRODUCTION

Landfilling is the process of disposing of municipal solid waste onto land. Waste is compacted in layers and covered with soil or a suitable alternative. As the most common method of solid waste disposal today, landfilling will continue as the primary method of disposal of non-recyclable/non-reusable wastes in Santa Clara County.

Because the amount of landfill capacity is declining throughout California and the amount of municipal solid waste is increasing, many landfills in the State have reached or are approaching capacity. The Source Reduction and Recycling Element includes a solid waste facility capacity component to ensure that there is adequate landfill capacity for disposing of the solid waste that cannot be diverted by recycling or composting.

The specific purpose of the Solid Waste Facility Capacity Component is to calculate the amount of disposal capacity required to meet the needs of the City of San Jose for the next 15 years (calculated from the date of adoption of the SRRE). The component contains a description of the permitted solid waste disposal facilities currently used by the City. It includes projections of the City's waste capacity needs for the next 15 years, and describes how the City will satisfy future capacity needs. The solid waste reduction goals and implementation schedules described in Source Reduction, Recycling, Composting, and Special Waste sections of the Source Reduction and Recycling Element were incorporated into the projections of the City's future disposal facility capacity needs.

The Component also identifies disposal facilities that will be closed in the next 10 years, and describes plans to establish new or expanded disposal facilities during the next 10 years.

8.2 EXISTING PERMITTED SOLID WASTE DISPOSAL FACILITIES

There are nine permitted landfills in operation in the county: Guadalupe, Kirby Canyon, Mountain View, Newby Island, Pacheco Pass, Palo Alto, Santa Clara (All Purpose), Sunnyvale, and Zanker Road. All are classified as Class III facilities. Four sites (Mountain View, Palo Alto, Santa Clara, and Sunnyvale) are publicly owned. The remaining five are privately owned: Guadalupe by the Guadalupe Rubbish Disposal Company, Inc.; Kirby Canyon by Waste Management, Incorporated; Newby Island by International Disposal Corporation, a wholly owned subsidiary of Browning Ferris Industries; Pacheco Pass by South Valley Refuse Disposal; and Zanker Road by Zanker Road Resource Recovery, Incorporated. Except for the Palo Alto site, all landfills are privately operated.

According to the Santa Clara County Solid Waste Management Plan (1989 Revision), the County had between 24 and 32 years of remaining refuse capacity. Using the current rate of fill of approximately 1.8 million tons per year, and an annual growth rate of 1.1 percent, the

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plan projected 24 years of remaining capacity. With a 25 percent reduction in wastes landfilled by 1995 (the plan's goal), the County had projected 32 years of remaining capacity.

Owens-Corning Landfill

Owens-Corning Fiberglass Corporation owns and operates an non-permitted disposal site in northern San Jose for the disposal of wastes generated at its Santa Clara operations. The facility is not open for public use and is currently undergoing permitting procedures through the City of San Jose, Local Enforcement Agency (LEA) for the site.

Guadalupe Rubbish Disposal Site

The Guadalupe Landfill is owned and operated by Guadalupe Rubbish Disposal Company, Inc. The site was opened in 1929 as an open burning dump, before beginning operations as a sanitary landfill in 1956. The facility presently accepts franchised waste from the cities of Campbell, Monte Sereno, and Saratoga, the Town of Los Gatos, the surrounding unincorporated areas, and waste from rubbish haulers, individual contractors, and the general public.

The 115-acre landfill was recently annexed into the City of San Jose and is located off Guadalupe Mines Road, in a canyon immediately north of the Guadalupe Mines. Surrounding land uses include laboratory research (IBM) to the north, the Almaden Quicksilver County Park to the southeast, and open space to the west and south. The site is zoned for agricultural, residential, and laboratory-research uses. Access is provided by a 4,000 foot paved road originating at Guadalupe Mines Road north of the site.

The Class III landfill accepts only residential, commercial, industrial, and demolition wastes as defined by State regulations. Except for non-friable asbestos, no hazardous or designated wastes may be accepted.

According to reports filed with the RWQCB, the facility landfilled 203,946 tons (396,562 cubic yards) of waste in the 1990 calendar year. The landfill uses a compaction factor of 1,200 pounds per in-place cubic yard and a refuse to cover ratio of 6 to 1. As of January 1991, public disposal fees were $6.00 per cubic yard, with a minimum charge of $8.00. Tipping fees were $27.82 per ton.

The landfill supports aggressive recycling activities, including salvaging of aluminum, newspaper, cardboard, ferrous metals, and batteries; wood chipping; and the re-use of wood, concrete, asphalt, and soil. An on-site methane recovery system produces 2,500 kilowatts of power (enough to serve 4,000 homes)d which is sold to PG&E.

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Guadalupe's permitted capacity is 16.5 million cubic yards. As of January 1, 1991, the landfill has a remaining capacity of 14.2 million cubic yards with closure projected for 2013. An expansion of the site was approved in 1990. Proposed use after closure is open space.

A hydrogeologic report for the site was done by EMCON Associates in January 1987, and revised in November 1987. Current operating permits issued to the site include:

- CWMB Solid Waste Facility Permit (#43-AA-001 - June 26, 1979)
- RWQCB Waste Discharge Permit (Order #90-136 - October 17, 1990)
- City of San Jose Planned Development Conditional Use Permit (File #90-06-44 - February 26, 1991)

Kirby Canyon Sanitary Landfill

Kirby Canyon Sanitary Landfill is owned and operated by Waste Management, Incorporated (WMI). WMI has secured a long-term lease from the property owner, Oceanic California, Incorporated. The 827-acre disposal site (327 acres to be used for disposal purposes), opened in July 1986. The landfill presently receives some franchised waste from the City of San Jose and self-hauled waste from residents of Santa Clara County.

The landfill is located on a hill-face in south San Jose, east of Highway 101 at the Scheller Avenue interchange. The site is bordered by Highway 101 and the Coyote Park open space chain to the west. The land adjacent to the site is designated Non-Urban Hillside and an open space buffer surrounds the entire property. Access is provided from Scheller Avenue.

The Class III landfill accepts only garbage, rubbish, demolition, brush, and stumps for disposal. No hazardous or designated wastes may be accepted.

According to reports filed with the RWQCB, the facility landfilled 91,408 tons (137,112 cubic yards) of waste in 1990. The landfill uses a compaction factor of 1,400 pounds per in place cubic yard and a refuse to cover ratio of 1.4 to 1. Tipping fees are $21.95 per ton (as of January 1991). Public disposal fees are also $21.95 per ton.

Recently, WMI executed letters of intent with several north county communities to provide long-term disposal capacity. To service these communities (the cities of Sunnyvale, Palo Alto, and Mountain View, surrounding unincorporated areas, and the unincorporated Stanford area), WMI proposes to construct a transfer station in the City of Sunnyvale and is currently involved in negotiations with these communities. See the description of the Sunnyvale Materials Recovery and Transfer Station under Proposed Facilities, page V-38. Kirby Canyon's permitted capacity is approximately 24.3 million tons (36.4 million cubic yards). With a remaining capacity of approximately 21.75 million tons (over 32 million cubic yards), the landfill is expected to remain in operation until at least 2016. A 13-million

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ton expansion of the landfill is being considered by WMI. Proposed use of the site after closure is open space.

A hydrogeologic report for the site was done by EMCON Associates in July 1983. Current operating permits include:

- CWMB Solid Waste Facility Permit (#43-AN-008 - October 31, 1984)
- RWQCB Waste Discharge Permit (#85-47 - April 30, 1985)
- City of San Jose Land Use Permit (#PD84-5-55 - August 8, 1984)
- City of San Jose Planned Development Permit (#PD85-7-57 - September 26, 1985).

Newby Island Sanitary Landfill

The Newby Island Landfill is owned and operated by International Disposal Corporation, a wholly-owned subsidiary of Browning-Ferris Industries (BFI). The site was opened around 1930 as an open burning dump before being converted to a sanitary landfill in 1956. The facility presently accepts waste from the cities of San Jose, Milpitas, Cupertino, Los Altos, Mountain View, Santa Clara, the Town of Los Altos Hills, surrounding unincorporated areas, independent contractors, and the general public.

Located at the west end of Dixon Landing Road in north San Jose, the 342-acre site is bounded by Coyote Creek on the west, north, and east, and a slough tributary to Coyote Creek on the south. Surrounding land uses include salt evaporation ponds to the west, a wildlife refuge to the north, and sludge beds to the south. The property is zoned R3 - Residential. Access is provided via the Dixon Landing Road interchange off of Interstate 880.

The Class III landfill accepts garbage, rubbish, small dead animals, demolition, brush, stumps, large containers, and street refuse. No hazardous or designated wastes may be accepted.

The facility landfilled 980,477 tons (1,340,000 cubic yards) of waste in 1990. Newby Island uses a compaction factor of 1,750 pounds per in-place cubic yard and a refuse to cover ratio of 5 to 1. Public disposal fees (as of January 1991) range from $2.35 to $17.00 per cubic yard, with a minimum charge of $12.90 per load. Tipping fees are $15.05 per ton for franchised waste from the City of San Jose and $20.50 per ton for franchised waste from Cupertino, Los Altos, Los Altos Hills, Mountain View, and Santa Clara.

In August 1988, a proposed recycling facility, called The Recyclery, received final CoSWMP approval for construction adjacent to the Newby Island Landfill. In early 1991, The

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Recyclery received final permits and began operations. The Recyclery is capable of processing up to 800 tons of refuse daily, recovering more than half for recycling. The landfill site also has a methane recovery system in place with a design capacity of 2,000 KW.

BFI currently has contracts with the communities of Cupertino, Los Altos, Los Altos Hills, and Santa Clara, and adjacent unincorporated areas, to provide 30 years of disposal capacity. These communities began using the landfill in November 1988. The City of San Jose also has a 30-year contract for disposal capacity at Newby Island.

Newby Island has a permitted capacity of 50,775,000 cubic yards. With a remaining capacity of 27,113,000 cubic yards, and the opening of The Recyclery, the site is expected to remain in operation until at least 2020. Proposed use after closure is as an open space park.

A hydrogeologic report for the site was done by EMCON Associates in 1972 and by Purcell, Rhodes and Associates in 1979 and 1982. Current operating permits issued to the site include

- CWMB Solid Waste Facility Permit (#43-AN-003 - Feb. 7, 1989)
- RWQCB Waste Discharge Permit (#75-22, as amended by #82-4, #82-63, #82-64, and #87-152 - November 30, 1987)

Zanker Road Disposal and Recycling Center

Zanker Road Disposal and Recycling Center is owned and operated by Zanker Road Resource Recovery, Incorporated, a wholly owned subsidiary of Norcal Solid Waste Systems. Formerly known as the Nine Par Disposal Site, the facility was operated by the Nine-Par Company from 1934 to 1977. Zanker Road Resource Recovery reopened it in 1985. The facility currently serves northern San Jose and surrounding communities.

Located west of the intersection of Zanker Road and Los Esteros Road in northern San Jose, the 70-acre site is bound by a wetland habitat to the north, the Leslie Salt Company evaporation ponds to the north and west, the Artesian Slough to the northwest, the San Jose/Santa Clara Water Pollution Control Plant to the south, and sludge ponds to the east. Access is provided via Los Esteros Road.

The Class III landfill accepts rubbish, brush/stumps, and demolition wastes for disposal. No garbage, hazardous, or designated wastes may be accepted, except asbestos (under certain conditions). According to reports filed with the RWQCB, the facility landfilled 158,192 tons (263,653 cubic yards) of waste in 1990. The landfill uses a compaction factor of 1,200 pounds per in place cubic yard and a refuse to cover ratio of 4 to 1. Public disposal fees are $3.00 to $9.00 per cubic yard with a minimum charge of $9.00.

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Zanker Road Resource Recovery conducts extensive recycling activities at the site, accepting incoming recyclable materials and pulling recyclables directly from the waste stream. On average, 80 percent of the total incoming waste stream is recycled.

When the present owners purchased the facility, the southern 40 acres of the site had been partially filled and not properly closed. Upon reopening the facility, the company began landfilling the remaining portion of the 40 acres, with plans of moving to the northern 30 acres. In 1986, six of the northern 30 acres (considered wetlands) were added to the active landfill. This allowed for the construction of a leachate collection and recovery system and proper closure of the landfill. To mitigate the loss of wetlands, the company created a wildlife habitat bound by a conservation easement on the remaining 24 acres.

The present 46-acre landfill has a permitted capacity of 3,200,000 cubic yards. The site has a remaining capacity of 800,000 cubic yards (as of January 1, 1991), and is expected to remain in operation until 2005. The proposed use after closure is open space.

Hydrogeologic reports were done on the site by William C. Ellis, Consulting Geologist, in June 1975 (reviewed in August 1985), and by Woodward-Clyde. Current operating permits include:

- CWMB Solid Waste facility Permit (43-AN-007 - March 7, 1985)
- RWQCB Waste Discharge Permit (#85-132 as amended by #87-032 - May 1, 1987)
- City of San Jose Land Use Permit (#PD87-1-7 - July 25, 1987

8.3 DISPOSAL CAPACITY NEEDS PROJECTION

The disposal facility capacity needs projection provides an estimate of the disposal capacity (in cubic yards/year) that is needed to accommodate projected solid waste for a 15-year period commencing in 1991 (or date of adoption of SRRE). Section 2 of this SRRE describes the projected solid waste generation for this 15-year period. The following formula was used, as required by the California Integrated Waste Management Board, to project the City's projected capacity needs (expressed in cubic yards) over the next 15 years.

Results of the solid waste disposal facility needs projection are shown in Table 8-1. These results indicate that the City will not require additional disposal capacity during the 15-year planning period. This assumption is contingent upon the achievement of the AB 939 diversion goals and continued controls on imported wastes.

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Capacity Needs Projection Equation:

$$\text{Annual Capacity}_{(\text{year n})} = [\,(G + I) - (D + TC + LF + E)\,]_{(\text{year n})}$$

where:

G = the amount of solid waste projected to be generated in the City of San Jose

I = the amount of solid waste which is expected to be imported to the jurisdiction for disposal in permitted solid waste disposal facilities through inter-jurisdictional agreements with other cities or counties, or through agreements with disposal site owners

D = the amount of solid waste diverted by implementation of proposed source reduction, recycling, and composting programs

TC = the amount of volume reduction occurring through available, permitted transformation facilities (incinerators)

LF = the amount of permitted solid waste disposal capacity which is available for disposal in the jurisdiction, for solid waste generated in the jurisdiction

E = the amount of solid waste generated in the jurisdiction which is exported to solid waste disposal facilities in another jurisdiction

n = each year of a 15-year period commencing in 1991 (or the date of adoption of the SRRE) (iterative in one-year increments)

The above formula can be written as:

$$\text{Capacity Needed Year 1} = [\,(\text{waste generated} + \text{waste imported}) - (\text{waste diverted} + \text{waste transformed (burned)} + \text{landfill capacity available} + \text{waste exported})\,]$$

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8.4. DISPOSAL FACILITY PHASE-OUT OR CLOSURE

The City's current contract with Newby Island Landfill, together with achievement of the projected waste diversion goals, will provide adequate disposal capacity through 2016, the term of the current Disposal Agreement, and beyond.

8.5. NEW OR EXPANDED DISPOSAL FACILITIES

There are currently no plans to establish a new disposal facility in San Jose during the planning period. Proposals for expansions to handle additional approved imports or to extend the life of the current agreement will be evaluated as they are received.

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TABLE 8–1a SOLID WASTE DISPOSAL FACILITY NEEDS PROJECTION (tons): CURENT DIVERSION

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
WASTES GENERATED	1439781	1463200	1477300	1491600	1506000	1520500	1536600	1552800	1569200	1585800	1602600	1610600	1619000	1627200	1635500	1643800
WASTE IMPORTED	371200	371200	371200	371200	371200	371200	371200	371200	371200	371200	371200	371200	371200	371200	371200	371200
WASTE DIVERTED	447481	454800	459100	463500	468000	472400	477400	482400	487400	492500	497700	500200	502700	505200	507800	510300
TOTAL WASTES LANDFILLED	1363500	1379600	1389400	1399300	1409200	1419300	1430400	1441600	1453000	1464500	1476100	1481800	1487500	1493200	1498900	1504700
REMAINING DISPOSAL FACILITY CAPACITY (end of year)	49200000	47820400	46431000	45031700	43622500	42203200	40772800	39331200	37878200	36413700	34937600	33455800	31968300	30475100	28976200	27471500

TABLE 8–1b SOLID WASTE DISPOSAL FACILITY NEEDS PROJECTION (tons): DIVERSION ASSUMES SRRE IMPLIMENTATION (with all programs to reach 50% in 1996)

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
WASTES GENERATED	1439781	1463200	1477300	1491600	1506000	1520500	1536600	1552800	1569200	1585800	1602600	1610800	1619000	1627200	1635500	1643800
WASTE IMPORTED	371200	371200	371200	371200	371200	371200	371200	371200	371200	371200	371200	371200	371200	371200	371200	371200
less: diversion at MURFs		1500	3667	5000	6000	6667	6737	6808	6880	6953	7027	7063	7099	7134	7171	7207
less: new transformation		1500	7000	12000	13067	13800	13933	14100	14233	14400	14533	14633	14700	14767	14833	14933
NET WASTES IMPORTED	371200	368200	360533	354200	352133	350733	350530	350292	350087	349847	349640	349504	349401	349299	349196	349060
WASTE DIVERTED	447481	46500	505700	594000	668700	707500	768300	790100	807500	819600	829700	835600	841600	847500	853500	859500
NEW TRANSFORMATION (MRFS)		4500	21000	36000	39200	41400	41800	42300	42700	43200	43600	43900	44100	44300	44500	44800
TOTAL WASTES LANDFILLED	1363500	1361900	1311100	1215800	1150200	1122300	1077000	1070700	1069100	1072800	1078900	1080800	1082700	1084700	1086700	1088600
REMAINING DISPOSAL FACILITY CAPACITY (end of year)	49200000	47838100	46527000	45311200	44161000	43038700	41961700	40891000	39821900	38749100	37670200	36589400	35506700	34422000	33335300	32246700

Section Nine

9. FUNDING COMPONENT

9.1 INTRODUCTION

Sufficient funding and allocation of resources are critical to the success of San Jose's Integrated Waste Management Program. This component describes the funding mechanisms in the City of San Jose, and provides cost estimates for the current and proposed programs regarding the overall source reduction and recycling elements. Future potential revenue sources and contingency revenue sources are also addressed for the short-term planning period.

9.2 CURRENT FUNDING SOURCES

This section outlines a variety of factors that affect sources and uses of funds for Integrated Waste Management Program related initiatives. The source of funding for integrated waste management activities in San Jose is the General Fund. Basic information will be provided to describe the existing revenue sources which contribute to the General Fund, including the existing rates and fee levels.

Solid waste related revenue sources provide sufficient revenue to the General Fund so that there is sufficient revenue in the General Fund to fund all Integrated Waste Management programs and recycling initiatives. These sources and their revenue contributions to the General Fund for 1990-91 and 1991-92 are as follows:

Source	1990-91 Adopted	Proposed FY91-92
Garbage Franchise Fees	$10,299,000	$11,228,520
Rubbish Franchise Fees	2,379,000	3,560,275
Recycling Rebates	278,000	350,004
Salvage Revnues	0	0
Business Tax on Landfills	3,386,240	3,508,224
Disposal Fees	3,173,456	3,173,456
AB 939 Fees:		
Garbage Customers	0	4,625,760
Landfill Based	0	292,352
TOTAL SOURCE OF FUNDS	$19,515,696	$26,738,591

Currently, revenues from Solid Waste-related sources provide revenue to the General Fund sufficient to fund all Integrated Waste Management Program related initiatives plus an additional $3.3 million dollars. The additional amount to go to the General Fund will increase to $6.4 million in FY (fiscal year) 91-92. Each revenue source is described below:

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1. Garbage Franchise Fees

The collection contractor providing services to residential and commercial garbage customers pays a franchise fee to the City. The service rate and franchise fee amounts are determined annually by the City Council. Residential and commercial service rates are a percentage of gross receipts and are comprised of the contractor's payments and the franchise fees. (See Figure 9-1.)

The FY 90-91 residential service rate is $7.59 per household per month. The service rate will increase to $7.90 per household per month in FY 91-92. In FY 91-92, the residential franchise fee will be $2.75 per household per month (34.8 percent of the residential service rate). The contractor's payment will be $5.15 per residential account per month (65.18 percent of the residential service rate).

The FY 90-91 commercial garbage service rate is $6.99 per cubic yard (average). In FY 91-92, the commercial garbage service rate will increase to $7.30 per cub yard (average). In FY 91-92, the commercial garbage franchise fee will be $2.11 per cubic yard (average) on all commercial service rate). The contractor's payment will be $5.19 per cubic yard (average) on commercial garbage accounts (71.09 percent of the commercial service rate).

2. Rubbish Franchise Fees

Rubbish franchise fees are paid by rubbish haulers based on a percentage of gross receipts from commercial customers.

For each franchised hauler in FY 90-91, the franchise fee is 13 percent of the first $100,000 of gross receipts per fiscal year and 19.5 percent on receipts in excess of $100,000 per fiscal year. In FY 91-92, the franchise fee on the first $100,000 of gross receipts will be decreased to 10 percent.

3. Recycling Rebates

Recycling rebates are paid to the City annually by the garbage collection contractor as part of the Collection Agreement. This payment is determined by multiplying the tonnage of recycled materials by $8.03/ton which is the avoided disposal cost. The expansion of recycling programs in future years will result in increasing volumes of materials recycled, which in turn will generate more revenue from recycling rebates paid by the garbage collection contractor.

4. Salvage Revenue

Salvage revenue is not a true revenue source but instead a reduction in payment by the City to the Curbside Recycling Contractor equal to 50 percent of the amount by which revenue from the sale of collected materials exceeds an established amount ($355,400), determined quarterly.

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5. Business Tax at Landfills

Landfill operators pay a business tax based on tonnage of all waste disposed of at San Jose landfills, paid by landfill operators. There are two classes of landfills. Landfills that dispose of garbage pay $3/ton. Landfills which are restricted to disposing only of rubbish pay $2.10/ton.

6. Disposal Fee

This fee is a payment to the City made by the garbage collection contractor for disposal of garbage at Newby Island Landfill. Payment of this fee is required by contractual obligation in the Garbage Collection Agreement.

7. AB 939 Fees

Source Reduction and Recycling Fees are to go into effect July 1, 1991.

AB 939 fees paid by residential and commercial garbage customers are dedicated specifically to recover actual costs incurred by the City in preparing, adopting, and implementing the Integrated Waste Management initiatives, such as the yard waste program, which will begin City-wide expansion in September 1991.

The AB 939 fees for residential and commercial garbage customers are anticipated to generate approximately $4.6 million in FY 91-92.

The residential AB 939 fee will be added to garbage rates at the rate of $1.90 per household per month. The commercial AB 939 fee will be added to commercial rates at the rate of .34 cents per cubic yard (average).

Twenty-five cents per ton will be charged on all wastes disposed of at San Jose landfills. Landfill operators will pay this fee to the City monthly. The landfill based AB 939 fee is anticipated to generate $292,352 in FY 91-92 and will recover cost for data tracking, monitoring, and recycling services that benefit businesses in San Jose as well as other cities.

9.3 CURRENT AND PROPOSED PROGRAM COSTS

The following section provides cost estimates for the planning, development, and implementation of existing programs and expansions through 2000. Estimates are based on evaluation of pilot costs and efficiencies, existing program costs, and previous proposals considered in San Jose. In FY 90-91, waste reduction programs were funded at the level of $5,345,774. Waste reduction programs will be funded at $8,661,762 in FY 91-92 and $14,486,000 for FY 92-93. FY 91-92 program costs will rise by over $3,000,000 or almost 70 percent above 1990-91 levels. The major cost increases will be to fund City-wide expansion of the Yard Waste Recycling Program. Estimated Total Program Costs include costs for public education and are

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listed below. Actual budgets are rounded to the nearest dollar. Projections generally assume five percent inflation each year after FY 90-91 rounded to the nearest $100,000.

1. Source Reduction Component

FY90-91 Funding: $60,000. This includes funding for the following programs:

- Market research
- Public education materials
- Consulting, staffing, and administrative expenses
- Other costs for household hazardous waste are documented in the Household Hazardous Waste Element

FY91-92 Funding: $61,219.

This includes approximately the same items as for FY 90-91. The curbside collection of motor oil is rebudgeted in the Curbside Recycling section below.

FY92-93 Funding: $65,000.

Source Reduction is to be pursued in order to reduce the volume and toxicity of the waste stream. An advisory committee will be established and will review the results of the source reduction programs described in the source reduction component for FY 91-92.

Future programs will come from that analysis.

FY93-94 Funding: $68,000.

FY94-95 Funding: $72,000.

2. Recycling Component

Residential Recycling Funding

FY90-91 Funding: $3,283,164. This includes funding for:

- Curbside Recycling contract
- Recycling evaluation unit
- Mixed paper pilot
- Contractual services to perform revenue and material audits as recommended by the City Auditor

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- Public outreach efforts
- Multi-Unit Recycling Pilot
- Used oil recycling
- Additional contractual services to assist in preparation of the next RFP and contract
- Staffing and administrative costs

FY91-92 Funding: $3,013,697. This includes funding for:

- Existing Curbside Recycling contract
- Continuing the recycling evaluation unit
- Contractual services to perform revenue and material audits as recommended by the City Auditor
- Public outreach efforts
- Evaluating Mixed Plastics
- Multi-Unit Recycling Pilot
- Used oil recycling (with additional funding for promoting program)
- Additional contractual services to assist in evaluation and implementation of new Recycling Plus! System
- Staffing and administrative costs

The major changes in FY 91-92 include a consolidation of the oil recycling program into the Curbside Recycling Program, expanded promotions associated with oil recycling, termination of the mixed paper pilot and the expansion of the Multi-Unit Recycling Pilot Program.

A. Used Oil Curbside Collection - The Used Oil curbside collection, which began in January 1991, is proposed to continue and be actively promoted in FY 91-92.

B. Multi-Unit Recycling Pilot - The Multi-Unit Recycling Pilot is proposed to be extended until the Spring of 1992 to allow for sufficient evaluation and development of an RFP to expand the program to as many households as feasible. A priority through the end of 1991 will be to obtain data needed for the Recycling Plus! RFP.

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C. Mixed Plastics - The next priority to be considered for addition will be mixed plastics. In 1991, the City will assess the amount of plastic that can be recovered and the impacts of recycling mixed plastics. The experience of Contra Costa County and other agencies will be evaluated.

FY92-93 Funding: $3,500,000.

FY93-94 Funding and FY94-95 Funding are discussed under Recycling Plus! System.

Commercial Recycling Funding

FY90-91 Funding: $232,522.

FY91-92 Funding: $256,771. This includes funding for:

- Staff and consultants
- Outreach and public education efforts
- Stackable bins and desktop boxes, wheeled carts and multi-yard bins
- Equipment repairs and replacements (for Model Projects and other containers distributed)
- Incentives, computer upgrades

Major increases for proposed FY 91-92 include increased outreach and response capabilities, purchase of stackable bins and a variety of containers for different model project needs, incentives for recycling of targeted commodities, and consultants for analysis and implementation assistance.

FY92-93 Funding: $270,000.

FY93-94 Funding: $280,000.

FY94-95 Funding: $300,000.

Market Development Funding

FY90-91 Funding: $163,240.

Funds will be used for policy and technical analyses, staffing, and promotional materials.

FY91-92 Funding: $210,576.

This includes contracted services for additional policy and technical analyses, promotion of this program, and additional staffing and administration costs. A key goal in FY 91-92 will be to apply for selection as one of the State's first market development zones.

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FY92-93 Funding: $220,000.

FY93-94 Funding: $230,000.

FY94-95 Funding: $240,000.

Recycling Market Development will continue to focus on preparing contingency plans, supporting state and federal legislation regarding market development, encouraging siting of new markets in San Jose, and expanding City and private procurement practices. An effort will be made to expand existing local recycling manufacturing activities as well as attract new manufacturers who use secondary materials in their process.

3. Composting Funding

FY90-91 Funding: $1,506,848.

This includes funding for yard waste collection/processing contractual services, program analysis, program promotion, staffing and administrative expenses, and civic yard waste recycling.

FY91-92 Funding: $5,004,499. This includes the expansion of the same items as FY90-91 programs.

The Yard Waste Recycling program will begin City-wide expansion in September 1991. Completion is scheduled for Fall 1992. Resident acceptance, ongoing analysis of the collection and processing of the materials, and expansion of public uses of products and market development for value-added products will be evaluated.

FY92-93 Funding: $10,260,000.

This includes Funding for City-wide yard waste collection and processing and is based on estimates for the Recycling Plus! System.

FY-93-94 Funding and FY94-95 Funding are listed under Recycling Plus! System.

4. IWM Long-Term Planning Funding

FY90-91 Funding: $100,000.

Funds to be used for SRRE preparation.

FY91-92 Funding: $115,000.

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Funds to be used for development of more comprehensive reporting system and waste composition study.

Integrated Waste Management Long-Term Planning includes two key facets. First, the RFP for garbage and recycling services beginning July 1, 1993 will be issued in October 1991. In FY9-91, the City evaluated programs across the United States to determine the best elements of all existing programs to design the optimum mix of garbage collection and recycling programs. During FY 91-92, the focus will be on assuring that all such waste reduction initiatives are included in the Recycling Plus! RFP.

Second, the City Source Reduction and Recycling Element (SRRE) required by AB 939 will be revised to be the 1992 Waste Reduction Strategy (WRS) in October 1991. The 1992 WRS will incorporate the recommendations of the SRRE. It is anticipated that one of the key tasks to be pursued in FY 91-92 will be initiation of a more comprehensive waste composition study for all San Jose landfills preparation for the County Integrated Waste Management Plan due in January 1994 and development of comprehensive data reporting and monitoring systems from all landfills, haulers, and recycling facilities.

5. Recycling Plus! System

It is estimated that the recycling costs of the Recycling Plus! System in FY93-94 will be:

Residential Units with Can Service	
Recycling Collection	$ 4,800,000
Additional Services, Non-Yard Waste	3,200,000
Yard Waste	10,800,000
Residential Units with Bin Service	
Recycling Collection	1,400,000
Total System Cost	$20,200,000

Total system costs for City-wide residential recycling service (including both single-family dwellings and multi-family dwellings) in FY93-94 are estimated to be $20,000,000. This includes funding for residential recyclables collection and processing, contractor overhead and profit, and city administrative costs. Additional services include collection of bulky wastes, neighborhood cleanup, and litter module service. Projections are based on 1988-89 route audits and 1991 census data from the California Department of Finance. Projections assume 180,900 residential units with can service and 78,000 residential units with bin service. The yard waste cost projections are based on estimates from the Recycling Plus! Request for Proposal policy document analysis dated May 22, 1991. Actual yard waste program costs are currently in the

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process of being developed under a separate Request for Proposal process and were not available at the time this document went to print.

Total system costs for City-wide residential recycling service in FY94-95 are estimated to be $21,200,000.

9.4 FUTURE POTENTIAL REVENUE SOURCES AND CONTINGENCY FUNDING SOURCES

Future Potential Revenue Sources

Sources for generating additional revenues to the General Fund may include additional fees authorized by AB 939. A fee to help fund AB 939 implementation countywide is under investigation and may contribute significantly to future funding needs.

Contingency Funding Sources

If a shortfall in solid waste management funds occurs, possible contingency funding might be obtained from:

- Rollover of unspent funds
- Establishment of an enterprise fund
- Short-term special taxes
- Rate increases

The City is investigating the possibility of rolling over unspent funds or, more likely, rate increases for the contingency funding.

9.5 REVENUE PROJECTION THROUGH THE SHORT-TERM PLANNING PERIOD

It is anticipated that revenue in future years will be sufficient to pay for the cost of programs needed to achieve SRRE goals. Within certain limits, the City Council has the authority to raise fees and taxes to levels necessary to fund City programs and activities. Such increases could apply to any of the revenue sources listed above.

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TABLE 9-1

ESTIMATED PROGRAM COSTS THROUGH THE SHORT-TERM PLANNING PERIOD

	FY 90-91	FY 91-92	FY 92-93	FY 93-94	FY 94-95
Source Reduction Recycling	$ 60,000	$ 61,219	$ 54,000	$ 68,000	$ 72,000
--Residential	$3,283,164	$3,013,697	$ 3,500,000	$ 6,200,000	$ 6,510,000
--Commercial	$ 232,522	$ 256,771	$ 270,000	$ 280,000	$ 300,000
--Market Development	$ 163,240	$ 210,576	$ 270,000	$ 230,000	$ 240,000
Composting	$1,506,848	$5,004,499	$10,260,000	$10,800,000	$11,340,000
IWM Long Term Planning	$ 100,000	$ 115,000	$ 121,000	$ 127,000	$ 133,000
IWM Other Services	—	—	—	$ 3,200,000	$ 3,360,000
TOTAL	$5,345,774	$8,661,762	$14,486,000	$20,905,000	$21,955,000

TABLE 9-2

INTEGRATED WASTE PROGRAM REVENUE ESTIMATES, 1991-92 THROUGH 1994-95

SOURCE OF FUNDS	1990-91 ADOPTED	1991-92 PROPOSED	1992-93 EST.	1993-94 EST.	1994-95 EST.
Recycling Rebates (92-93: 40,000 tons 93-94: 60,000 tons 94-95: 70,000 tons)	$ 278,000	$ 245,710	$ 321,200	$ 481,800	$ 562,100
Salvage Revenue	$ 0	$ 0	$ 0	$ 0	$ 0
Garbage Franchise Fees	$10,299,000	$11,224,300	$11,224,300	$11,224,300	$11,224,300
AB 939 Fee: Garbage Rate Payers (Increase of 13% in 94-95)	$ 0	$ 4,625,080	$ 4,625,080	$ 4,625,080	$ 5,355,356
Rubbish Franchise Fee	$ 2,379,000	$ 3,560,027	$ 3,560,027	$ 3,560,027	$ 3,560,027
AB 939 Landfill Fee (91-92 is 11 mos.)	$ 0	$ 271,719	$ 296,410	$ 296,410	$ 296,410
Landfill Business Tax (Tonnage reductions: 92-93: $42,960; 93-94: 47,267; 94-95: 64,160)	$ 3,386,240	$ 3,508,099	$ 3,279,219	$ 3,237,418	$ 3,044,938
Disposal Fees	$ 3,173,456	$ 3,173,456	$ 3,173,456	$ 3,173,456	$ 3,173,456
TOTAL SOURCE OF FUNDS	$19,515,696	$26,608,391	$26,579,692	$26,598,491	$27,216,587

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TABLE 9-1

ESTIMATED PROGRAM COSTS THROUGH THE SHORT-TERM PLANNING PERIOD

	FY 90-91	FY 91-92	FY 92-93	FY 93-94	FY 94-95
Source Reduction Recycling	$ 60,000	$ 61,219	$ 54,000	$ 68,000	$ 72,000
--Residential	$3,283,164	$3,013,697	$ 3,500,000	$ 6,200,000	$ 6,510,000
--Commercial	$ 232,522	$ 256,771	$ 270,000	$ 280,000	$ 300,000
--Market Development	$ 163,240	$ 210,576	$ 270,000	$ 230,000	$ 240,000
Composting	$1,506,848	$5,004,499	$10,260,000	$10,800,000	$11,340,000
IWM Long Term Planning	$ 100,000	$ 115,000	$ 121,000	$ 127,000	$ 133,000
IWM Other Services	—	—	—	$ 3,200,000	$ 3,360,000
TOTAL	$5,345,774	$8,661,762	$14,486,000	$20,905,000	$21,955,000

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Salvage Revenue	$ 0	$ 0	$ 0	$ 0	$ 0
Garbage Franchise Fees	$10,299,000	$11,224,300	$11,224,300	$11,224,300	$11,224,300
AB 939 Fee: Garbage Rate Payers (Increase of 13% in 94-95)	$ 0	$ 4,625,080	$ 4,625,080	$ 4,625,080	$ 5,355,356
Rubbish Franchise Fee	$ 2,379,000	$ 3,560,027	$ 3,560,027	$ 3,560,027	$ 3,560,027
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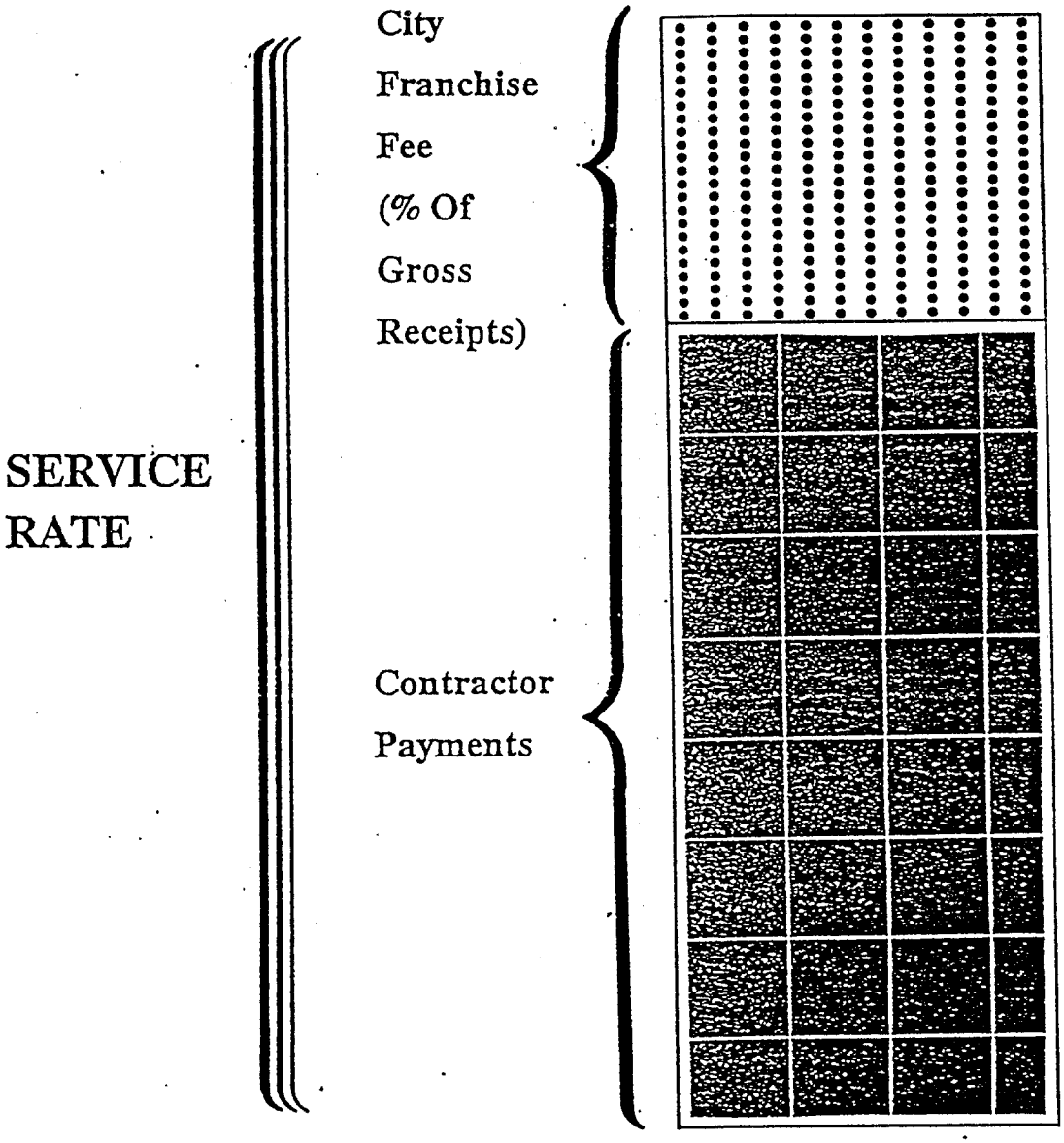
Landfill Business Tax (Tonnage reductions: 92-93: $42,960; 93-94: 47,267; 94-95: 64,160)	$ 3,386,240	$ 3,508,099	$ 3,279,219	$ 3,237,418	$ 3,044,938
Disposal Fees	$ 3,173,456	$ 3,173,456	$ 3,173,456	$ 3,173,456	$ 3,173,456
TOTAL SOURCE OF FUNDS	$19,515,696	$26,608,391	$26,579,692	$26,598,491	$27,216,587

FIGURE 9-1

GARBAGE COLLECTION
SERVICE RATE STRUCTURE



Section Ten

10. INTEGRATION COMPONENT

10.1 OVERVIEW

The passage of the California Integrated Waste Management Act of 1989 (AB 939) mandates that a jurisdiction achieve a 25 percent waste diversion rate by January 1, 1995, and a 50 percent reduction in waste disposal by the year 2000. Jurisdictions are to achieve these goals by integrating source reduction, recycling, composting, and special waste programs and activities following the integrated waste management hierarchy of (1) source reduction, (2) recycling and composting, and (3) environmentally safe transformation and disposal. This component describes how a combination of existing waste diversion programs, planned expansions of existing programs, and new source reduction, recycling, and composting programs and activities combine to meet the waste diversion goals. Table 10-1 presents an overview of the total waste diversion projections through the year 2005.

Seven years ago, the San Jose City Council first adopted the goal of diverting 25 percent of the wastes from landfills by 1990 in the Solid Waste Program Goals and Principles. As projected in the 1991 Waste Reduction Strategy, and corroborated in this document, San Jose can report that it has met that goal and will achieve a 38 percent reduction by FY92-93.

San Jose is just beginning to hit its stride with expansion of recycling programs. The City has now established a clear commitment to changing from a one-way disposal-oriented solid waste system to an integrated waste management recycling-oriented system. Comprehensive planning is now underway for the next garbage collection and recycling contracts for 1993, referred to as the Recycling Plus! Request for Proposals (RP! RFP). The City has established an elaborate infrastructure of support for both residential and commercial programs, and initiatives by both the public and private sectors. All forms of recycling and waste reduction are encouraged in San Jose, from non-profit and charitable activities, to buyback and convenience-oriented activities, recognizing the diversity of recycling interests and demographics within the city. Public policies clearly encourage the investment in recycling, including contract requirements, ordinances, permits, rate structures, and tax policies. The City has also pioneered local government's contributions to expanding the markets for recycled materials, to strengthen the economics and substantial investment that the City has made in these initiatives.

As most of the goals and principles have been achieved that were established for the Solid Waste Program in 1983, this is the time for new goals and principles to guide the new Integrated Waste Management Program into the 21st Century. Wastes are being increasingly viewed as materials of value that need to be properly directed to achieving their highest and best use. A revised set of goals and principles is the final section of this Integration Component referenced as Attachment 10-1, Integrated Waste Management Goals and Principles.

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10.2 COMPLIANCE WITH DIVERSION MANDATES

The selection of programs and implementation schedule outlined in the SRRE continues the monitoring and expansion of the programs adopted in the 1991 Waste Reduction Strategy to achieve the City's waste reduction goals.

Table 10-1 lists the tonnages that will be diverted by material type and program. The primary contributors to meeting state mandated waste diversion goals are the following:

- Residential Recycling and Composting - Will reduce total wastes by 3.6 percent (and residential wastes by 13.8 percent) through Curbside Recycling (including Mixed Paper Pilot), Multi-Unit Recycling Pilot, Oil Recycling, and Yard Waste Recycling Pilot (and beginning of City-wide expansion).

- Commercial Programs and Solid Waste Facilities - Will reduce total wastes by approximately 8.6 percent, particularly with the start-up of the Recyclery at Newby Island Landfill.

- Other Private Initiatives - Will reduce total wastes by approximately 13.3 percent through over 140 recycling service providers in the San Jose area including those for Special Wastes.

10.3 SELECTED PROGRAMS TO MEET DIVERSION GOALS

Source Reduction

Source reduction is identified as the highest priority within the hierarchy of approaches to integrated waste management. Source Reduction is the single most effective method of reducing both the volume and toxicity of the waste stream. Every program within the Office of Environmental Management attempts to integrate source reduction into the implementation plans. The coordination of activities among programs will ensure that all programs complement each other.

The objectives of the Source Reduction Component fall into four phases to be carried out during the short-term period and continued through the medium-term period.

Phase I (July 1, 1991 - June 30, 1993) - Information and Advocacy

- Technical Information and Assistance (Data Out)

  In the first phase of the Source Reduction Program, the City will provide technical information and assistance to residents and businesses. The objective is to provide information to the public which will allow participants to implement source reduction voluntarily. A major aspect of this effort will be public

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education to encourage residents to plan purchases to minimize the amount of waste generated.

- Quantification (Data In)

  During the first half of the short-term period, the City will improve methods used to quantify source reduction activities. Once the City has firm data on the amount of waste that can be diverted or avoided from being generated in the first place, then the City can set firm percentage goals for source reduction. Until then, the City will set the short-term goals to be twice that of the current level as described in the Waste Characterization Study.

- Legislative Advocacy

  The City will be actively involved in advocating source reduction legislation at the State and Federal levels. The City also will be developing local ordinances to enhance State and Federal incentives or to address any shortcomings in those initiatives.

Phase II (July 1, 1993 - June 30, 1995) - Economic Incentives

The second phase of the Source Reduction Program will emphasize economic incentives and will be carried out in the latter half of the short-term planning period. Rate structure modifications will be the primary tool for providing incentives. The City Council has already approved the change in the residential rate structure to a volume-based system beginning July 1, 1993. Additional incentives for both residential and commercial customers will be evaluated in FY 91-92 and FY 92-93.

Phase III (July 1, 1995 - June 30, 1997) - Mandates

Mandates will become the emphasis in the beginning of the medium-term implementation period for those areas where sufficient progress has not been made. Actual implementation and enforcement of mandates will only be pursued if prior source reduction and recycling efforts have not achieved this component's goals.

Phase IV (July 1, 1997 - June 30, 1999) - City Services

The final phase will be to provide actual City services, not otherwise included in Phase I or II, such as free composting bins to encourage backyard composting or free canvas bags for shopping. Here as well, actual implementation will depend on the level of success achieved by source reduction and recycling efforts already in place and will only be pursued as necessary to meet goals.

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Residential Recycling

Given San Jose's diverse socio-economic and cultural composition, the strategy of the residential recycling program is to provide a full range of convenient and easy to use recycling services to all residents to ensure maximum participation in recycling. The City will continue to respond to the diverse needs of its population and offer a wide selection of recycling options from buy-back and drop-off centers to the maximum convenience of curbside service. Recycling objectives in the residential sector will be implemented in two phases. The first phase corresponds to the first half of the short-term planning period and the second phase begins in 1993 with the implementation of the Recycling Plus! system.

Phase I (July 1, 1991 - June 30, 1993) - Increased Participation

- Objectives

  Objectives in the first phase of the short-term planning period are to identify how to provide comparable service to Multi-Unit Dwellings and improve collection and processing efficiency by increasing participation and recovery rates, reducing contamination in set-outs, reducing scavenging, and increasing collection to include additional materials.

- Programs

  Work has already begun on Phase II of the Multi-Unit Recycling Pilot to expand service to Multi-Unit Dwellings. The Used Oil curbside collection will be actively promoted in FY91-92. Recycling Market Development will continue to focus on preparing contingency plans, supporting state and federal legislation regarding market development, encouraging siting of new markets in San Jose, and expanding City and private procurement practices. An effort will be made to expand existing local recycling manufacturing activities as well as attract new manufacturers who use secondary materials in their processes. Of highest priority for market development in this phase will be the development of a Market Development Zone pursuant to SB 1322.

Phase II (July 1, 1993 - June 30, 1999) - Recycling Plus! System

- Single-Unit Dwellings

  This Phase will expand the existing Curbside Recycling collection system into a "four-sort" system to include collection of mixed paper, mixed plastics, and other new materials. In 1991, the City will assess the amount of plastic that can be recovered and the impacts of recycling other materials. Periodic curbside pickup of bulky wastes for reuse and recycling will be added to the collection services. Yard Waste will be banned from the garbage collection. Along with unlimited

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collection of recyclables, a variable can rate structure will be implemented. Market development activities will begin to focus on siting recycling facilities and related industries in the area.

- Multi-Unit Dwellings

  Recycling service to Multi-Unit Dwellings is proposed to come under a separate collection contract in order to best ensure that comparable service is provided to single-unit residences and multi-unit dwellings. Multi-Unit Dwelling recycling collection will include comparable service to that provided to single-family residents.

The medium-term planning period comprises the mid-1990s, when the City will implement the new, combined recycling/garbage collection contract (Recycling Plus!) with the aim of advancing the City's recycling goals in the residential sector.

With these recycling services in place, the City will institute economic incentives to encourage waste generators to use these services and to encourage garbage and recycling collection contractors to come up with new innovations to implement and expand recycling initiatives throughout the life of the collection contracts.

If waste diversion goals have not been reached with this Recycling Plus! system (including the economic incentives to waste generators and collection contractors), then mandates will need to be expanded that require residents to source separate more materials before disposal, and/or ban the disposal of specified materials at the landfill.

If the City wishes to exceed the diversion goals set by the State and City it may need to evaluate additional residential recycling collection and processing systems to divert more materials. The City has already explored options for source separating materials, such as the wet/dry sort for the next garbage and recycling collection contract in 1993. The implementation of any new City mandates would be contingent upon not meeting state mandates or seeking to meet more aggressive City waste diversion goals.

The extension of Recycling Plus! contracts should be contingent upon achieving the City's waste diversion goals.

Commercial Recycling

Unlike residential recycling services, the City's challenge for commercial recycling is to harness the forces of the private sector to achieve the public policy goals of waste reduction. Recycling in the commercial sector is designed to minimize City involvement and to increase the already active role taken by the 140 recyclers serving San Jose. Following the approach outlined above for the Source Reduction Program, the strategy of the Commercial Program will follow a four-

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step progression of incremental efforts throughout the short-term and medium-term implementation periods.

Phase I (July 1, 1991 - June 30, 1993) - Information

- Technical Information and Assistance (Data Out)

  In Phase I, the City will provide information and technical assistance efforts to stimulate the private sector to provide recycling services and recycling opportunities for every facet of the diverse commercial/industrial sector in San Jose. Commercial program staff will continue to develop technical information packets, fact sheets, case studies, and audits to assist waste generators directly as well.

- Quantification (Data In)

  The City will develop an analytical system that will allow the City sufficient understanding of the commercial waste stream and recycling system to predict changes resulting from City intervention through rate structure modifications and changes in materials handling and processing methods. This will build on the database tracking system and performance measures developed already to evaluate the progress of commercial recycling activities.

Phase II (July 1, 1993 - June 30, 1995) - Incentives

As waste disposal costs and environmental awareness continue to rise, businesses will increasingly seek the assistance of the City. In Phase II, the City will provide economic incentives for both waste generators and recycling service providers to increase recycling activities. Incentives will include business taxes, franchise fees, and rate modifications for waste generators and waste processing facilities.

Phase III (July 1, 1995 - June 30, 1997) - Mandates

If the first two phases are insufficient to stimulate recycling activities to meet the City's waste diversion goals, then in Phase III the City will implement a series of mandates on recycling and bans on various items from the Commercial wastestream.

Phase IV (July 1, 1997 - June 30, 1999) - City Services

In Phase IV, the City will provide recycling services where the private sector has not filled the needs of waste generators and design additional incentives to fully realize the potential of recycling in the commercial sector.

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Composting

Residential yard waste recycling will expand service City-wide to all single family households by April 1992 and all multi-unit dwellings by the Fall of 1992. The City will be involved in the ongoing analysis of evaluating the feasibility of collecting and processing other materials for composting, including food waste. The City will also be working to develop markets and expand public uses for recycled yard waste products that meet the highest and best use standards for products using recycled materials.

Special Waste

The objectives for handling special waste in the short- and medium-term period are to continue existing programs that divert recyclable special wastes from being landfilled, continue to provide for environmentally safe management and disposal of special wastes that cannot be recycled, and increase the recovery rate of recyclable special wastes from the solid waste stream as new markets come on line to absorb the recovered materials. The City will also be working closely with the private and non-profit sectors to support the reuse of bulky wastes and other secondary materials and encourage the recycling of the unusable portion of the remaining material through rate structure modifications and incentives.

Environmentally Safe Transformation and Disposal

Waste-to-Energy remains the least-developed type of resource recovery in this area. The most important reasons for this are a lack of markets for energy, high initial capital costs, difficulties in siting, and environmental issues. At the present time, there is little interest in developing waste-to-energy as a waste management option due to its lack of economic viability coupled with the "highest and best use" policy included in this SRRE.

Currently, under AB 939, no more than 10 percent of a City's 50 percent waste reduction goals can include waste diverted through transformation (including waste-to-energy). At the present time, the only two types of waste-to-energy recovery taking place in San Jose are: (1) the processing of yard waste into refuse-derived fuel, and (2) landfill gas recovery systems. The City's current Yard Waste Processing contract stipulates the percentage of allowable yard waste materials that can be converted to fuels on an annual basis. This is to ensure that the collection and processing systems obtain the highest and best use for recovered waste as the markets for other yard waste products (compost, mulch, wood chips) expand over time.

While waste-to-energy systems are not being aggressively pursued at the present time, an increase in the cost of energy, technological advances that would further reduce the impact of waste burning on the environment, and ever-diminishing landfill capacity could make waste-to-energy a more attractive option in the long-term planning period. For this reason, the City is attempting to structure current and future collection, disposal, and recycling agreements to allow for the possible development of waste-to-energy recovery in the future.

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The City of San Jose has a 30-year Disposal Agreement with International Disposal Corporation (a wholly owned subsidiary of Browning-Ferris Industries) to dispose of its waste at the Newby Island Landfill. Under the agreement, the City's contracted collector (currently WMI) may dispose of up to 395,200 tons per year of municipal solid waste. Any excess waste is currently disposed of at the Kirby Canyon Landfill, owned by WMI. The City would like to extend the Disposal Agreement as long as the total capacity committed would last, for unused capacity to be able to be rolled-over beyond year 2016. In addition, the City has supported the concept of additional landfill capacity to be developed by the public sector outside of San Jose to provide up to 50 years capacity for all cities in the County. For a discussion of landfill capacity remaining in the City's landfills, refer to the Landfill Capacity Component, Section 8.

10.4 COMPONENT INTEGRATION

The approach to providing integrated recycling services in the City's residential and commercial sectors has been to offer a diversity of services to meet the needs of an ethnically and demographically diverse community. This diversity is a unifying and integrating force in the selection and implementation of a wide range of recycling services and options. Both the residential and commercial sectors have been targeted to receive recycling services tailored to fit their divergent needs in order to maximize the recovery potential of each of these sectors and to provide the most cost-effective collection services. The residential sector has been further subdivided to provide services to single-unit dwellings and multi-unit dwellings while the commercial sector has been subdivided to target the differentiated activities of waste generators and recycling service providers.

In the residential sector, the City's primary objective has been to ensure that recycling is convenient, easy, and meets the needs of its diverse residential community. This goal depends on providing comparable services to single-unit dwellings and multi-unit dwellings. One of the goals of the Multi-Unit Recycling Pilot Program has been to evaluate recycling system alternatives and identify how to provide comparable services.

In the commercial sector, the City's approach has been to provide a range of recycling options to commercial businesses. The integrating force behind the Commercial Program's approach is to help businesses identify the available and potential opportunities to recycle and encourage recycling service providers to provide the maximum number of options that best suit the needs of this sector.

Equivalent to information provided to residents regarding drop-off and buyback services in the residential sector is the technical information and assistance provided to waste generators in the commercial sector. Commercial Program staff are actively involved in providing information about where waste generators can take recyclables or obtain recycling services.

The needs of large businesses to recycle has traditionally been met by recycling industries. This has typically been done due to the economy of scale that has warranted the involvement of

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recyclers in collecting the material. These recycling industries offer large businesses the equivalent of buyback services in the residential sector.

However, investigation into San Jose's commercial sector has revealed that more than 90 percent of the businesses in San Jose are small businesses. The goal of the Commercial Program has been to identify the true costs and benefits of recycling collection systems that could be made available to waste generators by recycling service providers. In this way, both waste generators and recyclers could see the advantages of paying for recycling collection services, as such service proves to be more cost-effective than garbage or rubbish collection.

The fundamental question currently being addressed by the Commercial Program is determining the level of City involvement in mandating source separation or encouraging the use of Material Recovery Facilities. The City's position is that it would like businesses to have options of convenience and cost-effectiveness similar to those provided in the residential sector. If waste reduction goals in the commercial sector are not met, then the City may have to become involved in a phased-in approach to implement mandates and City sponsored programs.

Program integration has been designed into the City's existing and proposed recycling initiatives in both the residential and commercial sectors. One of the City's objectives has been to build on existing recycling activities by soliciting the involvement of all interested private recycling facilities and service providers in all City recycling initiatives. The City facilitates this by fostering an open, competitive process with maximum distribution and solicitation of proposals from existing recyclers. When programs are designed, the City seeks involvement of local haulers and recyclers in implementing City recycling initiatives. One example of the complementary co-existence of City initiatives alongside private initiatives is the selection of an existing, privately owned facility to process the materials from the Curbside Pilot. The intent here is not to have government subsidized recycling services implemented at the expense of existing recyclers.

The slogan "Recycle the Rest With Us" is one which appeared in early literature advertizing the implementation of the Curbside Recycling Pilot Program. This slogan is reflective of the approach the City has consistently taken with other recycling initiatives. The Pilot Program's premise was to encourage residents to continue recycling with organizations that they had been previously been recycling with. However, San Jose wanted to encourage the recycling of even more types and amounts of materials. So, while residents could continue to recycle materials at buy-back centers or donate recyclables to their favorite charitable organization, City recycling services would be provided to make recycling easy and convenient to collect the rest of the materials. This approach enabled curbside collection, buy back, and drop-off programs to exist side-by-side with high recovery rates as each program appealed to the many needs of the diverse community.

Not only have all of the programs been successful, they have been exemplary as well. In 1990, the California Resource Recovery Association selected San Jose for an award as the "Most Comprehensive Recycling Program" in the State of California. Along with the noted success

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of San Jose's Curbside Program, the single most profitable privately owned reverse vending machine in the country is located in a residential community in San Jose. This offers testimony to the success of San Jose's efforts to integrate City sponsored recycling services with the initiatives of the private sector and shows that the two can profitably co-exist.

The City's program of diverse services responding to diverse needs has a self-fulfilling integration function. It allows people to make choices and participate however they choose to achieve maximum recovery rates through recycling. Reinforcing public education and outreach, and policies that underscore the maximum opportunities for recycling has enabled San Jose to integrate public and private recycling activities with those of the City.

10.5 IWM GOALS AND PRINCIPLES TO 2005

AB 939 takes the City to the threshold of a revolution. In a 180 degree turn, San Jose will no longer be removing recyclables from the waste stream, but rather removing waste from the resources stream. This trend will make the term "waste management" an oxymoron.

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ATTACHMENT 10-1

INTEGRATED WASTE MANAGEMENT GOALS AND PRINCIPLES

SOLID WASTE COLLECTION

1. The City's exclusive and non-exclusive solid waste collection franchise agreements should be structured to provide economic incentives to waste generators and collectors to minimize waste and foster source reduction, recycling and composting. The means to create avoided solid waste collection costs resulting from waste diversion activities should be designed to help fund the costs of waste diversion activities. Where efficiencies of waste collection conflict with efficiencies of recycling collection, recycling efficiencies should be maximized.

2. Exclusive solid waste collection contracts should be subjected to frequent solicitations (at least every 10 years) to maximize the number of competitors so as to ensure a low cost of service when compared to other cities in the region and comparably sized cities with comparable service. Escalation of service rates for collection and processing of solid waste and recyclables should be minimized by only allowing contractor payments to increase along with inflation indices (with caps).

3. Performance standards and incentives should be provided in solid waste collection contracts to ensure a high quality of service is provided to residents and businesses, responsiveness of contractors to customer and City needs, and fiscal and data accountability.

SOURCE REDUCTION, RECYCLING, AND COMPOSTING

1. The City's approach to Integrated Waste Management should follow the State established hierarchy which places primary emphasis on implementing all feasible source reduction, recycling, and composting waste diversion programs while continuing to allow transformation facilities and landfills to address waste which cannot be reduced at the source, recycled or composted.

2. Solid waste should be viewed as a resource and the City should focus its efforts on pursuing the highest and best use of materials. To the extent possible, materials should be kept separate to maximize the quality of materials and their marketability. Priorities for City involvement in maximizing waste diversion should focus on those wastes which consume the largest amount of space in the landfill and on maximizing the local use of the material resources.

3. The City should establish a data tracking, monitoring, and reporting system by January 1, 1992 to assist in restructuring countywide AB 939 fees and so that the City

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has a full year of data prior to (1) establishing additional incentives in the commercial sector by July 1, 1993, and (2) implementing the new Recycling Plus! System.

4. By July 1, 1996, San Jose should achieve a 50% waste diversion goal for both the residential and commercial sectors. Ninety-five percent of food waste should be separated from rubbish in the commercial waste stream to ensure that virtually all rubbish is processable at Material Recovery Facilities (MRF).

5. By January 1, 1994, the City should develop diversion goals beyond 50% and determine how much landfill capacity and transformation facility capacity is needed for the remaining portion of San Jose's waste stream.

6. If San Jose has not achieved the 50% waste diversion goal by 1996, then the City should dramatically restructure both the residential and commercial collection systems to achieve these diversion goals by July 1, 1999 as follows: (1) evaluate a wet/dry sort in the residential sector, similar to the garbage/rubbish sort in the commercial sector, to ensure that virtually all resources in the residential waste stream can be recycled; and (2) expand incentives, mandates, and City services as needed to achieve waste diversion goals in the commercial sector.

7. To ensure continued economic success of the City's waste diversion initiatives, the highest priority for staff activities should be to implement a comprehensive Market Development Strategy (including Economic Development, Procurement, Contingency Plans, and Advocacy for State and Federal incentives for private investment in recycling) to stabilize and increase demand for recyclables, to establish incentives for increased recycling and to reduce the risk of exposure of the City to a significant downturn in prices paid for recyclables. The City should consider the creation of a San Jose Recycling Market Development Zone as a possible priority.

TRANSFORMATION

1. All solid waste transformation facilities in the United States should meet the highest environmental standards required by law. Best available control technology should be used for air and ash emissions to comply not only with State and Federal standards for criteria pollutants, but also to control non-criteria pollutants to the maximum extent possible. Environmental review processes and solid waste facility permits should ensure these standards are achieved.

2. Preference should be given to City support and use of transformation facilities which burn relatively homogeneous wastes (as opposed to mixed municipal solid wastes), such as wood-burning or tire-burning facilities, if these facilities are designed and operated with state-of-the-art environmental controls.

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LANDFILLS

1. The City should at all times maintain 50 years of landfill capacity available under contractual commitments and/or uncommitted capacity at landfills within the City sphere of influence. All landfills within San Jose and Santa Clara County should reserve some percentage of their daily, annual and total permitted disposal capacity for commercial wastes and direct public disposal from San Jose as long as such wastes have no contractually committed capacity reserved.

2. No landfill should be expanded or established in San Jose unless it directly contributes to meeting the City's waste diversion goals. A material recovery facility should be included as part of the landfill design (or serving the landfill's source of wastes) that recovers at least 25% of incoming wastes by 1993 and 50% by 1996. Rate structures should be designed to provide incentives for keeping wastes separated as much as possible to facilitate recycling, and to reflect the long-term avoided disposal costs resulting from the savings of landfill space.

3. All landfills must meet the highest environmental standards required by law to level the playing field relative to waste diversion activities and to regain the public's trust. Best available control technology should be used to comply with State and Federal standards. The City should be a strong advocate at the State and Federal level for the most stringent standards possible. The City should aggressively enforce the State Minimum Standards for Solid Waste Facilities and local permits to become an acknowledged leader in the state in inspection, monitoring, and enforcement activities.

4. Solid Waste Facility permits, Reports of Disposal Site Information, land use permits, environmental review documents, disposal agreements and the County Integrated Waste Management Plan should all support these landfill goals.

5. Landfills should be valued at the marginal costs of developing and using a new landfill site located within 50 miles of San Jose, in evaluating long-term economic costs and benefits of waste diversion programs. Long-term liability and environmental impairment costs should be factored into the analysis, along with transfer and transportation costs.

6. Landfills operating in San Jose should be viewed as a scarce non-renewable resource. Use of landfills located in San Jose by non-City collectors or waste producers should be discouraged except for wastes generated in Santa Clara County. Landfill capacity used by waste importers should ultimately compensate the City sufficiently to finance an equivalent capacity of waste diversion programs to replace such lost capacity.

7. The expansion of existing landfills in San Jose is preferred over the development of additional landfills in San Jose. The development of new publicly-owned landfill capacity outside San Jose should be supported to assist in meeting the City's 50 year capacity goal.

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8. Material Recovery Facilities (MRFs) located in San Jose will play a key role in diverting recyclable materials from the City's waste stream. However, materials processed at MRFs must be marketable. Since non-recyclable materials present in incoming loads can contaminate recyclable materials and decrease their marketability, it is important that contamination levels be kept to a minimum. It is the City's goal that residual (non-recyclable) materials processed at MRFs not exceed 75% of the total wastes received as weighed for FY91-92, 50% by FY92-93, and 25% for FY93-94.

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TABLE
TOTAL WASTE DIVERS[illegible]ROJECTIONS

Waste Diverted, Tons

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
SOURCE REDUCTION																
Existing Programs	500	600	600	600	600	600	600	600	600	600	600	600	600	600	600	600
New Programs*		500	1000	2000	3000	5000	7000	9000	11000	13000	13138	13205	13272	13339	13407	13475
RECYCLING																
Existing Programs	403923	428966	433127	437329	441571	445854	450580	455356	460183	465061	469990	472387	474797	477218	479652	482098
Expand/Improve Curbside		2000	3000	16400	34300	34900	35440	36000	36600	37226	37620	37813	38005	38198	38393	38588
Expand Multi-family Recycling		250	550	5000	12000	12116	12244	12373	12504	12636	12770	12835	12900	12966	13032	13098
MFRs: The Recyclery		4500	11000	15000	18000	20000	20216	20425	20641	20859	21080	21188	21296	21403	21513	21622
Zanker Road			10000	21000	21203	21407	21634	21862	22093	22326	22563	22678	22794	22909	23026	23143
Commercial Outreach*		2000	4000	6000	8000	10000	12000	14000	16000	18000	20000	22000	24000	26000	28000	30000
Commercial Incentives*				5000	10000	15000	20000	25000	30000	30000	30000	30000	30000	30000	30000	30000
Commercial Regulation*						17594	57385	57990	58602	59222	59850	60156	60462	60768	61078	61388
COMPOSTING																
Existing Programs	4177	4177	4177	4177	4177	4177	4177	4177	4177	4177	4177	4177	4177	4177	4177	4177
Expand Yard Waste Recycling		1000	16000	56000	86000	86828	87747	88673	89609	90557	91516	91985	92453	92921	93395	93869
Yard Waste Self-hauler Drop-off*			1000	3000	5000	5048	5102	5155	5210	5265	5321	5348	5375	5402	5430	5458
Commercial Compost/Food Waste*				500	2000	5000	10000	15000	15629	15795	15962	16044	16125	16207	16290	16373
SPECIAL WASTE																
Existing Programs																
Divert Tires*				500	1000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
White Goods Processing*			100	100	200	200	200	200	200	200	200	200	200	200	200	200
TOTAL WASTE DIVERTED	408600	443993	484554	572606	647051	685724	746325	767811	785048	796924	806787	812616	818456	824308	830193	836089
TOTAL WASTE GENERATED	1400900	1423595	1437403	1451346	1465424	1479639	1495323	1511174	1527192	1543380	1559740	1567695	1575690	1583726	1591803	1599921
DIVERSION RATE	29.2%	31.2%	33.7%	39.5%	44.2%	46.3%	49.9%	50.8%	51.4%	51.6%	51.7%	51.8%	51.9%	52.0%	52.2%	52.3%
NEW TRANSFORMATION		4500	21000	36000	39200	41400	41800	42300	42700	43200	43600	43900	44100	44300	44500	44800
WASTES LANDFILLED	992300	975102	931849	842740	779173	752515	707198	701063	699444	703256	709353	711179	713134	715118	717110	719032
LANDFILL REDUCTION	29.2%	31.5%	35.2%	41.9%	46.8%	49.1%	52.7%	53.6%	54.2%	54.4%	54.5%	54.6%	54.7%	54.8%	54.9%	55.1%

*= programs implemented as needed to reach 50% diversion rate

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Type of Diversion	Type of Generator	Type of Program	Implementation Tasks	Start Date	Milestone Date	Entity Responsible	Funding Source
Source Reduction	Residential	Technical Assistance and Monitoring	Provide public information materials and assistance programs	ongoing	ongoing	San Jose OEM	General Fund
			Backyard Composting Model	ongoing	ongoing	San Jose OEM	General Fund
			Consumer Purchasing Model	ongoing	Jun-94	San Jose OEM	General Fund
Source Reduction	Commercial	Technical Assistance and Monitoring	Information exchange and fact sheets	ongoing	ongoing	San Jose OEM	General Fund
			Waste evaluations and audits	ongoing	ongoing	San Jose OEM	General Fund
			Legislative Advocacy	ongoing	ongoing	San Jose OEM	General Fund
			Quarterly Survey Index	ongoing	Jun-93	San Jose OEM	General Fund
			City Office Source Reduction Model	ongoing	Dec-93	San Jose OEM	General Fund
Source Reduction	All	Economic Incentives and Monitoring	Evaluate rate structure modifications	ongoing	ongoing	San Jose OEM	General Fund
			Expand City and Private Procurement Practices	ongoing	Jan-93	San Jose OEM	General Fund
			Incorporate Non-Profit Reuse Model into Garbage Collection Agreement	Jul-93	Jul-94	San Jose OEM	General Fund
Recycling	Residential	Expand Existing Programs	Expand existing curbside collection system into four-sort system with variable can rate structure	Jul-93	ongoing	San Jose OEM	General Fund
			Citywide expansion of Multi-Unit Dwelling Program	Jul-93	ongoing	San Jose OEM	General Fund
Recycling	Residential	Expand Collection of Material Types	Include collection of mixed paper and other materials	Jul-93	ongoing	San Jose OEM	General Fund
Recycling	Commercial	Market Development	Develop markets and expand end-uses for recycled yard waste products	Jul-93	ongoing	San Jose OEM	General Fund
Recycling	Commercial	Technical Assistance and Monitoring	Provide public information materials and assistance programs	Jul-93	ongoing	San Jose OEM	General Fund

INTEGRATION TABLE 10-2c Continued FY93/94 CALENDAR

Type of Diversion	Type of Generator	Type of Program	Implementation Tasks	Start Date	Milestone Date	Entity Responsible	Funding Source
Recycling	Commercial	Data Collection/Analysis	Continue database tracking system	ongoing	ongoing	San Jose OEM	General Fund
Recycling	Commercial	Economic Incentives	Evaluate effects of City incentives	Jul-93	ongoing	San Jose OEM	General Fund
Composting	Residential	Expand Collection of Material Types	Examine feasibility of composting mixed paper	Jan-94	Oct-94	San Jose OEM	General Fund
			Develop plan for collection of food waste for mid-term implementatio	Jul-93	May-94	San Jose OEM	General Fund
Composting	All	Expand Uses of Materials	Study feasibility of co-composting other organic residues for mid-term implementation	Jan-94	May-94	San Jose OEM	General Fund
Special Waste	Residential	Bulky Waste Recovery	Add periodic pickup of bulky wastes	Jul-93	ongoing	San Jose OEM	General Fund
			Initiate bulky waste recycling	Jan-94	ongoing	San Jose OEM	General Fund

INTEGRATION TABLE 10-2a Continued FY91/92 CALENDAR

Type of Diversion	Targeted Generator	Type of Program	Implementation Tasks	Start Date	Milestone Date	Entity Responsible	Funding Source
Recycling	All	Evaluation/Monitoring	Waste Characterization Study	Jul-91	Jan-93	San Jose OEM	General Fund
			Annual Field Audits	Jan-92	ongoing	San Jose OEM	General Fund
Composting	Residential	Expand Existing Programs	Citywide expansion of yard waste collection to single-family households	Sep-91	Sep-92	San Jose OEM	General Fund
			Expand Service to Multi-Unit Dwellings	Sep-91	Sep-92	San Jose OEM	General Fund
Composting	Residential	Increase Program Participation	Inform and educate residents about how to participate in yard waste program	Aug-91	Sep-92	San Jose OEM	General Fund
Composting	All	Market Development	Encourage municipal departments to use compost products	Sep-91	Feb-92	San Jose OEM	General Fund
			Identify end-users; expand market for end-products	Sep-91	Mar-92	San Jose OEM	General Fund

INTEGRATION TABLE . . . . Y91/92 CALENDAR

Type of Diversion	Targeted Generator	Type of Program	Implementation Tasks	Start Date	Milestone Date	Entity Responsible	Funding Source
Source Reduction	Residential	Technical Assistance and Monitoring	Provide public information materials and assistance programs	Jan-92	ongoing	San Jose OEM	General Fund
			Backyard Composting Model	Nov-91	ongoing	San Jose OEM	General Fund
			Consumer Purchasing Model	Mar-91	Jun-92	San Jose OEM	General Fund
Source Reduction	Commercial	Technical Assistance and Monitoring	Information exchange and fact sheets	Jul-91	ongoing	San Jose OEM	General Fund
			Waste evaluations and audits	Jul-91	ongoing	San Jose OEM	General Fund
			Legislative Advocacy	Jul-91	ongoing	San Jose OEM	General Fund
			Quarterly Survey Index	Aug-91	Mar-92	San Jose OEM	General Fund
			City Office Source Reduction Model	Aug-91	Dec-91	San Jose OEM	General Fund
Source Reduction	All	Economic Incentives and Monitoring	Evaluate rate structure modifications	Jul-91	Oct-91	San Jose OEM	General Fund
			Expand City and Private Procurement Practices	Jul-91	Jan-92	San Jose OEM	General Fund
			Expand Non-Profit Reuse Model	Jul-91	Dec-91	San Jose OEM	General Fund
Recycling	Residential	Expand Existing Programs	Expand Multi-Unit Dwelling Program	Jul-91	Jul-92	San Jose OEM	General Fund
Recycling	Residential	Expand Existing Programs	Provide service to mobile home parks and condominiums	ongoing	ongoing	San Jose OEM	General Fund
Recycling	Residential	Used Curbside Oil Collection	Increase dissemination of promotional materials	ongoing	ongoing	San Jose OEM	General Fund
Recycling	Residential	Increase Participation and Recovery Rates	Target minority communities	ongoing	ongoing	San Jose OEM	General Fund
Recycling	Residential	Increase Participation and Recovery Rates	Increase dissemination of promotional materials in low participation areas	Jan-92	Jul-92	San Jose OEM	General Fund

INTEGRATION TABLE 10-2a Continued FY91/92 CALENDAR

Type of Diversion	Targeted Generator	Type of Program	Implementation Tasks	Start Date	Milestone Date	Entity Responsible	Funding Source
Recycling	Residential	Reduce contamination and scavenging	Field audit; identify priority areas; public education	Jan-92	Jul-92	San Jose OEM	General Fund
Recycling	Commercial	Technical Assistance	Provide public information materials and assistance programs	Jul-91	Jan-92	San Jose OEM	General Fund
Recycling	Commercial	Expand City Programs	Recycling At Work Program	ongoing	ongoing	San Jose OEM	General Fund
			Parks and Downtown Recycling Program	ongoing	ongoing	San Jose OEM	General Fund
Recycling	Commercial	Economic Incentives	Evaluate current rate structure	Jul-91	Jul-92	San Jose OEM	General Fund
Recycling	Commercial	Increase Participation and Recovery Rates	Promote public and private programs	ongoing	ongoing	San Jose OEM	General Fund
Recycling	Commercial	Increase Diversity of Private Recycling Services	Increase program promotion and networking, including Business Recycling Advisory Committee	Jul-91	Jul-92	San Jose OEM	General Fund
Recycling	Commercial	Data Collection and Analysis	Develop Database Tracking System and Performance Objectives	Jul-91	Jan-92	San Jose OEM	General Fund
Recycling	All	Market Development	Support state and federal legislation regarding market development	ongoing	ongoing	San Jose OEM	General Fund
			Expand City and private procurement practices	ongoing	ongoing	San Jose OEM	General Fund
			Encourage siting of markets in region which use post-consumer waste	ongoing	ongoing	San Jose OEM	General Fund
			Apply to become Recycling Market Development Zone	Jul-91	Jan-92	San Jose OEM	General Fund

INTEGRATION TABLE Y92/93 CALENDAR

Type of Diversion	Targeted Generator	Type of Program	Implementation Tasks	Start Date	Milestone Date	Entity Responsible	Funding Source
Source Reduction	Residential	Technical Assistance and Monitoring	Provide public information materials and assistance programs	ongoing	ongoing	San Jose OEM	General Fund
			Backyard Composting Model	ongoing	ongoing	San Jose OEM	General Fund
			Consumer Purchasing Model	ongoing	Jun-93	San Jose OEM	General Fund
Source Reduction	Commercial	Technical Assistance and Monitoring	Information exchange and fact sheets	ongoing	ongoing	San Jose OEM	General Fund
			Waste evaluations and audits	ongoing	ongoing	San Jose OEM	General Fund
			Legislative Advocacy	ongoing	ongoing	San Jose OEM	General Fund
			Quarterly Survey Index	ongoing	Jun-92	San Jose OEM	General Fund
			City Office Source Reduction Model	ongoing	Dec-92	San Jose OEM	General Fund
Source Reduction	All	Economic Incentives and Monitoring	Evaluate rate structure modifications	ongoing	ongoing	San Jose OEM	General Fund
			Expand City and Private Procurement Practices	ongoing	Jan-92	San Jose OEM	General Fund
			Expand Non-Profit Reuse Model	ongoing	Dec-92	San Jose OEM	General Fund
Recycling	Residential	Used Curbside Oil Collection	Continue public education efforts to increase participation	Jul-92	Jul-93	San Jose OEM	General Fund
Recycling	Residential	Research Collection of Material Types	Research feasibility of collection and recycling of mixed plastics	Jul-92	Jul-93	San Jose OEM	General Fund
Recycling	Residential	Increase Participation and Recovery Rates	Increase public education and outreach	Jan-93	Jan-94	San Jose OEM	General Fund
Recycling	Residential	Evaluation/Monitoring	Monitor Participation and Recovery Rates	Jul-92	Dec-92	San Jose OEM	General Fund
Recycling	Commercial	Technical Assistance and Monitoring	Provide public information materials and assistance programs	Jul-92	Jul-93	San Jose OEM	General Fund

INTEGRATION TABLE 10-2b Continued FY92/93 CALENDAR

Type of Diversion	Targeted Generator	Type of Program	Implementation Tasks	Start Date	Milestone Date	Entity Responsible	Funding Source
Recycling	Commercial	Data Collection and Analysis	Database tracking system, fact sheets directories, business referrals	Jul-92	Jul-93	San Jose OEM	General Fund
Recycling	Commercial	Economic Incentives	Evaluate effects of city incentives	Jul-92	Jan-93	San Jose OEM	General Fund
			Implement ordinances and changes to zoning and code practices			San Jose OEM	General Fund
Recycling	All	Evaluation/Monitoring	Annual Field Audits/Surveys	Jul-92	Jul-93	San Jose OEM	General Fund
Recycling	All	Market Development	Support state and federal legislation regarding market development	ongoing	ongoing	San Jose OEM	General Fund
			Expand City and private procurement	ongoing	ongoing.	San Jose OEM	General Fund
			Encourage siting of markets	ongoing	ongoing	San Jose OEM	General Fund
Composting	Residential	Expand Existing Programs	Establish drop-off sites at composting facilities and other locations	Sep-92	Apr-93	San Jose OEM	General Fund
			Divert self-haul, landscaper and building contractor yard waste into composting program	Sep-92	May-93	San Jose OEM	General Fund

INTEGRATION TABLE - FY94/95 CALENDAR

Type of Diversion	Targeted Generator	Type of Program	Implementation Tasks	Start Date	Milestone Date	Entity Responsible	Funding Source
Source Reduction	Residential	Technical Assistance and Monitoring	Provide public information materials and assistance programs	ongoing	ongoing	San Jose OEM	General Fund
			Backyard Composting Model	ongoing	ongoing	San Jose OEM	General Fund
			Consumer Purchasing Model	ongoing	Jun-95	San Jose OEM	General Fund
Source Reduction	Commercial	Technical Assistance and Monitoring	Information exchange and fact sheets	ongoing	ongoing	San Jose OEM	General Fund
			Waste evaluations and audits	ongoing	ongoing	San Jose OEM	General Fund
			Legislative Advocacy	ongoing	ongoing	San Jose OEM	General Fund
			Quarterly Survey Index	ongoing	Jun-94	San Jose OEM	General Fund
			City Office Source Reduction Model	ongoing	Dec-94	San Jose OEM	General Fund
Source Reduction	All	Economic Incentives and Monitoring	Evaluate rate structure modifications	ongoing	ongoing	San Jose OEM	General Fund
			Expand City and Private Procurement Practices	ongoing	Jan-94	San Jose OEM	General Fund
			Fully Integrate Non-Profit Reuse Model into Garbage Collection Agreement	ongoing	Jul-95	San Jose OEM	General Fund
Recycling	Residential	Collection and Processing of Recyclables	Fully implemented Recycling Plus! System	Jul-93	Jul-96	San Jose OEM	General Fund
Recycling	Commercial	Economic Incentives	Evaluate implementation of mandates	Jul-94	Jul-95	San Jose OEM	General Fund
Recycling	All	Market Development	Support state and federal legislation regarding market development	ongoing	ongoing	San Jose OEM	General Fund
			Expand City and private procurements	ongoing	ongoing	San Jose OEM	General Fund
			Encourage siting of Markets	ongoing	ongoing	San Jose OEM	General Fund
Composting	Residential	Collection Programs	Evaluate programs implemented and need for additional services	Jul-94	Jul-95	San Jose OEM	General Fund
Composting	All	Market Development	Expand markets for compost products	ongoing	ongoing	San Jose OEM	General Fund

APPENDIX A

SOLID WASTE DIVERSION STUDY

INTRODUCTION

EMCON Associates (EMCON) was contracted by Santa Clara County to prepare a focused waste diversion study for the fifteen cities in the County. In compliance with AB 939, EMCON conducted a waste diversion study to estimate the quantities of materials diverted from each city's waste stream in 1990 through recycling, composting, and source reduction. Diversion results were obtained from (1) surveys of local recycling collectors and processors, (2) surveys of city programs, (3) data provided by the Department of Conservation, and (4) hauler records. The data from the City records and from the surveys were assumed to reflect the total diverted quantities.

SOLID WASTE DIVERSION STUDY

Objective of the Study

The objective of the waste diversion study is to determine the quantity and types of materials that are currently being diverted from permitted solid waste disposal facilities. The diversion quantities reflect the amount of materials that are generated in the City and diverted from the landfill via source reduction, recycling, and composting. Only those materials normally disposed of at permitted solid waste landfills, representing at least 0.001 percent of the waste stream, count towards diversion. It is essential to document the existing level of waste reduction in order to determine what type of programs need to be implemented to reach state mandated diversion rates of 25 percent by 1995 and 50 percent by 2000.

Waste Diversion Flow Process

The flow of materials diverted from the waste stream is more complex than that for materials destined for disposal at a landfill. This complexity occurs because the various materials must be separated and processed (contaminants removed, material baled) to meet market specifications, and this is often done in facilities dedicated to one type of material. In this process, several processors may be involved between the generator and the end user. For some items, materials are taken directly to the processor from the generator, who remanufactures these materials into recycled products.

Much of the recycling in the City follows a similar path, flowing from the generator to a collector, who may sell the material to a dealer. In turn, the dealer processes the material before it is ultimately sold to an end user; in some cases the dealer also acts as a collector.

Methodology

The solid waste diversion characterization used a multi-prong approach to document the quantity and types of materials that are diverted from disposal in the City in 1990. Waste diversion data was obtained by the following: (1) a mail survey of collectors and processors of recyclable materials, utilizing a material flow methodology, (2) a mail survey of City residential and nonresidential diversion programs, and (3) telephone and fax communications to clarify and supplement, whenever possible, incomplete data collected through the mail survey, as well as to obtain data from additional sources.

Survey of Recyclers. In order to document the quantity and types of materials that were diverted from disposal in the City in 1990, a survey was conducted of recyclers in the area. Survey forms were mailed to recyclers to determine quantities of waste diverted by material type in 1990. A copy of the survey form is presented in Attachment 2. In a number of cases it was necessary to follow up the mailed survey with phone calls to obtain the requested data.

A total of 135 private collectors of recyclables were surveyed by mail; follow-up phone calls were made to 25 non-respondents. The response rate was 38 percent. The mailing list was developed from the following sources:

- San Jose State Center for the Development of Recycling
- Santa Clara Valley Manufacturing Group's "Commercial Recycling Guide"
- Sierra Club's "Where to Recycle in Santa Clara County"
- City of Santa Clara's list of recyclers
- Telephone books

Survey of City Programs. Each city in the County was surveyed by mail to obtain data on their residential and commercial diversion programs. A copy of this survey is presented as Attachment 2. Records from City-sponsored collection programs provided data on the residential waste stream (and a portion of the commercial waste stream.) Landfill operators, transfer station operators, and waste haulers were also contacted for data on their scavenging activities and commercial/industrial recycling programs.

Cross Checking. To avoid double counting, the material flow was charted for each waste type. The survey requested that the businesses involved in recycling, collection, or processing report the purchasers of their recyclable materials. The City also documented the collectors of their recyclables. Data obtained from collectors that reported purchasers for a waste type were eliminated from tabulation when those purchasers also reported data for that waste type. This approach allowed material to be counted only once and quantities to be determined with the best available data.

Source reduction data were obtained via telephone and fax communication with a large diaper service operating in the City. Efforts were made to quantify reuse of material from other diaper services and three non-profit organizations; however, they were either unable or unwilling to disclose information.

In the City . the following recycling programs are documented for the waste diversion study:

- California redemption centers
- a curbside collection program for recyclables (and yard waste)
- drop-off center
- a City-sponsored office paper collection program
- a cardboard collection program
- a privately-run bar and restaurant glass collection program
- a non-profit programs specializing in magazine recycling
- non-profit program which collects newspapers and California redemption value recyclables
- private collectors diverting paper, plastic, glass, metals, and organic material.

Data Reduction

To promote participation in the survey, the recyclers were informed that the information that they provided would be reported in aggregate form

only, to ensure confidentiality. Waste diversion data collected from the recyclers was tallied in a spreadsheet form. Survey results are therefore reported in the aggregate, in compliance with the confidentiality agreement between the consultant conducting the study and the survey respondents. The following data were tallied:

- waste generator, i.e., residential or commercial/industrial
- program type, such as curbside, drop-off, buy-back, or other
- quantitative estimates of materials diverted. Recyclers serving several jurisdictions were requested to provide jurisdiction-specific data

Conversion Factors

Survey data reported as volumes were converted to weight using conversion factors from The National Recycling Coalition Measurement Standards and Reporting Guidelines, October 31, 1989, as shown in Attachment 4. Source reduction data for diapers was calculated using a conversion factor from a document entitled *Diapers in the Waste Stream*[1]. Based on this study, it is estimated that there are 4,500 single-use diapers per ton of garbage. Landfill operators and recyclers also reported the following average weights of specific materials:

battery	44 lbs
mattress	40 lbs
laser toner cartridge	4 lbs. (empty)

ATTACHMENT 1
GUIDE TO USE OF WASTE DIVERSION DATA

A focused waste diversion study was undertaken in January and February, 1991 that targeted materials brokers and end users in the County. Types of businesses targeted in the survey included recycling collectors, materials brokers, end users of secondary materials, and outlets for local secondary materials markets.

Following data interpretation and reduction, the results of the surveys were summarized on a city-by-city basis in Tables 1 through 4. These tables are as follows:

Table 1: Residential Diversion Quantities
(1 table for each city)

Table 2: Commercial/Industrial Diversion Quantities
(1 table for each city)

Table 3: Summary of Santa Clara County Residential Diversion Quantities

Table 4: Summary of Santa Clara County Commercial/ Industrial Diversion Quantities

This section summarizes (1) limitations of the data, (2) recommendations for obtaining additional diversion data, and (3) the manner in which the data can be used to calculate the diversion rate.

Notes Regarding the Tables

The following should be noted in reviewing the data presented in Tables 1 through 4:

1. Some data were reported for whole regions of the County. Where this occurred, the data were apportioned based

upon the population ratio of those areas for which the data was reported.

2. Industrial wastes are included in the table with commercial (except where broken out specifically) because collectors do not distinguish by source in their records.

3. Apartment recycling is generally not reported separate from residential recycling. However, because of the different type of collection system, a column is provided for separate reporting. One advantage of keeping separate accounting for this material is that a separate public education program is often designed for apartment dwellers, and this accounting would enable tracking of the success of such a program.

4. The data for landfill salvaging were placed in the commercial table. The suppliers of the data were not able to separate it out by source because of the nature of the operation.

5. Data on glass tonnages from some cities were reported as commingled. According to the Department of Conservation (DOC), as of March 1, commingled glass coming from curbside programs is assumed to contain 60 percent California redemption value glass, whereas commingled glass from a certified redemption center is assumed to contain 75 percent. This percentage is based on a recent survey for DOC and thus used for this study.

6. The results for tires show quantities recycled and transformed. Some tires are sent to Mexico to be recapped. Of the quantity of tires sent to transformation, 25 percent are recovered as casings and used tires before being transformed into electricity. Of the 75 percent transformed, 25 percent is recovered as by-products: gypsum, zinc, and steel. Thus, the data reported were apportioned in this manner.

Additional City-Specific Considerations

The County contracted with EMCON to survey recyclers only; surveying businesses in each city, although time consuming and expensive, would provide a more complete picture of the recycling and source reduction activities occurring in each jurisdiction for future planning and tracking. This method was chosen by four cities in the County with independent contracts: Milpitas, Santa Clara, Sunnyvale, and Palo Alto. Other cities may wish to survey businesses as a means of obtaining a baseline with which to compare diversion in future years. However, the results of such a survey can not be simply added to the diversion totals in this report because of the likelihood of double-counting quantities of some materials.

A focused survey of businesses may be worth considering. For example, a city may wish to survey the 30 largest waste generators in its jurisdiction for diversion information for specific commodities, such as paper and scrap metal, for inclusion in the diversion study. The quantities reported for these materials in Tables 1 through 4 are lower than the actual recycling rate, since few paper and scrap metal brokers were willing to provide data.

EMCON documented the use of reusable diapers as the only source reduction activity for the city. The city can survey residents and businesses regarding additional source reduction activities for inclusion in the waste diversion study.

Use of Diversion Data in Calculating Diversion Rate

The quantities of materials diverted by waste type, which is required as part of the Source Reduction and Recycling Element (SRRE), can be calculated as a percent diversion by the following method, once the disposal quantities are known. See Attachment 5 for an example of how to summarize the disposal and diversion information to determine the diversion rate. The steps are as follows:

- calculate the tons/year disposed by waste type and waste generator
- tally these quantities by waste type
- in a separate column, tally the quantity of waste diverted for each waste type

- add up the quantities disposed and diverted to determine the total quantity in tons/year generated by waste type (disposed + diverted = total generated)
- divide the quantity recycled and source reduced by the total generated to determine the diversion rate [(recycling + source reduction)/total generated = diversion rate percent]

Attachment 2
SURVEY FORM SENT TO RECYCLERS

County of Santa Clara
Department of Planning and Development
Office of Toxics and Solid Waste Management

735 North First Street, Suite 275
San Jose, California 95112
Toxics (408) 441-1195
Solid Waste (408) 441-1198

January 25, 1991

Recycling Survey

Dear Santa Clara County Recycler:

The County of Santa Clara needs your help in providing information on the amount of solid waste (garbage) being recycled or reduced within the County limits.

As you may already know, under AB 939, a waste management law adopted in 1989, all cities and counties in the State of California are required to document the type and quantity of waste materials that are being generated, diverted, or reduced in any way. The County of Santa Clara and each of its cities must submit this information in a report that describes how the County and the cities will recycle 25 percent of their waste by 1995 and 50 percent by the year 2000. The maximum fine to counties and cities for failure to comply is $10,000 per day.

To help us determine the amount of commercial and industrial wastes currently being recycled or otherwise diverted from landfills in the County, please complete the enclosed survey, copy and complete a Material Report Form on the reverse side for the unincorporated county and cities you serve, and return them in the enclosed envelope by February 8 to the County's consultant, EMCON Associates, 1921 Ringwood Avenue, San Jose, CA 95131-9961.

The information you provide will be kept confidential. Only aggregate information will be reported to the County. Enclosed is a formal Confidentiality Agreement. If you choose to use this agreement, please enclose it with your completed survey.

Thank you very much for your response to this request. If you have questions about the survey, please contact Katherine Dever of EMCON at 408/453-7300. If you have questions about this project, or wish to discuss it further, please call me at 408/441-1198.

Sincerely,

Margaret J. Rands, Solid Waste Program Manager

Enclosures

Board of Supervisors: Michael M. Honda, Zoe Lofgren, Ron Gonzales, Rod Diridon, Dianne McKenna
County Executive: Sally R. Reed

EMCON

COUNTY OF SANTA CLARA RECYCLING SURVEY

to

Recycling Collectors and Brokers
operating within or receiving materials from within
the County of Santa Clara

The information in this survey will be kept confidential and will be used to prepare a report for the County of Santa Clara and the incorporated cities in the County to comply with the California Integrated Waste Management Act of 1989.

COMPANY NAME:_____

ADDRESS:_____

_____TELEPHONE:_____

CONTACT PERSON:_____TITLE:_____

TYPE OF BUSINESS: (Please check all that apply.)

_____Collector/Hauler
_____Dealer/Packer
_____Convenience Zone Redemption Center
_____Buy-Back Center
_____Donation Center
_____Non-profit Organization
_____Commercial Composter
_____News Bin Operator
_____Broker
_____End market/Manufacturer
_____Scrap Metal Dealer
_____Auto Wrecker
_____Asphalt/Concrete Recycler
_____Demolition Debris Recycler
_____Wood Waste Chipper
_____Confidential Paper Service
_____Other Commercial Recycler (Specify)_____
_____Special Waste Recycler (See listing below; specify)_____

When completed, please return this survey in the enclosed postpaid envelope to:
Katherine Dever, EMCON Associates, 1921 Ringwood Avenue, San Jose, California 95131.
If you have questions regarding this survey, call Ms. Dever at 408/453-7300.

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1. On the following page, please include the TOTAL TONS of MATERIAL COLLECTED, BY TYPE, for a recent twelve month period from an aggregate of accounts WITHIN THE COUNTY OF SANTA CLARA, by unincorporated area and city jurisdiction only, not from other sources.

   Twelve month period used is from_____ to _____

2a. Anticipated increase in recycling tonnage for 1991:_____% or

2b. Anticipated decrease in recycling tonnage for 1991:_____%

3. Amount of residue:_____% of total amount collected which is not recyclable and is discarded.

Printed on Recycled Paper

Recycling M rial Report Form

CITY_____

Please indicate SOURCE of the material (give % if more than one source) Residents, Commercial Businesses, Industry, or Other.

Materials Collected	Total Tons Received (by City)	Source	Purchaser (if not end user)
PAPER			
Corrugated cardboard			
Mixed paper			
Newspaper			
High grade ledger			
Other paper (specify)			
PLASTICS			
HDPE containers			
PET containers			
Film plastics			
Laser toner cartridges			
Other plastics			
GLASS			
Refillable glass beverage containers			
CA Redemption Value glass			
Other recyclable glass			
METALS			
Aluminum cans			
Bi-metal containers			
Ferrous metals and tin cans			
Non-ferrous metals plus al scrap			
White goods (appliances, etc.)			
YARD WASTE			
including leaves, grass and prunings			
OTHER ORGANICS			
Food waste			
Tires and rubber products			
Wood waste, incl. pallets			
Agricultural crop residues			
Manure			
Textiles and leather			
INERT SOLIDS			
Rock, concrete, brick			
Sand, soil, or dirt			
SPECIAL WASTES			
Ash			
Industrial sludge			
Auto shredder waste			
Batteries			
Oil			
Other (specify)			

Attachment 3
SURVEY FORM SENT TO CITIES

February 1, 1991

Dear

The Santa Clara County Solid Waste Program needs your help in collecting information on the amount of solid waste (garbage) being recycled, reduced or composted in your city.

This information will be used in preparing the Countywide Solid Waste Diversion Study, which is part of our Countywide AB 939 Implementation Project. This Study will determine the total amount currently diverted from landfill disposal, producing both a countywide total and totals for each jurisdiction (15 cities and the County).

To help us determine the amount of solid waste currently being diverted from landfills in the County and the identity of the purchaser of those materials that are being diverted, please fill out the enclosed tables (instructions are provided) and return them in the enclosed envelope by February 12 to the County's consultant, EMCON Associates, 1921 Ringwood Avenue, San Jose, CA 95131-9961.

The information you provide will be kept confidential. Only aggregate information will be reported to the County. Each city will receive a copy of the completed diversion study.

Thank you very much for your response to this request. If you have questions about the survey, please contact Katherine Dever of EMCON at 408/453-7300.

Sincerely,

Margaret J. Rands, Solid Waste Program Manager

Enclosures

INSTRUCTIONS FOR FILLING OUT TABLES

Enclosed are the following tables:

- Table 1 Residential Diversion Programs (Tons/Year)
- Table 2 Residential Diversion Programs (Purchaser)
- Table 3 Commercial Diversion Programs (Tons/Year)
- Table 4 Commercial Diversion Programs (Purchaser)
- Table 5 Industrial Diversion Programs (Tons/Year)
- Table 6 Industrial Diversion Programs (Purchaser)
- Sample Form 1 Residential Diversion Programs (Tons/Year)
- Sample Form 2 Residential Diversion Programs (Purchaser)

Sample Forms 1 and 2 are provided as examples of the format to use when filling out the tables.

TABLE 1

1.) List all residential diversion programs in your city across the top row.

2.) Report quantities of materials diverted from the residential waste stream through these programs in the corresponding box. Report quantities in tons per year.

3.) Sum the quantity of materials diverted by each program and report a total at the bottom of the column.

4.) Sum the quantity of each material diverted from all the programs and report a total in the last column.

TABLE 2

1.) List all residential diversion programs in your city across the top row.

2.) Report the purchaser of the material that is being diverted from the residential waste stream in the corresponding box. For example, if ABC Aluminum is purchasing aluminum cans from your curbside program, report

ABC Aluminum in the box under the heading "curbside" and in the row "aluminum cans".

TABLES 3, 4, 5 & 6

1.) Fill out Tables 3 and 5 as you did Table 1, except list commercial and industrial diversion programs in your city.

2.) Fill out Tables 4 and 6 as you did Table 2, except list commercial and industrial diversion programs in your city.

Sample Form 1. RESIDENTIAL DIVERSION PROGRAMS
(Tons/Year)

	Curbside	20/20	Apartment Recycler	Other Recycling Drop-off Programs	Composting	Source Reduction Programs	Total
PAPER							
corrugated containers	1000		20	200			1220
newspaper							
high grade ledger paper							
mixed paper							
other paper							
PLASTICS							
HDPE containers		2					2
PET containers							
film plastics							
other plastics							
GLASS							
refillable bev. containers	300	50	10	100			460
CA Redemption Value	300						300
other recyclable glass							
other non-recyclable glass							
METALS	50	10	2				62
aluminum cans							
bi-metal containers	40						40
tin cans	100						100
other ferrous							
other aluminum							
other non-ferrous							
white goods							
YARD WASTE					800		800
leaves, grass					300		300
brush, branches							
OTHER ORGANICS						50	50
food waste							
tires/rubber							
wood wastes							
agricultural crop residues							
manure							
textiles/leather							
diapers							
other misc. organics							
OTHER WASTES							
inert solids							
hazardous waste							
SPECIAL WASTES							
ash							
sewage sludge							
industrial sludge							
asbestos							
auto shredder waste							
auto bodies							
other special waste							
TOTAL	1790	62	32	300	1100	50	3334

Sample Form 2. RESIDENTIAL DIVERSION PROGRAMS
(Purchaser)

	Curbside					
PAPER						
corrugated containers						
newspaper						
high grade ledger paper						
mixed paper						
other paper						
PLASTICS						
HDPE containers						
PET containers						
film plastics						
other plastics						
GLASS						
refillable bev. containers						
CA Redemption Value						
other recyclable glass						
other non-recyclable glass						
METALS						
aluminum cans	ABC aluminum					
bi-metal containers						
tin cans						
other ferrous						
other aluminum						
other non-ferrous						
white goods						
YARD WASTE						
leaves, grass						
brush, branches						
OTHER ORGANICS						
food waste						
tires/rubber						
wood wastes						
agricultural crop residues						
manure						
textiles/leather						
diapers						
other misc. organics						
OTHER WASTES						
inert solids						
hazardous waste						
SPECIAL WASTES						
ash						
sewage sludge						
industrial sludge						
asbestos						
auto shredder waste						
auto bodies						
other special waste						

Table 1. RESIDENTIAL DIVERSION PROGRAMS
(Tons/Year)

							Total
PAPER							
corrugated containers							
newspaper							
high grade ledger paper							
mixed paper							
other paper							
PLASTICS							
HDPE containers							
PET containers							
film plastics							
other plastics							
GLASS							
refillable bev. containers							
CA Redemption Value							
other recyclable glass							
other non-recyclable glass							
METALS							
aluminum cans							
bi-metal containers							
tin cans							
other ferrous							
other aluminum							
other non-ferrous							
white goods							
YARD WASTE							
leaves, grass							
brush, branches							
OTHER ORGANICS							
food waste							
tires/rubber							
wood wastes							
agricultural crop residues							
manure							
textiles/leather							
diapers							
other misc. organics							
OTHER WASTES							
inert solids							
hazardous waste							
SPECIAL WASTES							
ash							
sewage sludge							
industrial sludge							
asbestos							
auto shredder waste							
auto bodies							
other special waste							
TOTAL							

Table 2. RESIDENTIAL DIVERSION PROGRAMS
(Purchaser)

PAPER						
corrugated containers						
newspaper						
high grade ledger paper						
mixed paper						
other paper						
PLASTICS						
HDPE containers						
PET containers						
film plastics						
other plastics						
GLASS						
refillable bev. containers						
CA Redemption Value						
other recyclable glass						
other non-recyclable glass						
METALS						
aluminum cans						
bi-metal containers						
tin cans						
other ferrous						
other aluminum						
other non-ferrous						
white goods						
YARD WASTE						
leaves, grass						
brush, branches						
OTHER ORGANICS						
food waste						
tires/rubber						
wood wastes						
agricultural crop residues						
manure						
textiles/leather						
diapers						
other misc. organics						
OTHER WASTES						
inert solids						
hazardous waste						
SPECIAL WASTES						
ash						
sewage sludge						
industrial sludge						
asbestos						
auto shredder waste						
auto bodies						
other special waste						

Table 3. COMMERCIAL DIVERSION PROGRAMS
(Tons/Year)

							Total
PAPER							
corrugated containers							
newspaper							
high grade ledger paper							
mixed paper							
other paper							
PLASTICS							
HDPE containers							
PET containers							
film plastics							
other plastics							
GLASS							
refillable bev. containers							
CA Redemption Value							
other recyclable glass							
other non-recyclable glass							
METALS							
aluminum cans							
bi-metal containers							
tin cans							
other ferrous							
other aluminum							
other non-ferrous							
white goods							
YARD WASTE							
leaves, grass							
brush, branches							
OTHER ORGANICS							
food waste							
tires/rubber							
wood wastes							
agricultural crop residues							
manure							
textiles/leather							
diapers							
other misc. organics							
OTHER WASTES							
inert solids							
hazardous waste							
SPECIAL WASTES							
ash							
sewage sludge							
industrial sludge							
asbestos							
auto shredder waste							
auto bodies							
other special waste							
TOTAL							

Table 4. COMMERCIAL DIVERSION PROGRAMS
(Purchaser)

PAPER						
corrugated containers						
newspaper						
high grade ledger paper						
mixed paper						
other paper						
PLASTICS						
HDPE containers						
PET containers						
film plastics						
other plastics						
GLASS						
refillable bev. containers						
CA Redemption Value						
other recyclable glass						
other non-recyclable glass						
METALS						
aluminum cans						
bi-metal containers						
tin cans						
other ferrous						
other aluminum						
other non-ferrous						
white goods						
YARD WASTE						
leaves, grass						
brush, branches						
OTHER ORGANICS						
food waste						
tires/rubber						
wood wastes						
agricultural crop residues						
manure						
textiles/leather						
diapers						
other misc. organics						
OTHER WASTES						
inert solids						
hazardous waste						
SPECIAL WASTES						
ash						
sewage sludge						
industrial sludge						
asbestos						
auto shredder waste						
auto bodies						
other special waste						

Table 5. INDUSTRIAL DIVERSION PROGRAMS
(Tons/Year)

							Total
PAPER							
corrugated containers							
newspaper							
high grade ledger paper							
mixed paper							
other paper							
PLASTICS							
HDPE containers							
PET containers							
film plastics							
other plastics							
GLASS							
refillable bev. containers							
CA Redemption Value							
other recyclable glass							
other non-recyclable glass							
METALS							
aluminum cans							
bi-metal containers							
tin cans							
other ferrous							
other aluminum							
other non-ferrous							
white goods							
YARD WASTE							
leaves, grass							
brush, branches							
OTHER ORGANICS							
food waste							
tires/rubber							
wood wastes							
agricultural crop residues							
manure							
textiles/leather							
diapers							
other misc. organics							
OTHER WASTES							
inert solids							
hazardous waste							
SPECIAL WASTES							
ash							
sewage sludge							
industrial sludge							
asbestos							
auto shredder waste							
auto bodies							
other special waste							
TOTAL							

Table 6. INDUSTRIAL DIVERSION PROGRAMS
(Purchaser)

PAPER						
corrugated containers						
newspaper						
high grade ledger paper						
mixed paper						
other paper						
PLASTICS						
HDPE containers						
PET containers						
film plastics						
other plastics						
GLASS						
refillable bev. containers						
CA Redemption Value						
other recyclable glass						
other non-recyclable glass						
METALS						
aluminum cans						
bi-metal containers						
tin cans						
other ferrous						
other aluminum						
other non-ferrous						
white goods						
YARD WASTE						
leaves, grass						
brush, branches						
OTHER ORGANICS						
food waste						
tires/rubber						
wood wastes						
agricultural crop residues						
manure						
textiles/leather						
diapers						
other misc. organics						
OTHER WASTES						
inert solids						
hazardous waste						
SPECIAL WASTES						
ash						
sewage sludge						
industrial sludge						
asbestos						
auto shredder waste						
auto bodies						
other special waste						

Attachment 4
CONVERSION FACTORS
National Recycling Coalition
Densities for Recyclables

Figure 4: Sample Weight to Volume Conversion Factors for Recyclables

Material	Volume	Weight in Pounds
Newsprint, Loose	one cubic yard	360 - 800
Newsprint,compacted	one cubic yard	720 - 1,000
Newsprint	12" stack	35
Corrugated cardboard, loose	one cubic yard	300
Corrugated cardboard, baled	one cubic yard	1000 - 1200
Glass, whole bottles	one cubic yard	600 - 1,000
Glass, semi crushed	one cubic yard	1,000 - 1,800
Glass, crushed (mechanically)	one cubic yard	800 - 2700
Glass, whole bottles	one full grocery bag	16
Glass, uncrushed to manually broken	55 Gallon Drum	125 - 500
PET soda bottles, whole, loose	one cubic yard	30 - 40
PET soda bottles, whole, loose	gaylord	40 - 53
PET soda bottles, baled	30" x 48" x 60" gaylord*	500
PET soda bottles, granulated	semi-load	700 - 750
PET soda bottles, granulated	30" x 42" x 48"	30,000
Film, baled	semi-load	1,100
Film, baled	one cubic yard	44,000
HPDE (dairy only), whole, loose	30" x 48 x 60"	24
HPDE (dairy only), baled	30" x 48 x 60"	500-800
HPDE (mixed), baled	gaylord	600-900
HPDE (mixed), granulated	semi-load	800 - 1,000
HPDE (mixed), granulated		42,000
Mixed PET & Dairy, whole, loose	one cubic yard	average 32
Mixed PET, Dairy and other rigid, whole, loose	one cubic yard	average 38
Mixed rigid, no film or Dairy, whole loose	one cubic yard	average 49
Mixed rigid, no film, granulated	gaylord	500 - 1,000
Mixed rigid & film, densified by mixed plastic mold technology	one cubic foot	average 60
Aluminum cans, whole	one cubic yard	50 - 74
Aluminum cans, whole	1 one full kraft paper grocery bag	average 1.5
Aluminum cans	one 55 gal plastic bag	13 - 20

* Gaylord size most commonly used 40" x 48" x 36"

National Recycling Coalition Measurement Standards and Reporting Guidelines, October 31, 1989

Figure 4: Sample Weight to Volume Conversion Factors for Recyclables

Material	Volume	Weight in Pounds
Ferrous cans, whole	one cubic yard	150
Ferrous cans, flattened	one cubic yard	850
Leaves, uncompacted[8]	one cubic yard	250 - 500
Leaves, compacted	one cubic yard	320 - 450
Leaves, vacuumed	one cubic yard	350
Wood chips	one cubic yard	500
Grass clippings	one cubic yard	400 - 1500
Used Motor Oil	one gallon	7
Tire - Passenger Car	one	12
Tire - Truck	one	60
Food Waste, solid and liquid fats	55 gallon drum	412

VI. Conclusion

"Standard" is defined as "something considered by an authority or by general consent as a basis of comparison; an approved model; a rule or a principle that is used as a basis for judgement ...." 9

While we believe that the recommendations presented here represent the best possible way of reporting and using data, we realize that complete agreement on every individual point isn't necessary for this work to serve as a "standard." Even where there may be disagreement about the application of a particular term or formula, the difference is made clearer by having a standard against which to contrast the alternative. The NRC offers these definitions, reporting guidelines, and calculation methods in that sense of the term: to serve as a common point of departure.

These concepts will have the best utility if indeed they do achieve widespread adoption, that is, if we all indeed begin to "speak the same language." To accomplish this, your participation is greatly needed to encourage the widespread testing and adoption of the NRC's National Measurement

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National Recycling Coalition Measurement Standards and Reporting Guidelines, October 31, 1989

Standards and Reporting Guidelines. Your reports of experience in applying these concepts in your programs, and your comments and criticism on this document, are invited and will be appreciated, for the preparation of future updates.

VII. Notes

1 "The National Policy on Recycling" was adopted by the National Recycling Coalition at its Fifth Annual Recycling Congress in Seattle Washington, in November of 1986. Copies of this brochure are available from the NRC.

2 At the 1989 Membership Meeting, and in workshops held during the 1989 Congress, consensus could not be reached on these terms because some members expressed the opinion that a definition for integrated waste management must also include a specified hierarchy of priorities for waste management options, whereas others argued that this should be left unspecified. Furthermore, consensus could not be reached in defining the waste management hierarchy, because of lack of agreement regarding the ranking of incineration with energy recovery versus landfilling. These comments were consistent with other comments previously received throughout several drafts of the Standards document. Unchallenged was this portion of the definition:

> "The waste management hierarchy is the prioritization of waste management strategies as follows: 1. Decreasing the generation of waste through source reduction, and 2. Decreasing disposal by maximizing materials recovery. "

3 The Glossary of Recycling Terms and Acronyms, contains more than 300 terms and is available for $5 from Resource Recycling, P.O. Box 10540, Portland, Oregon 97210; 503-227-1319

4 This description is a direct paraphrase of comments provided by the Glass Packaging Institute.

5 This is a direct paraphrase of commentary provided by Resource Integration Systems/Resource Conservation Consultants.

6 A detailed methodology for deriving current recycling rates has been developed by Gilmore Research Group and The Matrix Management Group

Attachment 5
MODEL FOR CALCULATING DIVERSION RATE

Attachment 5 - Example of Diversion Rates by Material

(TONS, 1990)

	DISPOSED (a)	DIVERTED (b)		TOTAL GENERATED (c)	DIVERSION RATE (b/c) (percent)
		Recycling	Source Reduction		
PAPER (total)	22,145			30,114	
OCC/Kraft	4,722	4067	0	8,789	46
Magazines	1,028	0	0	1,028	0
Mixed Paper	7,349	0	0	7,349	0
Newsprint	4,006	3261	0	7,267	45
High Grade	804	641	0	1,445	44
Other Paper	4,235	0	0	4,235	0
PLASTICS (total)	6,263			6,315	
HDPE	1,260	0	0	1,260	0
PET	553	52	0	605	9
Film	2,101	0	0	2,101	0
Polystyrene Foam	332	0	0	332	0
Other Plastic	2,016	0	0	2,016	0
GLASS (total)	3,277			5,021	
Refillable Beverage	0	0	0	0	0
CA Redemption Value	477	1744	0	2,221	79
Other Recyclable	2,097	0	0	2,097	0
Other Non-Recyclable	703	0	0	703	0
METALS (total)	3,921			4,835	
Aluminum Cans	221	797	0	1,018	78
Other Aluminum	328	0	0	328	0
Bi-metal Cans	0	0	0	0	0
Steel Food & Bev. Cans	1,478	0	0	1,478	0
Other Ferrous	1,881	117	0	1,998	6
Other Non-ferrous	13	0	0	13	0
White Goods	0	0	0	0	0
YARD WASTE (total)	2,165			2,165	
Leaves and Grass	1,937	0	0	1,937	0
Branches and Brush	228	0	0	228	0
OTHER ORGANICS (total)	18,735			18,746	
Food	10,992	0	0	10,992	0
Rubber/Tires	422	0	0	422	0
Wood	1,126	0	0	1,126	0
Agri. Crop Residue	0	0	0	0	0
Manure	0	0	0	0	0
Textiles/Leather	1,845	8	0	1,853	0
Diapers	3,552	0	3	3,555	0
Other Organics	798	0	0	798	0
OTHER WASTES (total)	1,602			1,602	
Inert Solids	1,441	0	0	1,441	0
HHW	161	0	0	161	0
Appliances	0	0	0	0	0
SPECIAL WASTES (total)	0			0	
Ash	0	0	0	0	0
Sewage Sludge	0	0	0	0	0
Industrial Sludge	0	0	0	0	0
Asbestos	0	0	0	0	0
Auto Shredder Waste	0	0	0	0	0
Auto Bodies	0	0	0	0	0
Stuffed Furn./Mattresses	0	0	0	0	0
TOTAL	58,107	10,687	3	68,797	16

APPENDIX B

WASTE CHARACTERIZATION

CITY OF SAN JOSE
WASTE CHARACTERIZATION
San Jose Disposed Wastes
(based on Sunnyvale percentages)

	res	com	ind	self haul	total
corrugated containers	19708	53097	20756	6298	99859
newspaper	27379	13356	6553	250	47539
high grade ledger	2922	6949	13533	3015	26420
magazines/glossy inserts	8092	3514	5439	0	17045
mixed paper	45118	37384	17242	0	99743
other paper	33050	33534	18960	10390	95935
HDPE containers	2780	4422	2235	0	9437
PET containers	1430	341	30	518	2319
film plastics	9975	11730	5506	3411	30621
polystyrene foam	1703	2509	2765	633	7610
other plastics	9560	16359	31908	6261	64088
refillable glass bottles	0	0	0	0	0
CA Redemption bottles	5120	4477	670	0	10267
non-redeeemable beverage	5331	3484	810	0	9625
other recyclable glass	2830	780	2320	97	6027
non-recyclable glass	1529	1096	536	0	3162
aluminum cans	1857	999	341	0	3197
bi-metal containers	6	0	0	0	6
tin cans	4730	4684	1035	0	10449
other ferrous metals	4031	6827	12559	9678	33095
other aluminum	483	305	97	225	1110
other non-ferrous metals	502	122	646	0	1269
appliances/white goods	743	134	0	0	877
yard wastes	85084	14276	9495	23211	132066
wood	3529	1060	16816	27401	48806
food wastes	28549	53670	4751	548	87517
diapers	0	0	0	0	0
textiles/leather	4953	2168	2320	5969	15411
rubber/tires	4922	3880	780	18	9600
other organics	14179	2753	548	1346	18826
inert solids	3201	962	5999	82015	92177
mattresses	0	0	0	0	0
other reusable durables	0	0	0	0	0
asbestos	0	0	0	0	0
household hazardous waste	303	0	0	5780	6083
other special wastes	0	286	1827	0	2113
TOTAL	333600	285157	186479	187064	992300
Sunnyvale non-residential		46820	30618	30714	108152
share of non-res., apply		43.3%	28.3%	28.4%	100.0%
to SJ non-res tons:	658700				

	res	com	ind	self haul	total
PAPER	136270	147835	82484	19952	386540
PLASTIC	25447	35361	42445	10823	114076
GLASS	14810	9836	4336	97	29080
METAL	12352	13070	14678	9903	50004
YARD WASTE	85084	14276	9495	23211	132066
ORGANIC WASTES	56132	63530	25215	35282	180159
INERT SOLIDS	3201	962	5999	82015	92177
OTHER WASTE	303	286	1827	5780	8197
	248516				
TOTAL	333600	285157	186479	187064	992300
share of total	33.6%	28.7%	18.8%	18.9%	100.0%

CITY OF SAN JOSE
WASTE CHARACTERIZATION
San Jose diverted wastes (EMCON)
(without transformation)

	res	com	ind	self haul	total
Corrugated Containers	150	2704			2854
Newspaper	22384	1733			24117
High Grade Ledger Paper		851			851
Magazines/Glossy inserts					0
Mixed Paper	713	220			933
Other Paper		2208			2208
HDPE Containers		100			100
PET Containers	143	204			347
Film Plastics		135			135
Polystyrene Foam					0
Other Plastics		338			338
Refillable Beverage Containers		300			300
CA Redemption Value	4745	1423			6168
Non-Redeemable Beverage					0
Other Recyclable Glass	2087	1891			3978
Other Non-Recyclable Glass		2			2
Aluminum Cans	1065	1286			2351
Bi-metal Containers					0
Tin Cans	471				471
Other Ferrous		3315	7000	2000	12315
Other Aluminum		600	300	400	1300
Other Non-Ferrous		879	5500		6379
Applicances/White Goods		93			93
Yard Wastes	4177	5128	6000	14000	29305
Wood		986	20000	25000	45986
Food Wastes		10470			10470
Diapers	1981				1981
Textiles/leather		84			84
Rubber/Tires		327			327
Other Organics					0
Inert Solids		4644	170000	80000	254644
Mattresses					0
Other Reusable Durables					0
Asbestos					0
Household Hazardous Waste		565			565
Other Special Wastes					0
TOTAL	37916	40486	208800	121400	408602

	res	com	ind	self haul	total
PAPER	23247	7716	0	0	30963
PLASTIC	143	777	0	0	920
GLASS	6832	3616	0	0	10448
METAL	1536	6173	12800	2400	22909
YARD WASTE	4177	5128	6000	14000	29305
ORGANIC WASTES	1981	11867	20000	25000	58848
INERT SOLIDS	0	4644	170000	80000	254644
OTHER WASTE	0	565	0	0	565
TOTAL	37916	40486	208800	121400	408602
share of total	9.3%	9.9%	51.1%	29.7%	100.0%

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CITY OF SAN JOSE
WASTE CHARACTERIZATION
San Jose generated wastes
(Disposal + Diversion)

	res	com	ind	self haul	total
Corrugated Containers	19858	55801	20756	6298	102713
Newspaper	49763	15089	6553	250	71655
High Grade Ledger Paper	2922	7800	13533	3015	27270
Magazines/Glossy inserts	8092	3514	5439	0	17045
Mixed Paper	45831	37604	17242	0	100677
Other Paper	33050	35742	18960	10390	98142
HDPE Containers	2780	4522	2235	0	9537
PET Containers	1573	545	30	518	2666
Film Plastics	9975	11865	5506	3411	30757
Polystyrene Foam	1703	2509	2765	633	7610
Other Plastics	9560	16697	31908	6261	64426
Refillable Glass Bottles	0	300	0	0	300
CA Redemption Value	9865	5900	670	0	16435
Non-Redeemable Beverage	5331	3484	810	0	9625
Other Recyclable Glass	4917	2670	2320	97	10004
Other Non-Recyclable Glass	1529	1098	536	0	3163
Aluminum Cans	2922	2285	341	0	5548
Bi-metal Containers	6	0	0	0	6
Tin Cans	5201	4684	1035	0	10920
Other Ferrous	4031	10142	19559	11678	45410
Other Aluminum	483	905	397	625	2410
Other Non-Ferrous	502	1001	6146	0	7649
Appliances/White Goods	743	227	0	0	970
Yard Wastes	89261	19404	15495	37211	161371
Wood	3529	2045	36816	52401	94791
Food Wastes	28549	64141	4751	548	97989
Diapers	1981	0	0	0	1981
Textiles/leather	4953	2252	2320	5969	15494
Rubber/Tires	4922	4207	780	18	9927
Other Organics	14179	2753	548	1346	18826
Inert Solids	3201	5606	175999	162015	346821
Mattresses	0	0	0	0	0
Other Reusable Durables	0	0	0	0	0
Asbestos	0	0	0	0	0
Household Hazardous Waste	303	565	0	5780	6648
Other Special Wastes	0	286	1827	0	2113
TOTAL	371515	325643	395277	308464	1400899

	res	com	ind	self haul	total
PAPER	159516	155550	82483	19953	417502
PLASTIC	25591	36138	42444	10823	114996
GLASS	21642	13452	4336	97	39527
METAL	13888	19244	27478	12303	72913
YARD WASTE	89261	19404	15495	37211	161371
ORGANIC WASTES	58113	75398	45215	60282	239008
INERT SOLIDS	3201	5606	175999	162015	346821
OTHER WASTE	303	851	1827	5780	8761
TOTAL	371515	325643	395277	308464	1400899
share of total	26.5%	23.2%	28.2%	22.0%	100.0%

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CITY OF SAN JOSE
WASTE CHARACTERIZATION
San Jose waste diversion rates
(Diversion / Generation)

	res	com	ind	self haul	total
Corrugated Containers	0.8%	4.8%	0.0%	0.0%	2.8%
Newspaper	45.0%	11.5%	0.0%	0.0%	33.7%
High Grade Ledger Paper	0.0%	10.9%	0.0%	0.0%	3.1%
Magazines/Glossy inserts	0.0%	0.0%	0.0%	0.0%	0.0%
Mixed Paper	1.6%	0.6%	0.0%	0.0%	0.9%
Other Paper	0.0%	6.2%	0.0%	0.0%	2.2%
HDPE Containers	0.0%	2.2%	0.0%	0.0%	1.0%
PET Containers	9.1%	37.4%	0.0%	0.0%	13.0%
Film Plastics	0.0%	1.1%	0.0%	0.0%	0.4%
Polystyrene Foam	0.0%	0.0%	0.0%	0.0%	0.0%
Other Plastics	0.0%	2.0%	0.0%	0.0%	0.5%
Refillable Glass Bottles	0.0%	100.0%	0.0%	0.0%	100.0%
CA Redemption Value	48.1%	24.1%	0.0%	0.0%	37.5%
Non-Redeemable Beverage	0.0%	0.0%	0.0%	0.0%	0.0%
Other Recyclable Glass	42.4%	70.8%	0.0%	0.0%	39.8%
Other Non-Recyclable Glass	0.0%	0.2%	0.0%	0.0%	0.1%
Aluminum Cans	36.4%	56.3%	0.0%	0.0%	42.4%
Bi-metal Containers	0.0%	0.0%	0.0%	0.0%	0.0%
Tin Cans	9.1%	0.0%	0.0%	0.0%	4.3%
Other Ferrous	0.0%	32.7%	35.8%	17.1%	27.1%
Other Aluminum	0.0%	66.3%	75.6%	64.0%	53.9%
Other Non-Ferrous	0.0%	87.8%	89.5%	0.0%	83.4%
Appliances/White Goods	0.0%	41.0%	0.0%	0.0%	9.6%
Yard Wastes	4.7%	26.4%	38.7%	37.6%	18.2%
Wood	0.0%	48.2%	54.3%	47.7%	48.5%
Food Wastes	0.0%	16.3%	0.0%	0.0%	10.7%
Diapers	100.0%	0.0%	0.0%	0.0%	100.0%
Textiles/leather	0.0%	3.7%	0.0%	0.0%	0.5%
Rubber/Tires	0.0%	7.8%	0.0%	0.0%	3.3%
Other Organics	0.0%	0.0%	0.0%	0.0%	0.0%
Inert Solids	0.0%	82.8%	96.6%	49.4%	73.4%
Mattresses	0.0%	0.0%	0.0%	0.0%	0.0%
Other Reusable Durables	0.0%	0.0%	0.0%	0.0%	0.0%
Asbestos	0.0%	0.0%	0.0%	0.0%	0.0%
Household Hazardous Waste	0.0%	100.0%	0.0%	0.0%	8.5%
Other Special Wastes	0.0%	0.0%	0.0%	0.0%	0.0%
TOTAL	10.2%	12.4%	52.8%	39.4%	29.2%

	res	com	ind	self haul	total
PAPER	14.6%	5.0%	0.0%	0.0%	7.4%
PLASTIC	0.6%	2.2%	0.0%	0.0%	0.8%
GLASS	31.6%	26.9%	0.0%	0.0%	26.4%
METAL	11.1%	32.1%	46.6%	19.5%	31.4%
YARD WASTE	4.7%	26.4%	38.7%	37.6%	18.2%
ORGANIC WASTES	3.4%	15.7%	44.2%	41.5%	24.6%
INERT SOLIDS	0.0%	82.8%	96.6%	49.4%	73.4%
OTHER WASTE	0.0%	66.4%	0.0%	0.0%	6.4%
TOTAL	10.2%	12.4%	52.8%	39.4%	29.2%
share of total	9.3%	9.9%	51.1%	29.7%	100.0%

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APPENDIX C

RESPONSE TO CIWMB COMMENTS OF JULY 1991

I. SOLID WASTE GENERATION STUDY

Specific California Code of Regulations section references are given for areas within the SWGS which require additional information:

Page 2-1 Section 2-2 Waste Disposal Study

In the first paragraph, Article 6.2 should be Article 6.1.

City Response
Comment noted.

Page 2-1 Demographic

Fig. 2-1 does not include age, as is stated. Also, please describe what is comparable about the industries and climate of the two cities.

Section 18724 (c) requires a jurisdiction using comparative data to list and describe, in the solid waste generation study (SWGS), all the major characteristics which are similar between the two jurisdictions relative to the study.

City Response:
Comment on Fig. 2-1 noted.

Sunnyvale and San Jose are both contiguous cities in Santa Clara County and have identical seasonality factors. Sunnyvale and San Jose both have significant commercial representation in high-tech industries, such as electronics, defense, aerospace, computer wholesale, research and development, computer systems and other related industries.

Page 2-2 Solid Waste Characterization

Please discuss the two points listed in more detail. It is unclear to staff how the City used these two criteria when addressing their solid waste characteristics.

City Response:
Approximately 65% of San Jose's waste stream is commercial/industrial and 35% is residential by weight. Similarly, Sunnyvale's waste stream (per Sunnyvale SRRE, Table 2-5) is 33% residential and 67% commercial/industrial waste. At the time San Jose's final draft SRRE was adopted, Sunnyvale and San Jose had similar solid waste programs:

- three-sort residential curbside collection programs for aluminum and tin cans, PET, glass, and newspaper
- Unlimited residential garbage collection
- no citywide multi-family dwelling recycling program (pilot programs only)
- no city-run collection of recyclables from the commercial/industrial sector

Page 2-2 Section 2-3 Waste Diversion study

Because of the discussion on the regional study in the first paragraph of this section, it is unclear whether the 29% diversion rate applies to the City of San Jose, or to the 15 cities in the county. Please clarify this in the final element.

Please explain how the 29% diversion rate was calculated because the tables presented do not include this information.

City Response:

The 29% diversion rate applies to the City of San Jose alone. The regional diversion study performed by EMCON Associates gathered discrete diversion information for each of the 15 cities in Santa Clara County. Appendix A contains the methodology of the diversion study and examples of the survey forms used to gather diversion data from cities and recyclers.

The 29% diversion rate was calculated in this manner:

408,600 tons diverted + 992,300 tons disposed = 1,400,900 tons generated

408,600 tons diverted / 1,400,900 tons generated = 29.2%

San Jose's diverted tonnage of 408,600 was determined by the regional diversion study performed by EMCON Associates. San Jose's residential diversion tonnage is broken out by waste type and diversion program in Table 2-2, and its commercial tonnage is broken out by waste type and diversion program in Table 2-3. San Jose's diversion tonnage is also broken out by waste type and sector (residential, commercial, industrial, self-haul) in Appendix B.

San Jose's disposed tonnage of 992,300 was calculated using reports submitted to the City by its franchised waste haulers, and by the four landfills operating in San Jose: Newby Island, Kirby Canyon, Guadalupe Mines, and Zanker Road. San Jose's disposed tonnage is broken out by waste type and sector (residential, commercial, industrial, self-haul) in Appendix B. Sector information was provided by the haulers and landfills. Disposed tonnage by waste type was calculated by applying the percentage composition of disposed waste from the City of Sunnyvale's waste characterization study to San Jose's 992,300 tons of disposed waste.

Page 2-2 Source Reduction

A minor point, but 50 x 3429 = 171,450 not 171,433. Also, please include the value for weight/diaper that was used, and cite the reference for this value.

City Response:
Comment noted.

Page 2-2 Residential Recycling

Is the Table 1 referred to actually Table 2-2?

City Response:
Yes. This has been corrected in the text.

Page 2-3 Commercial/Industrial Recycling

Is the Table 2 referred to actually Table 2-3?

City Response:
Yes. This has been corrected in the text.

Page 2-3 Composting Table 2-2

What percent of waste generated do these diverted tons, by waste type, represent? Apparently, the total is a portion of the 29% total calculated for the jurisdiction, but this is not addressed in any table in the SWGS, and should be. It is not clear to staff how the 29% diversion figure was arrived at by the City.

City Response:
29,305 tons of diverted yard waste / 161371 tons of generated yard waste
= 18.2% of yard waste is being diverted.

29,305 tons of diverted yard waste / 408,600 total tons diverted =
= 7.2% of diverted waste is yard waste.

29,305 tons of diverted yard waste / 1,400,899 total tons generated
= 2% of overall diversion rate is attributable to diverted yard waste.

Appendix B contains San Jose diversion rates by waste type.

For a clarification of how the 29% total diversion rate was calculated, see "City Response" under **Page 2-2, Section 2-3 Waste Diversion Study.**

Table 2-3

Please identify in the SWGS all solid waste diversion programs and activities in your jurisdiction, and all solid waste diversion facilities used by your jurisdiction, which are either located in, or are used by, your jurisdiction, as required by section 18722 (i). This is especially important for the waste types "other non-ferrous" and "inert solids', which have special conditions for being counted toward diversion (Public Resources Code 41781). However, it is also important to identify the diversion program, activity, or facility that is being used to divert the waste types of food waste, tires/rubber, wood waste, batteries, oil and film plastics, as these are usually not included in curbside, pick-up, or AB 20/20 programs.

Please clarify whether the transformed waste is included in the total diversion rate of 29%.

Please include a table of the corresponding percentages for the tons of wastes diverted. (See comment for Table 2-2).

City Response:
Tables 2-2 and 2-3 break out diversion by program. For a complete listing of private solid waste diversion facilities and private recycling companies, please see Appendix C, Attachment 1, the South Bay Recyclers Directory produced and published by the City of San Jose.

Transformed waste is not included in the total diversion rate of 29%. The regional diversion study identified 56,757 tons of transformed commercial / industrial waste from San Jose (1,181 tons of tires and 55,576 tons of wood waste). This data is included in Table 2-3.

The "San Jose Waste Diversion Rates" Table in Appendix B demonstrates the corresponding percentages for the tons of wastes diverted.

Tables 2-4 and 2-5

Section 18722 (c) requires projections for wastes disposed, diverted and generated to be by waste type. Please expand these tables accordingly.

It will be difficult to determine which waste types should be targeted for diversion, and from that, determining what percent of the diversion goal will be met by diverting particular waste types, without first identifying the tons of waste disposed and generated,

by type, and what percent of each waste type generated was diverted. (See comments under Tables 2-2 and 2-3).

City Response:
Appendix B contains 1990 disposed, diverted, and generated tonnages by waste type. Comment is noted in regards to projections.

General comments

Please include a discussion of seasonality, as required by section 18722 (i) (2).

Please include either an additional table, or include in the text, the total tons of solid waste generated, disposed and diverted for each of the sources, (residential, commercial, and industrial) as required by section 18722 (f) (4).

Please identify all permitted transformation and disposal facilities (landfills and transfer stations) used by the jurisdiction, as required by section 18722 (i).

Section 18722 (f) (4) also specifies how the in-place volume measurement of the aggregate waste disposed is to be reported.

Section 18722 (o) requires the inclusion of a separate outline in the SWGS describing the reporting system the jurisdiction will be using to quantify data reported, i.e., an outline of who will be submitting what data, and when.

City Response:
The fluctuation of residential yard waste collection due to seasonal variation follows the following pattern: the summer months, July through October tend to produce a constant eight to nine thousand tons per month; November and December trend slightly upward peaking at 10,000 tons per month; January and February trend down with February reaching the lowest point of the year at 5,000 tons; at March the trend sharply increases and this is usually the heaviest month at 12,000 tons; April and May produce slightly less tons; in June, tons generated trends down to 9,000.

Total tons of solid waste generated, disposed, and diverted are broken out by sector (residential, commercial, industrial, self-haul) in Appendix B.

San Jose's franchised residential garbage and recyclables haulers, GreenTeam and Western Waste, submit weekly reports detailing tons of recyclables collected and tons of garbage and recyclables residue landfilled. San Jose's residential yard waste collectors, BFI and GreenWaste Recovery, submit monthly reports of tons collected.

The four private landfills (Newby Island, Kirby Canyon, Guadalupe Mines, and Zanker Road) operating in San Jose report monthly to the City the tons disposed and diverted at their facilities, and differentiate between San Jose and Non-San Jose tonnages. Newby Island, Guadalupe Mines, and Zanker Road also process San Jose yard waste under agreements with the City, and submit separate monthly reports on this activity.

San Jose's franchised commercial rubbish haulers and collectors of mixed recyclables also report monthly to the City on tonnages of recyclables and rubbish collected from San Jose businesses, and permitted collectors of source separated recyclables report tonnages to the City on a Quarterly basis.

Description of the permitted transformation and disposal facilities used by the jurisdiction are included as Appendix C, Attachment 2. Kirby Canyon Landfill at 910 Scheller Road, San Jose, owned by operated by Waste Management (not included in the attachment) is also used by the jurisdiction.

II. COMMENTS ON THE SOURCE REDUCTION COMPONENT

The Source Reduction Component evaluates and selects several programs, yet does not attempt to quantify solid waste reduction resulting from these programs as required by CCR section 18733.4 (c).

While it is true that the CIWMB recognizes the difficulty of quantifying source reduction, it is not accurate to assume that the CIWMB accepts the approach of postponing quantification to the future when data is available.

City Response:
Comment noted

Pages 3-6 Existing Conditions

City staff could easily incorporate a survey and record keeping program as part of the agreement between the non-profit reuse organizations. This would enable staff to quantify some source reduction in the City.

City Response:
Since December, 1993 the City has had reporting agreements with the three largest non-profits reuse organizations in San Jose: Salvation Army, Goodwill, and St. Vincent DePaul. These organizations report tons diverted to the City each quarter.

Pages 3-7 Existing Conditions, Technical Assistance

The information obtained through the TAP program should enable City staff to quantify source reduction within the business community.

While the SRRE doesn't quantify existing or proposed source reduction activities, the City has excellent existing educational and outreach programs. These programs should result in diversion activities which will yield quantifiable figures if targeted at specific waste types and generators.

City Response:
Comment noted.

Page 3-36 Monitoring and Evaluation

This section does not fully address the requirements of CCR section 18733.6 Specifically, the section must quantify waste diverted in percent of total waste generated. The section must also identify known funding requirements, revenues, and revenue sources as required by CCR section 18733.6 (c) (3).

City Response:
As the City monitors the success of its diversions efforts, it will attempt to separate the quantity due to its source reductions programs through surveys and landfill and garbage/recycling collection data.

Other revenues available to fund the approximately $150,000 in program costs besides General Fund and State monies include AB939 funds collected as part of landfill fees, residential billing for waste management collection services, and garbage fees/AB939 fees from commercial haulers.

Technical Assistance Comments

Pages 3-2 through 3-4 objectives

The City of San Jose has stated that the potential for source reduction is very high, however the City has also stated that only a "variable percentage" of the waste stream can be diverted through source reduction. While the City appears to have targeted both

specific and broad categories of waste for source reduction (i.e. yard wastes and packaging materials), a more detailed description of waste types to be reduced within the broad categories, as well as setting target diversion rates, may be necessary to receive diversion credit and measure program success.

City Response:
Comment noted.

Pages 3-4 through 3-10 Existing Conditions

Though the City has described a number of alternatives, it has stated that quantifying the diversion potential of each is difficult. Without an attempt at quantifying the effectiveness of programs, it is unclear how the City can select the most appropriate course of action.

City Response:
Comment noted.

Pages 3--30 through 3-35 Program Selection

It is not clear how specific programs were selected, or what materials will be impacted by the programs. It should be noted that source reduction programs must target specific waste types in order for diversion quantification to be allowed.

City Response:
Comment noted.

III. COMMENTS ON THE RECYCLING COMPONENT

The City is recognized as having one of the most effective recycling programs in the State. The descriptions of the existing programs confirm this.

Pages 4-22 through 4-33 Selection of a Recycling program

Diversion must be broken by specific material type within each diversion program as required by CCR section 18733.4 (b).

City Response:
Table 4-1 estimates the quantities that will be diverted by the selected recycling alternatives during the short and medium-term planning periods, broken out by program and waste type.

The numbers provided for the selected Residential Recycling Program are actual tons of recyclables collected and sold, as reported by San Jose's residential haulers, for July 1, 1993 through June 30, 1994. The Residential Recycling Program (Recycle Plus!) includes curbside collection of recyclables and bulky goods (white goods, furniture) from all single and multi-family residences in San Jose.

The following materials are diverted by this program: Newspaper, mixed paper, glass bottles and jars, aluminum cans, tin cans, small pieces of scrap metal, HDPE (colored and natural), PET, and all plastic bottles and jugs, film plastic, aseptic juice boxes and milk cartons, polystyrene packing materials, textiles, used motor oil, and reusable and recyclable bulky goods.

The Recycle Plus! program replaced the previous curbside recycling program on July 1, 1993. This program will continue in both the short-term and the medium-term. It is not anticipated that diversion from this program will increase significantly in the medium-term unless strong recyclables markets are created for additional material types.

Another component of the Recycle Plus! program is that residents are charged by volume (cart size) for garbage collection, encouraging source reduction and recycling.

Yard waste is also collected curbside from all residences in San Jose, as is discussed in the Composting Component. A total of 96,782 tons of residential yard waste were collected through curbside collection in San Jose from July 1993 through June 1994. This diverted yard waste represents 6.9% of the total waste stream. Some of this yard waste diversion can be attributed to the effectiveness of the volume-based garbage rates.

The selected Commercial / Industrial Recycling Program combines public outreach and technical assistance from the City with financial and regulatory incentives designed to encourage commercial customers in San Jose to recycle by using the many private commercial recyclers operating in the area.

There are many private recyclers currently collecting recyclables from San Jose businesses, as well as several drop-off and buy-back facilities. San Jose also contains two private "MRF's", The Recyclery and Zanker Road Resource Recovery, both of which are located adjacent to landfills. A complete listing of private recyclers can be found in Appendix C, Attachment 1, the "South Bay Recyclers Directory."

Table 4-1 estimates diversion for the complete Commercial / Industrial Recycling Program, because it is not possible to determine how much diversion, by waste type, is caused through financial incentives versus outreach and technical assistance. Both short-term and medium-term estimates are provided.

Pages 4-23 Markets for Recovered Materials

The final SRRE will need to identify end markets or end users to be secured during the short-term planning period as required by CCR section 18735.4 (a).

City Response:
Please refer to Appendix C, Attachment 3, the Annual Recycle Plus Marketing Plans.

Page 4-29 through 4-34 Program Implementation

CCR section 18733.5 (b) requires identification of the tasks necessary to implement the selected programs. There is not enough detail on the implementation tasks necessary to implement the selected diversion programs. The final SRRE should include the major tasks necessary to "increase participation", "encourage participation", etc.

City Response:
These pages were amended to reflect these comments. In addition:

Residential Alternatives: The City implemented the Recycle Plus program on July 1, 1993. This program includes a four-sort curbside recycling component and an aggressive unit pricing system for garbage. In order to have unlimited quantities of recyclables collected at no additional cost, residents are required to source separate. The garbage haulers will place a non-collection notice on contaminated recyclables set-outs. Residents, therefore, must either source separate the contaminated recyclables or set-out as garbage, the costlier option.

Pages 4-34 through 4-35 Monitoring and Evaluation

This section needs to identify methods to quantify and monitor achievement of objectives. The method must quantify waste diverted in volume or weight, and in percent of total waste generated as required by CCR section 18733.6. Additionally, the funding necessary for the Monitoring and Evaluation program needs to be addressed in the final element.

Technical Assistance Comments

Additional resources for market development ideas include the recent publication from Californian's Against Waste, Cutting Our Waste In Half: A Model Planning Approach for Comprehensive City and County Waste Reuse, Reduction, Recycling, and Composting, February, 1991. For a copy of this publication, call the Department of Conservation, division of Recycling at (916) 323-3508.

City Response:

For the residential sector, the City can monitor the waste generated through the Recycle Plus program via the monthly landfill reports which the City has been compiling for several years. In addition, the City will be able to track the garbage volume subscribed to by each household. The City also receives weekly reports on tons of recyclables collected on each residential recycling collection route for analysis. For the commercial sector, the City has and will continue to receive tonnage reports from each landfill used by the jurisdiction. These reports distinguish between commercial/residential and San Jose/Non-San Jose waste streams. The City also plans to conduct surveys of businesses to evaluate the success of is commercial program initiatives.

All of the reporting listed above is already provided to the City as part of existing contracts, franchises, or regulations. The exact portion of so that exact portion of payment that the City makes to the Contractor which goes to providing these reports is unknown. The City currently has a computer programmer under contract ($40,000) to integrate all this data electronically. Funds to perform these services include AB939 funds collected as part of landfill fees, residential billing for waste management collection services, and from commercial haulers.

IV. COMMENTS ON THE COMPOSTING COMPONENT

This component did not evaluate the alternatives against the criteria found in CCR section 18733.3. Also, the component evaluates alternatives, but skips over selection of alternatives and addresses the implementation of alternatives.

City Response:

COMPOSTING COMPONENT

5.5 EVALUATION OF ALTERNATIVES

Effectiveness

Of the residential compostables collection options, Curbside Collection would be the most effective at reducing solid waste, because it is the most convenient option for the residents. Up to 25% of the residential waste stream could potentially be captured through curbside yard waste collection. This represents 6% of the total waste stream. The other residential options: Mobile Drop-Off Centers, Permanent Drop-Off Centers, and Residential On-Site Composting are less convenient for residents, and therefore less effective at reducing solid waste.

However, the City will encourage Residential On-Site Composting as a source reduction alternative because: 1) source reduction is higher in the solid waste diversion "hierarchy"; 2) residential on-site composting can divert food waste that cannot be collected in the curbside yard waste program; and 3) on-site composting is less costly than other alternatives.

The commercial compostables collection options are potentially more effective at reducing solid waste than the residential options, because commercial compostables are a slightly larger part of the total waste stream (10%) than residential compostables (8%). Permanent Drop-Off Centers may be just as effective for commercial compostables as Commercial Collection. This is because many commercial businesses currently utilize professional landscaping services who self-haul yard wastes to landfills instead of disposing of them in the businesses' garbage or rubbish bins. Permanent Drop-Off Centers at the landfills could divert these self-hauled yard wastes. It is estimated that either Commercial Collection or Permanent Drop-Off Centers would divert up to 7 % of the total waste stream in the medium term.

Of the compostables processing options, In-Vessel Composting and Aerated Static Piles are potentially more effective at reducing solid waste than Turned Windrows and Brush and Wood Waste Processing, because of their ability to safely compost sewage sludge and food waste. However, the cost per ton of these alternatives is prohibitive, and the potential hazards associated with compost and sewage sludge and food waste are much higher than for composting yard waste and brush.

Hazard

The potential hazards associated with all of the collection alternatives are virtually insignificant, and include impacts on traffic and parking and potential odors resulting from improperly stored food wastes. The potential hazards associated with the processing alternatives are discussed under the evaluation of each alternative on pages 5-14 through 5-16.

Ability to Accommodate Change

All of the collection alternatives have the ability to accommodate changing economic, technological, and social conditions. The Permanent and Mobile Drop-Off Center alternatives could more easily accommodate such changes than Residential Curbside Collection or Commercial Collection. Uncontainerized residential collection can more easily accommodate changes in the volumes of yard waste than containerized systems.

The ability of the processing alternatives to accommodate changing economic, technological, and social conditions are discussed under the evaluation of each alternative

on pages 5-14 through 5-16. Brush and Wood Waste Processing is dependent upon a strong market for wood chips as fuel.

Consequences on the Waste Stream

None of these alternatives is expected to have any significant impact on the waste stream. Convenient collection of yard wastes could potentially increase the amount of yard waste generated, but this would be dependent upon many factors, such as drought conditions, fees charged for collection of compostables, and the effects of source reduction efforts.

Implementation Period

The following composting alternatives could be implemented in the short term:

Residential Curbside Collection
Permanent Drop-Off Centers
Mobile Drop-Off Centers
Residential On-Site Composting
Turned Windrows Composting
Brush and Wood Waste Processing

The following composting alternatives could be implemented in the medium term:

Commercial Collection
Aerated Static Pile Composting
In-Vessel Composting

Facility Requirements

Implementing the following alternatives would require expansion of existing composting facilities:

Residential Collection
Permanent Drop-Off Centers
Mobile Drop-Off Centers
Turned Windrows Composting
Brush and Wood Waste Processing

Implementing the following alternatives would require the construction of new composting facilities:

Commercial Collection
Aerated Static Pile Composting
In-Vessel Composting

Consistency with Local Plans and Policies

All of these alternatives are consistent with current City of San Jose plans, policies, and ordinances. If the Aerated Static Pile Composting alternative were selected, San Jose's "highest and best" use policy might prohibit the co-composting of yard waste and sewage sludge if viable markets existed for the use of yard waste compost in agriculture and landscaping.

Institutional Barriers

The only potential institutional barriers to local implementation of these composting alternatives would be the regulation of composting facilities at the State and Federal levels. The permit requirements for composting facilities could affect implementation costs and implementation schedules for each of these alternatives. These issues are further addressed in the CEQA Requirements section on page 5-17.

Estimated Cost

Cost estimates for the processing alternatives are discussed under the evaluation of each alternative on pages 5-14 through 5-16.

The estimated cost for collection of compostables are given below. These estimated costs do not include processing costs.

Residential Curbside Collection: $3.50 / Single Family Home per month.
$1.00 per Multi-Family Dwelling Unit per month. An average of $75 per ton.

Commercial Collection: $75 - $100 per ton. It is possible that financial incentives such as hauler franchise fees and landfill based AB939 fees could be used to encourage private collection of separated commercial food waste, yard waste and wood waste without direct cost to the City.

Permanent Drop-Off Centers: Between $15,000 and $25,000 per year. Costs will fluctuate greatly depending on the hours of operation and required level of staffing. It is possible that financial incentives such as hauler franchise fees and landfill based AB939 fees, or a ban on the landfilling of yard waste, could be used encourage local landfills to establish private yard waste drop-off centers without direct cost to the City.

Mobile Drop-Off Centers: $50 - $100 per ton. The cost will vary greatly depending upon the frequency of collection, number of centers, and need for staffing.

Residential On-Site Composting: $15,000 per year to develop and maintain a demonstration site, advertise the program and provide "how-to" and other informational brochures. Providing residents with composting bins would increase costs.

Markets for Recovered Materials

This is addressed in the Distribution and Marketing section on pages 5-17 through 5-19.

Public vs. Private Operation

The evaluated alternatives could all be operated either by a public or private entity. The City presently requires that any residential collection by the City be under exclusive franchise agreement. The City currently prefers to contract with private composting facilities instead of constructing public facilities.

Selection of Alternatives was corrected in the text, and can be found as Section 5.6 Selection of a Composting Program, pages 5-19 and 5-20.

Page 5-2 Objectives

Rather than "encouraging" county and city departments to use compost generated by the programs, the county and cities could mandate the use of the compost in lieu of purchasing soil amendments from other producers. This would help ensure a market for the compost that the City produces.

City Response:
The City has agreements with three private facilities to process yard waste collected curbside from San Jose residences and City facilities. As a condition of these agreements, the City receives a total of 1,800 tons per year of finished compost products from the three facilities. These products are used in City parks and community gardens.

Appendix C, Attachment 4, is a copy of San Jose's "Source Reduction and Recycling Procurement Policy."

Page 5-7 Program Alternatives - Mobile Drop-Off

This alternative is very unique, and would seem effective; however, since the SRRE did not address selection of alternatives staff doesn't know if the City has selected this as an alternative.

Technical Assistance Comments

While the information presented in the Composting Component appears to indicate that the City has analyzed the options and requirements in developing and expanding composting operations, the copy of the SRRE that staff received is lacking the program selection section of this component. This makes the evaluation of the feasibility of the selected programs impossible.

City Response:
Selection of Alternatives was corrected in the text, and can be found as **Section 5.6 Selection of a Composting Program**, pages 5-19 and 5-20. The Mobile Drop-Off Centers Alternative was not selected.

V. COMMENTS ON THE SPECIAL WASTE COMPONENT

PRICE section 41781 specifies wastes types, i.e., agricultural wastes, inert solids, scrap metals, and white goods, which may not be counted towards diversion unless they were normally disposed in a permitted landfill as of 1/1/90, and there was a diversion program used by the jurisdiction for that waste type active as of 1/1/90.

City Response:
Comment noted.

Page 6-2 through 6-4

Information appearing on these pages is repetitious, and does not directly relate to the special wastes found in the City. The SRRE does not need to include information on the definition of used tires, white goods, abandoned vehicles, dead animals, etc. Please stream-line this section to include only information dealing with the special wastes the city of San Jose generates, disposes, and diverts.

City Response:
Comment noted.

Page 6-4 Objectives

The stated objectives are not specific enough. Please refer to CCR section 18733.1 (b) when completing this section for the final element.

City Response:

SPECIAL WASTE COMPONENT

6.2 OBJECTIVES

The City of San Jose does not have any goals or objectives regarding special wastes, as the current programs are in compliance with applicable regulations, and are sufficient to handle the wastes. Current programs are described below, and on pages 6-2 through 6-4.

6.3 EXISTING CONDITIONS DESCRIPTION

The four landfills in San Jose are privately owned and operated. Each landfill employs load-checkers to randomly inspect incoming loads for prohibited wastes. Any contaminated loads are documented in the landfill's special occurrences log.

All four landfills accept white goods for recycling. The State prohibits landfilling of white goods. Refrigerators with intact freon units are accepted for an additional fee, while refrigerators with punctured freon units are not accepted. The landfills hire companies licensed by the State to removed the freon from the refrigerators. White goods, including refrigerators, are stored in a separate area and sold for reuse or recycling.

All four landfills collect tires separate from other wastes, and send the tires to a State-licensed disposal or recycling facility. The landfills charge a special handling fee for the tires. The current fee is approximately $8 per tire. Used tires are not accepted for landfilling, as is required by the State.

The City acts as the Local Enforcement Agency (LEA) for the four private landfills located in San Jose. San Jose's LEA consists of three full-time City employees. These employees perform monthly inspections of the four landfills. During these inspections, loads of incoming wastes are visually scanned for hazardous or special wastes, and landfill records are studied for compliance.

The City also charges a special businesses tax on the four landfills. This tax, known as the Disposal Facility Tax or DFT, is assessed on each ton landfilled. The DFT provides an incentive for the private landfill operators to divert as much material as possible, including special wastes such as bulky goods. See the "City Response" to the comments under **Page 6-6 Existing Conditions** for a more complete description of diversion activities at San Jose landfills.

Bulky goods from the both the single-family and multi-family residential sectors are collected as part of the Recycle Plus! program described in the Recycling Component.

The haulers are required to divert as many of the bulky goods as possible from disposal, and to dispose of freon in accordance with California regulations.

Pages 6-5 through 6-7 Existing Conditions

This section needs to include quantities diverted for each alternative by category and type as required by CCR section 18733.2 (a) (2).

City Response:
The Solid Waste Generation Study identified 327 tons of diverted commercial tires/rubber and 93 tons of diverted commercial appliances/white goods.

Diversion quantities by category and type are given in Tables 2-2 and 2-3, and in Appendix B.

Page 6-6 Existing Conditions - White Goods

The information presented here is vague and it is unclear to staff if the landfills in San Jose allow controlled salvaging.

City Response:
Separated white goods and tires are collected at the gate by all four landfills and kept in separate storage areas until they are shipped off-site for recycling or proper disposal. All four landfills utilize clean loads of inerts for cover and the construction of landfill roads.

Zanker Road Disposal and Recycling Center: Recycles approximately 45% of incoming wastes. Most loads are taken to a recyclables processing area where most all items with value are salvaged: Wood, metals, corrugated cardboard, CRV containers, etc. Clean loads of yard waste are directed to the composting area, and clean loads of wood waste are directed to a wood chipping area. Controlled salvaging by landfill employees takes place at the tipping face.

Guadalupe Rubbish Disposal Site: Clean loads of yard waste are directed to the composting area, and clean loads of wood waste are directed to a wood chipping area. Clean loads of landscape-related materials such as decorative rock are directed to a landscaping supply area where they are sorted into bunkers for resale. Controlled salvaging by landfill employees takes place at the tipping face.

Newby Island Sanitary Landfill: Clean loads of yard waste are directed to the composting area, and clean loads of wood waste are directed to a wood chipping area. No salvaging is allowed at the landfill tipping face.

Kirby Canyon Sanitary Landfill: No salvaging takes place at this facility. Kirby Canyon does not accept self-hauled wastes.

Page 6-14 Selection of a Special Waste program

This section states that the alternatives were assigned ratings of high, medium, and low according to the assessment of their evaluation criteria. The final SRRE should include this rating information, as it is unclear how this rating was applied. It is also unclear to staff which, if any, of the seven alternatives discussed were selected. The selection of programs, and program implementation sections are incomplete. Please refer to CCR section 18733.3 and 18733.4 when re-working the draft document into a final SRRE.

City Response:

6.4 EVALUATION OF A SPECIAL WASTE PROGRAM

As the current special waste management practices identified above are in compliance with applicable regulations and are sufficient to handle the quantities of waste produced, the City of San Jose is not considering any alternatives for special wastes.

See "City Response" under comment **6-14, Selection of a Special Waste Program.** Disregard sections 6.4 through 6.7 of the text.

Page 6-15 Short-Term and Medium-Term Planning Periods

These two sections belong under the Program Implementation section. Please move them into the appropriate section for the final element. Also, these sections require identification of tasks necessary for implementation, and require a implementation schedule. Known costs, revenues, and revenue sources necessary for implementation are also required by CCR section 18733.5.

City Response:
See "City Response" under comment **6-14, Selection of a Special Waste Program.** Disregard sections 6.4 through 6.7 of the text.

VI. COMMENTS ON THE EDUCATION AND PUBLIC INFORMATION COMPONENT

Page 7-1 Goals and Objectives

The goals identified need to be more specific, measurable, and time-framed.

Page 7-2 Short-Term and Medium-Term Objectives

The objectives listed on pages 7-2 need to be more specific, measurable, and time-framed. the final element will need to include implementation tasks for both the short-term and medium-term planning periods.

Page 7-2 through 7-5 Existing Conditions

The City has an extensive existing public education and outreach program which must greatly enhance public participation in diversion programs.

Page 7-5 through 7-12 Program Alternatives

The information presented in this section is vague. It is not clear to staff which of the alternatives the City actually considered.

City Response:
Comments noted.

Page 7-14 Program Implementation

This section does not meet the requirements of CCR section 18740 (d) (1-4). The final element will need to include information on responsible agencies, and identify implementation tasks. CCR section 18740 (d) (4) requires an identification of all public and private program implementation costs, revenues, and revenue sources necessary for program implementation.

City Response:
The City currently has approximately three full-time community relations staff to implement its solid waste-related public education programs. The non-personnel annual community relations budget for FY94-95 is approximately $1.4 million. These funds come from AB939 fees from landfill tipping fees, franchisees, and residential garbage bill revenue. Since 1990, most of these resources went to campaigns that educated residents on the Recycle Plus program; since July 1, 1993, the emphasis has been on targeting particular "trouble spots" residents have had using the program.

In December 1994, staff will select a full-service communications agency to help develop and implement a strategic public education plan that will bring San Jose to the year 2000. The top priorities for new public education campaigns include enhanced minority outreach campaigns, source reduction in the residential and commercial sector, and enhanced recycling participation in multi-family dwellings, the commercial/industrial sector, schools and civic institutions.

The Recycle Plus outreach campaign began in January 1993, six months prior to program start-up. This plan included about four direct mail pieces: 1) January 1993 piece that described the garbage carts and new variable can rate structure and requested residents to notify the City of their desired cart size, 2) June 1993 "Go for an A+" brochure that described how to use the program and included two free "extra garbage stickers" that customers could use to place on their own plastic garbage bags for extra garbage they may generate as they were getting used to weekly limited garbage capacity; 3) September 1993 piece that thanked residents for their patience for any inconvenience they experienced during program start-up and provided them a coupon for one free bulky item pickup; and 4) October 1993 "San Jose gets an A+" piece congratulating residents on the success of the program thus far. In addition, a very successful poster titled "How to Recycle Plus" was distributed with the new wheeled garbage carts to each single-family household from May 1 to June 30, 1993.

Concurrently with all the above, newspaper ads were run in the San Jose Mercury News and neighborhood and non-English language newspapers. Television ads also ran on local stations in English, Spanish, and Vietnamese. This Recycle Plus implementation campaign won the National 1994 Silver Anvil award presented by the Public Relations Society of America.

The City's public education campaigns are data-driven. Community Relations Division staff regularly use private survey firms to regularly gauge the success of particular campaigns and the public's perception of the residential program as a whole. Technical staff also receive weekly collection route level analysis and can evaluate the success of any campaigns in relation to increased participation in recycling (by number of set-outs, tons of a particular material), or decrease in garbage generation. Focus groups are regularly used to measure the viability of a particular education or advertising concept prior to its implementation. Such evaluations is especially useful for minority outreach campaigns.

San Jose has not thus far emphasized a similar comprehensive campaign for the commercial sector. This is one of the areas to be evaluated with the new communications agency. San Jose will dramatically change its commercial franchise fee structure in October 1994; this is expected to encourage significant recycling. Upon analysis, if this economic incentive is not sufficient to reach the required diversion by the 2000, staff will evaluate a more comprehensive outreach effort in late Spring 1995. It is anticipated that this could include waste audits, increased technical assistance by staff to hook up businesses with recyclables haulers, workshops on recycling in the workplace, and direct mail pieces targeted at specific types of waste generators.

VII. COMMENTS ON THE DISPOSAL FACILITY CAPACITY COMPONENT

The final element should include the disposal capacity needs projection using the Capacity Needs Projection Equation within the text of this component.

City Response:
This comment has been addressed in the text of the SRRE pages 8-6 through 8-8, and in Tables 8-1a and 8-1b.

VIII. COMMENTS ON THE FUNDING COMPONENT

The funding component is the most complete one staff has seen. The City did an excellent job detailing the funding sources, current and proposed program costs, and contingency funding sources as required by CCR section 18746.

City Response:
Comment noted.

IX. COMMENTS ON THE INTEGRATION COMPONENT

The final element must contain a calendar scheduling all implementation tasks for new and expanded programs as required by CCR section 18748 (b) (1). The schedule must also show the anticipated date of achievement of the diversion mandates. Otherwise, all requirements have been met for this component. The City took a complex look at integration to include integrating with the existing system.

City Response:
The Calendar is as follows:

Implementation Date	Task	Program	Responsible Agency
12/90	Council review of major policy issues and RFP development	Recycle Plus	Environmental Services Department (ESD)
2/91	Council approves initial policy direction	Recycle Plus	ESD
3/91	Council approves additional policy directions and overall RFP development	Recycle Plus	ESD
6/91	Council approves RFP selection criteria and final policy direction	Recycle Plus	ESD
8/91	Council reviews and approves RFP documents	Recycle Plus	ESD
10/91	Release of RFP	Recycle Plus	ESD
2/92	Technical Proposals Submitted	Recycle Plus	ESD
3/92	Cost Proposals Submitted	Recycle Plus	ESD
6/92	Recommendations approved by Council	Recycle Plus	ESD
8/92	Contracts with Firms Finalized	Recycle Plus	ESD
1/93-10/93	Public Education Campaign Begins	Recycle Plus	ESD
5/93-6/93	Delivery of Wheeled Disposal Carts	Recycle Plus	ESD
7/93	Service Begins	Recycle Plus	ESD
7/94	**45% Residential Diversion Achieved**	Recycle Plus	ESD
4/95	Source Reduction Campaign begins	Recycle Plus	ESD
7/95	Residential rate increases implemented	Recycle Plus	ESD
7/96	**50% Residential Diversion Achieved**	Recycle Plus	ESD
10/1	**17% Commercial Diversion Rate**	Commercial	ESD
10/1	Commercial Franchise/AB939 Fees implemented that significantly encourage recycling	Commercial	ESD
1/95-1/96	Outreach programs designed and implemented to encourage source reduction and to provide technical recycling assistance to commercial sector	Commercial/ Community Relations	ESD
7/95-7/96	Outreach programs and technical services to support the special recycling needs of small businesses implemented	Commercial/ Community Relations	ESD
7/95	**26% Commercial Diversion Rate Achieved**	Commercial	ESD
7/96	**35% Commercial Diversion Rate Achieved**	Commercial	ESD
1/98	If 50% Diversion Rate not achieved; staff to begin implementing mandatory recycling program		
1/2000	**50% Commercial Diversion Rate Achieved**	Commercial	ESD

Page 10-2 Compliance with Diversion Mandates

In the second paragraph there is a blank where a table number should appear. This should be filled in for the final SRRE.

City Response:
Comments noted.

ATTACHMENT 1

South Bay Recyclers Directory

A listing of businesses and non-profit organizations which collect or accept recyclables in the South Bay

Publication Date: July 1, 1994

City of San Jose Environmental Services Department,
777 North First Street, Suite 450, San Jose, CA 95112
Commercial Recycling Program
(408) 277-5533

Directory printed on recycled content paper

South Bay Recyclers Directory

This directory lists businesses and non-profit organizations which collect or accept recyclables in the South Bay. Additions are welcome. Listing does not constitute an endorsement by the City of San Jose.

This directory is divided into three sections:

Section One includes recyclers that will collect from your organization's location (business, school or government agency) or accept at their location, for buy back or drop off, the following materials: Paper, Metals, Glass, and Plastic (PET only).

Section Two includes recyclers that accept the following materials at their location on a buy-back or drop-off basis only: Paper, Metals, Glass and Plastic (PET only).

Section Three includes other types of recyclables, such as: Antifreeze, Appliances, Auto Batteries, Construction and Demolition Waste, Electronic Scrap Precious Metals, Fluorescent Light Tubes, Food Waste (edible and Non-edible), Motor Oil, Pallets/Wood Waste, Plastics, Textiles/Clothing, and Tires. This section also contains companies that recycle confidential paper and reusable products. Companies may provide one or more of the before mentioned services for these materials.

All recyclers providing a collection service within the City of San Jose must obtain either a permit for single recyclables collection or a franchise agreement for mixed recyclables collection. A single recyclable is any recyclable material that is segregated by the generator, for the purpose of recycling. Mixed recyclables are single recyclables that are commingled in a container in a pubically specified combination in rules created by the City of San Jose, and segregated from other waste materials by the generator for the purpose of recycling. Any recycler collecting in the City of San Jose without a permit or franchise agreement is in violation of City ordinance. Only permitted recyclers,or businesses exempt from the permit, are included in this guide.

Please call recyclers before starting a recycling program or collecting materials, as each has special requirements for the preparation of materials. Recyclers' hours and type of operations may change after the date of publication. Since services and prices vary from recycler to recycler, it is recommended that you contact several recyclers before choosing one that best fits your needs and corporate culture. Recycling can help your organization save money. If you are having difficulty finding a recycler, please contact the city of San Jose's Environmental Services Department or the Center for Development of Recycling at (408) 924-5453.

Created By: City of San Jose, Environmental Services Department,
777 North First Street, Suite 450, San Jose, CA 95112

Directory printed on paper, at least, 15% post consumer, 50% total recycled fiber.

How to Use This Directory

Directory Key:
The following codes indicate the type of service the recycler or recycling facility provides:

B (Buy-back): Recycler will accept and pay you for material(s) that you deliver to the recycling facility.

D (Drop-off): Recycler will accept. but not pay you for materials(s) that you deliver to the recycling facility.

C (Collection): Recycler will collect material(s) from you. You may or may not receive payment.

F (fee): Recycler will charge a fee for service provided. (e.g., CF-Collection Fee, DF-Drop-off Fee.)

Abbreviations for Materials:

Paper:
High (grade): Computer paper, white paper, colored paper
Low (grade): Newspaper, mixed paper, junk mail
Mag: Magazines
Cbd: Cardboard (Corrugated)

Metal:
Al: Aluminum cans (unless otherwise noted)
Other: Other metals (ferrous, non-ferrous)

Plastic:
PET: (Polyethylene Terephthalate) Plastic soda bottles.
HDPE: (High Density Polyethylene) Milk and water jugs.
V: (Vinyl) Heavy-walled pipe, clear food packaging.
LDPE: (Low Density Polyethylene) Plastic Bags
PP: (Polypropylene) Some yogurt and margarine tubs.
PS: (Polystyrene) Video cassettes, TV casings
PSF: Polystyrene Foam) Packaging material
ABS: (Acrylonitaile-Butadiene-Styrene) Computers

Sample Listing:

	Recycling Services, Inc. (408) 555-4061	123 Recycle Mo Blvd. San Jose, CA 12345	1234	.C, B	D		CF	C,B	B	B	B	Clear HDPE, Pallets/Wood waste	8-5 M-F 9-4:30 M-F
Codes For Sample Listing:			1	2	3	4	5	6	7	8	9	10	

Description of Codes from Sample Listing

1. 1234-Recycling Services, Inc. is permitted by the City of San Jose as a single recyclables collector.

2. C,B - Recycling Services, Inc. offers collection services for high grade office paper which may include computer paper, white paper and colored paper. They may or may not pay you for the materials collected. They will also buy these materials at their facility.

3. D - Recycling Services, Inc. will accept low grades of paper, newspaper and/or mixed paper on a drop off basis only.

4. Recycling Services, Inc. will not accept magazines.

5. CF - Recycling Services, Inc. will collect corrugated cardboard from you for a fee. This fee should be less than the amount you pay for rubbish or garbage collection.

6. C,B - Recycling Services, Inc. will collect aluminum cans and also buy they from you at their facility.

7. B - Recycling Services, Inc. will buy one or more types of metals such as ferrous and/or non-ferrous at their facility.

8. B - Recycling Services, Inc. will but glass bottles and jars at their facility.

9. B - Recycling Services, Inc. will buy PET plastic bottles (only CA redemption bottles unless otherwise noted).

10. Clear HDPE, Pallets/Wood - Recycling Services, Inc. also accept clear HDPE plastic (one gallon milk and water jugs). They will also accept pallets and/or wood waste.

SECTION ONE: Collectors of Paper, Metals, Glass, and Plastic Recyclers
(Recyclers that offer collection and buy-back or drop-off services)

Telephone #	Address/ City	Permit Number	PAPER				METALS		GLASS	PLASTIC	OTHER MATERIALS/ DETAILS	HOURS
			High	Low	Mag	Cbd	Al Cans	Other		PET		
All Recycling (408) 629-4061	175 Lewis Rd Bld 25 San Jose, CA 95111	1001	C, B	D		D	B	B	B	B	Auto batteries, Clear HDPE, ferrous & non-ferrous metals, containers provided	9-6 Tu-Su
Browning Ferris Industries (408) 432-1234	1995 Oakland Rd. San Jose, CA 95131	1002	C F	C F		C F	C F			C F	HDPE, polyurethane padding, pallets/wood Mixed recyclables, containers provided	Collection 2am-4pm M-F
Butterick Enterprises (408) 292-5687	505 Burke St. San Jose,CA 95112	1003					C, D	C F,D F			Most metals, Construction/Demolition debris, Concrete, Asphalt, wood/yard waste	7-3:30 M-Sa
City Metals, Inc. (408) 452-0777	11665 Berryessa Road San Jose, CA 95133	Exempt					C, B	C, B	C, B	C, B	Electronic scrap, Auto batteries Appliances	8-5 M-F 8-12 Sa
Ecology Plus, Inc. (408) 452-7717	1701 Rogers Ave. Unit F San Jose, CA 95112	Exempt	C, B					C, B			Electronic scrap, Will collect from inside buildings	9-6 M-F
Green Valley Disposal Co., Inc. (408) 954-2100	573 University Ave Los Gatos, CA 95030	1036	C,F	C,F	C,F	C,F	C,F	C,F	C,F	C,F	Also accepts plastics, pallets, wood waste and yard waste.	3am-4pm
Inhouse Recycling (408) 292-4372	3970 The Woods Dr 608 San Jose, CA 95136	1029	C	C	C	C	C		C	C	Call for more details, Will collect from inside buildings, Mixed Paper	
Northern CA Pulp & Paper (510) 483-3255	2085 Wayne Ave. San Leandro, CA 94577	1012	C, B	C, D	C, B	C, B	C		C		Paper shredding, Will collect from inside buildings, blueprints, mixed paper, books	7:30-3:30 M-F
Paper's Money (415) 967-2534	707 Continental Circle#1817 Mtn. View, CA 94040	1015	C				C		C		Electronic scrap, Will collect from inside building, Provide on-call service	9-5 M-F
Paper Recovery of N. CA (510) 785-7311	25670 Nickel Place Hayward, CA 94545	1014	C, B	C, B	C F	C F	C, B		C F	C F	Will collect from inside buildings Paper shredding	9-3 M-F
Recycled Fibers of CA (408) 297-1022	388 E. Alma Ave. San Jose, CA 95112	1018	C, B	C, B	F, D	C, B	B		B	B	Mixed paper, Confidential records destruct. Will collect from inside building,	7-4:30 M-F 7:30-12 Sa
Recyclery, BFI (408) 262-1401	1601 Dixon Landing Rd. Milpitas, CA 95035	1002	C, B	C, B	C F,	C, B	C, B	C F, D	B	C, B	Confidential records destruction, pallets, Polystyrene foam, Foam padding, wood	Drop off 24 hrs Coll. 4am-4pm
San Jose Conservation Corps (408) 283-7171 (non-profit)	2650-A Senter Road San Jose, CA 95111	1021	C F	C F	C F	C F	C F	C		C	Special event recycling, Clear HDPE Will collect from inside buildings	8-4 M-Th
Smurfit Recycling (408) 292-6552	201 Bassett Street San Jose, CA 95110	1023	C, B	C, B	C	C	C		C	C	Clear HDPE, Polycarbonate H2O bottles Phonebooks, Containers provided	7:30-3:30 M-F 7:30-1:30 Sa
WMI/Recycle America (408) 980-9900	715 Comstock St. Santa Clara, CA 95054	Mixed Rec. Franchise	C	C		C	C	C	C	C	Mixed paper, Industrial plastics, Bar & Restaurant program, call for more details	4am-5pm M-F
Weyerhaeuser Paper Co. (408) 287-5441	1617 Almaden Rd. San Jose, CA 95125	1026	C, B	C, DF	D	B					Call for more details	7-5 M-F
Weyerhaeuser Paper Co. (510) 490-5887	42305 Albrae Street Fremont, CA 94538	1026	C, B	C, B	C, B	C, B					Equipment sales, Will collect from inside buildings, Books, mixed paper, blueprints	8-4:30 M-F

LEGEND: B-buy-back, D-drop-off, C-collection services available, F-fee charged for service

SECTION TWO: Buy-back and drop-off centers only
Paper, Metals, Glass, and Plastic Recyclers

Name/ Telephone #	Address/ City	PAPER				METALS		GLASS	PLASTIC	OTHER MATERIALS/ DETAILS	HOURS
		High	Low	Mag	Cbd	Al Cans	Other		PET		
A-1 Recycling Circus (408) 842-0288	150 Howson Street Gilroy, CA 95020	B			B	B	B	B	B		9-5 M-Sun
Alco Iron and Metal Co. (510) 562 1107	2350 Davis Street San Leandro 94577					B	C, B	B	B	Electronic scrap, ferrous & nonferrous metals	8-4:30 M-F 8-12 Sa
All Recycling (408) 629-4061	175 Lewis Rd Bld 25 San Jose, CA 95111	C, B	D		D	B	B	B	B	Auto batteries, Clear HDPE, ferrous & non-ferrous metals, containers provided	9-6 Tu-Su
Bay Area Recycling Center (408) 371-5834	710 McGlincey Lane Campbell, CA 95008	B	B		D	B	B	B	B	Non-ferrous metals only	8-5 M-Sa
California Paperboard (408) 727-7377	525 Mathew St. Santa Clara, CA 95050	D	D	D	D					Mixed paper	8:30-3:30 M-F
Capitol Recycling (408) 266-6210	274 Hillsdale Ave. San Jose, CA 95136	B	D			B	D	B	B		
Coastal Fibers (408)453-1960	1045 Commercial Court San Jose, CA 95112	B	B		B	B					6:30-4:30 M-F 7-3:30 Sa
Container Corp of America (408) 496-5118	2600 De La Cruz Blvd Santa Clara, CA 95050		B								10-6:30 M-F 8-4:30 Sa
Foothill Disposal Co. (415) 967-3034	935 Terra Bella Ave Mountain View, CA 94043	D	D	D	D	B	D	B	B		9-3 Tu-Sun
Coyote Recycle & Buy Back (408) 463-0817	8215 Monterey Road San Jose, CA 95111					B		B			9-4:30 Tu-Sa
Goodwill Industries (408) 998-5774	1080 N. 7th St. San Jose, CA 95112					B		B	B	Call for nearest location and hours	9:30-5:30 W-Su
LMC Recyclers (408) 294-8443	1800 Monterey Hwy San Jose, CA 95112		D			B	B	D	D		
Los Gatos Recycling Center (408) 354-6809	41 Miles Ave Los Gatos, CA	D	D		D	D	D	D	D	Auto batteries, Motor oil	9-3 Sa & Su
Markovits & Fox (408) 453-7888	1633 Oakland Rd. San Jose, CA 95131					B	CF, B	B	B	Most metals, Electronic scrap Clear HDPE	8-4:45 M-F
Pacific Coast Recycling (408) 297-5352	1850 South 7th St. San Jose, CA 95119					B	B			Will accept any metal: washers, ovens, whole automobiles, refrigerators, etc.	24 hr drop-off
Quick Recycling Center (408) 294-6987	534 Stockton Ave. San Jose, CA 95126	B	D	D	D	B	B	B	D	Auto batteries, Ferrous & Non-ferrous metals, Flat/plate glass	7:30-5 M-Su
Recyclery, BFI (408) 262-1401	1601 Dixon Landing Rd. Milpitas, CA 95035	B	B	D	B	B	B	B	B	Clear & colored HDPE, Mixed paper	7:30-3:30 M-Sa
Recycling Specialists (408) 437-7553	1720 Old Bayshore Hwy. San Jose, CA 95112	D	D		D	C, B	C, B	B	B	Electronic scrap, Auto batteries Non-ferrous metals, Clear HDPE	7-5:30 M-Sa 10-3 Su
Reynolds Aluminum (408) 293-0760	1303 Story Road San Jose, CA 95122					B		B	B	Copper & Aluminum scrap, brass radiators Closed from 1-1:30, 24hr. machine onsite	9:30-5:30 M-F 8-4 Sa & Su
Reynolds Al. Conven.Center (800) 228-2525	5298 Monterery Rd. San Jose, CA 95111					B		B	B	Closed from 1-1:30 for lunch	10-5 Tu-F 9-4 Sa
San Jose Metals (408) 293-4032	1032 N. 10th Street San Jose, CA 95122					B	B				8-12:30 Sa
Santa Clara Recycling (408) 727-3044	5501 Lafayette #237 Santa Clara, CA 95054		D			B	D	B	B	Newspaper, Tin cans, Motor oil	CALL

LEGEND: R-Buy-back, D-Drop-off

SECTION TWO: Buy-back and drop-off centers only
Paper, Metals, Glass, and Plastic Recyclers

Name/ Telephone #	Address/ City	PAPER				METALS		GLASS	PLASTIC	OTHER MATERIALS/ DETAILS	HOURS
		High	Low	Mag	Cbd	Al Cans	Other		PET		
South Valley Disposal and Rec. (408) 842-3358	7110 Alexander Street Gilroy, CA 95020	D	D	D	D	D	D	D	D	Call for other materials accepted.	8-4:30 M-Sun
Stanford Recycling Center (415) 723-0919	701 Serra Stanford, CA 94305	D	D		D	D	D	D	D	Tin cans	7-3:30 M-Su 24 HR DROPOFF
Sunnyvale Recycling Center (408) 730-7262	1444 Borregas Ave. Sunnyvale, CA 94086	D	D	D	D	D	D	D	D	Motor oil Open to Sunnyvale residents and bus. only	7-3:30 M-Su 24 HR DROPOFF
Trinie Martin Recyclers (408) 842-2565	6310 Chesnunt St. Gilroy, CA 95020	B				B	B	B	B	Non-ferrous metals	8-5 M-Sa
20 20 Recycle Centers (800) 883-2274	Call for Nearest Location					B		B	B	Will also accept bi-metal cans and non-CARV bottles for donation.	Call
Valley Recycling (408) 297-5352	1615 South 7th St. San Jose, CA 95119					B	B			Will accept any metal: washers, ovens, whole automobiles, refrigerators, etc.	24 hr drop-off
Western Recycling (408) 779-1781	91 East 4th St. Morgan Hill, CA 95037					B	B	B	B	Auto batteries, Non-ferrous metals	9-5 M-Sa
Yu Ai Kai (Non Profit) (408) 294-2505	565 North 5th Street San Jose, CA 95112	D	D			D					8:30-5 M-F

LEGEND: B-Buy-back, D-Drop-off

SECTION THREE: Special Materials Recyclers

Material Type	Name/ Telephone #	Address/ City	Permit	Service Type	OTHER MATERIALS/ DETAILS	HOURS
Antifreeze	Antifreeze Environmental (415) 325-2666	2081 Bay Rd. East Palo Alto, CA 94303	Exempt	C F	Antifreeze (min. 57 gallons required for pickup) Used oil filters	8-5 M-F
	Evergreen Environmental (510) 795-4400	6880 Smith Ave. Newark, CA 94560	Exempt	C F		
Appliances	Ken's Hauling Service (408) 363-9932	2951 Erica San Jose, CA 95121	1008	C F	Will haul any recyclable material	24 hours
	Valley Recycling (408) 297-5352	1850 S. 7th St. San Jose, CA	Exempt	B	Will accept any metal: all appliances, Whole automobiles, etc.	24 hr. drop-off
Auto Batteries	ABC Recycling Industries (408) 732-9253	1015 Martin Avenue Santa Clara, CA 95050	Exempt	D	Paper, Metals, Plastic, Glass	7-5 M-F 7-12 Sa
	Ace Batteries (408) 292-4172	670 Stockton Ave. San Jose, CA 95126	Exempt	C F, B	None	10-5 M-F
	All Recycling (408) 629-4061	175 Lewis Rd Bld 25 San Jose, CA 95111	1001	D	Paper, Metals, Plastic	9-6 Tu-Su
	Battery Terminal (408) 437-1641	917 Commercial St. #1 San Jose, CA 95112	Exempt	C, B	None	8-5 M-F 9-1 Sa.
	Bayland Battery Corp. (408) 453-3522	800 Faulstich Ct. San Jose, CA 95112	Exempt	D	None	8-5 M-F
	City Metals (408) 452-0777	11665 Berryessa Road San Jose, CA 95133	Exempt	D	Metals, Plastic, Glass	8-5 M-F 8-12 Sa
	LMC Recyclers (408) 294-8443	1805 Monterey Highway San Jose, CA	Exempt	D	Paper, Metals, Plastic, Glass, Electronic scrap	8-5 M-F 8-1:30 Sa
	Los Gatos Recycling Center (408) 354-8809	41 Miles Ave. Los, Gatos, CA 95030	Exempt	D	Paper,Metals, Plastics, Motor oil	9-3 Sa-Su
	Montgomery Ward Auto (408) 224-2357	879 Blossom Hill Rd. San Jose, CA 95123	Exempt	D		
	Montgomery Ward Auto (408) 272-6258	444 N. Capital Ave. San Jose, CA 95133	Exempt	D		
	Quick Recycling Center (408) 294-6987	534 Stockton Ave. San Jose, CA 95126	Exempt	D	Metals, Glass, Plastic, Paper	7:30-5 M-Su
	Recycling Specialists (408) 437-7553	1720 Old Bayshore Hway San Jose, CA 95112	Exempt	D	Paper, Glass, Metals, Plastic	7-5:30 M-Sa 10-3 Su
	Sunnyvale Recycling Center (408) 730-7262	1444 Borregas Ave. Sunnyvale, CA 94086	Exempt	D	Paper, Metals, Glass, Plastic, Motor oil Only open to Sunnyvale businesses and residents	7-3:30 M-Su 24 Hr. drop-off
Confidential Records Destruction	Los Altos Garbage Co. (415) 961-8044	1285 Pear Ave. Mountain View, CA 94043	1032	C	Paper, Metals, Glass, Plastic, Only services Los Altos and Cupertino	6-2:30 M-F
(Paper Shredding)	Northern CA Pulp & Paper (510) 483-3255	2085 Wayne Ave. San Leandro, CA 94577	1012	C	Paper, Metals, Glass, Call for more details	7:30-3:30 M-F
	Paper Recovery of No. CA (510) 785-7311	25670 Nickel Place Hayward, CA 94545	1014	C	Paper, Metals, Glass, Plastic	9-3 M-F
	Recyclery, BFI (408) 262-1401	1601 Dixon Landing Road Milpitas, CA 95035	1002	C	Paper, Metals, Glass, Plastic, Wood Call for more details	7-3:30 M-Sa
Construction & Demolition Debris	Bio Services Wood Recovery (408) 988-4303	650 Martin Ave. Santa Clara, CA 95050	Exempt	D F	Clean Demolition (wood & metal only), Yard waste	6:30-5 M-F 8-4 Sa
	Butterick Enterprises (408) 292-5687	505 Burke St. San Jose,CA 95112	Exempt	C, D F	Most metals, Construction & Demolition debris, Concrete, Asphalt, wood & yard waste	7-3:30 M-sa

LEGEND: B-buy-back, D-drop-off, C-c[illegible]lection services available, F-fee charged for service

SECTION THREE: Special Materials Recyclers

Material Type	Name/ Telephone #	Address/ City	Permit	Service Type	OTHER MATERIALS/ DETAILS	HOURS
	East Bay Excavating Co.	28814 Mission Blvd.		D F	Ashpalt, Concrete, and Steel reiforced concrete	7:30-4 M-F
	(510) 538-5080	Hayward, CA 94545	**Exempt**		Container & Flat/plate glass	
	Granite Rock Co.	100 Granite Rock Way		D F	Asphalt, Concrete, and Steel reinforced concrete	7-3:30 M-F
	(408) 281-9665	San Jose, CA 95136	**Exempt**			
	Guadalupe Landfill	15999 Guadalupe Mines Rd		D F	Pallets/Wood Waste, Yard Waste, Appliances	8-4:45 M-F
	(408) 268-1670	San Jose, CA 95120	**Exempt**		Asphalt, Concrete	
	Raisch Products	99 Pulman Way		D F	Dirt, Asphalt, Concrete	7:30-4 M-F
	(408) 227-9222	San Jose, CA 95106	**Exempt**			
	Reed & Graham	690 Sunol St.		D F	Asphalt only, Remediated dirt	6-5 M-F
	(408) 287-1400	San Jose, CA 95126	**Exempt**			
	Waste Fibre Recovery	1900 West Winton Ave.		C F, D F	Construction & Demolition Debris, Pallets,	5am-8pm M-F
	(510) 732-9663	Hayward, CA 94545	**Exempt**		Wood Waste	9-4 Sa
	Zanker Resource Managemt.	705 Los Esteros Rd.		D F	Demolition Debris, Concrete, Pallets/Wood	6-5:30 M-F
	(408) 263-2383	San Jose, CA 95134	**Exempt**		Waste, Roofing, Appliances, Metals	8-3:30 Sa-Su
Electronic Scrap/ Precious Metals	**#1 Disposal**	845 N. King Rd.				8-4 M-F
	(408) 270-7258	San Jose, CA	**1013**	C		
	Alco Iron & Metal Co.	2350 Davis St.		C, B	Metals, Glass, Plastic	8-4:30 M-F
	(415) 562-1107	San Leandro, CA 94577	**Exempt**			8-12 Sa
	Berman Diversified Indust.	2574 Seaboard Ave.		C, B	Non-ferrous metals	8-5 M-F
	(408) 955-7400	San Jose, CA 95131	**Exempt**			
	Boliden Metech	6200 Engle Way		C, B	Precious metals	
	(408) 848-3050	Gilroy, CA	**Exempt**			
	Butterick Enterprises	505 Burke St.		C, D	Most metals, Construction & Demolition	7-3:30 M-sa
	(408) 292-5687	San Jose,CA 95112	**Exempt**		debris, Concrete, Asphalt, wood & yard waste	
	Charron Metals Corp.	1310 Old Bayshore Hwy.		C		7-5 M-F
	(408) 298-8289	San Jose, CA 95112	**Exempt**			
	City Metals	11665 Berryessa Rd.		C, B	Metals, Glass, Plastic, Auto batteries	8-5 M-F
	(408) 452-0777	San Jose, CA 95133	**Exempt**			8-12 Sa
	Confer Metals & Refiners	1164 Willow Ave.		C, B		9-3:30 M-F
	(408) 243-8999	Sunnyvale, CA 94086	**Exempt**			7-3:30 Sa+Su
	Ecology Plus	1701 Rogers Ave. Unit F		C, B	Paper	9-6 M-F
	(408) 452-7717	San Jose, CA 95112	**Exempt**			
	Elder's MPI	1919 Lundy Ave.		B		7-4 M-F
	(408) 432-8870	San Jose, CA	**Exempt**			
	ESC Refining	705 Reed St.		C, B	Solder Dross, Photographic sludges	7:30-4 M-F
	(408) 988-4386	Santa Clara, CA 95050	**Exempt**			
	Fox Electronics	209 E. Browkaw Rd..		B,D		
	(408) 437-1577	San Jose, CA 95112	**Exempt**			
	Heckman Metals	220 Demeter Ave.		C, B	Metals, Glass, Plastic	8-4:30 M-F
	(415) 324-9666	East Palo Alto, CA 94303	**Exempt**			9-12 Sa
	LMC Recyclers	1800 Monterey Hwy.		C, B	Paper, Metals, Glass, Plastic,	8-5 M-F
	(408) 294-8443	San Jose, CA	**Exempt**		Auto batteries	8-1:30 Sa
	Markovits & Fox	1633 Oakland Rd.		C, B	Metals, Glass, Plastic, Appliances	8-4:45 M-F
	(408) 453-7888	San Jose, CA 95131	**Exempt**			
	Metals Reclamation Service	2169 Marques Ave.		C, B	Non-ferrous metals	7:30-5:30 M-F
	(408) 723-8528	San Jose, CA 95125	**Exempt**			
	Metals West	1436 State St.		C, B	Al Cans, Non-ferrous metals	8-5 M-F
	(408) 946-2315	Alviso, CA 95002	**Exempt**			

LEGEND: B-buy-back, D-drop-off, C-collection services available, F-fee charged for service

SECTION THREE: Special Materials Recyclers

Material Type	Name/ Telephone #	Address/ City	Permit	Service Type	OTHER MATERIALS/ DETAILS	HOURS
	Micro Metalics (408) 998-4930	1695 Monterey Hwy. San Jose, CA 95112	Exempt	C, B	Solder Dross, Acid and Cyanide Sludge Other non-ferrous metals	8-5 M-F
	Midway Scrap Metals (408) 287-0392	755 Capital Ave. San Jose, CA	Exempt	C, B		8-6 M-F
	Recycling Specialists (408) 437-7553	1720 Old Bayshore Hwy. San Jose, CA 95112	Exempt	C, B	Paper, Metals, Glass, Plastic	7-5:30 M-Sa 10-3 Su
	Earthwise Recycling (408) 279-8446	477 Perrymont Ave. San Jose, CA 95125	Exempt	C, B	Non-ferrous metals, solder dross, Al cans, Catallytic converters	
	Valley Recycling (408) 297-5352	1850 S. 7th St. San Jose, CA	Exempt	B	Will accept any metal: all appliances, Whole automobiles, etc.	24 hr. drop-off
	VP Electronics (408) 254-9884	1670-F Las Plumas San Jose, CA 95133	Exempt	C, B	Some ferrous & Non-ferrous metals	8-4 M-F
	West Coast Metals Process (510) 489-8141	1468 Zephyr Ave. Hayward, CA 94544	Exempt	C, B		
Fluorescent Light Tubes	**Mercury Technologies** (510) 429-1129	30677 Huntwood Hayward, CA 94544	Exempt	D F	Call for more details	
Food Waste: Edible	**Second Harvest Food Bank** (408) 266-8866 (non-profit)	750 Curtner Ave. San Jose, CA 95125	Exempt	C, D	All edible prepared and unprepared food Call for more details	7-3:30 M-F
Food Waste: Inedible	**Darling-Delaware Co., Inc.** (415) 647-4890	429 Amadore St. San Francisco, CA 94124	1006	C	Grease, Bones, Fat, Used cooking oils, slaugther-house by-product	6am-5pm M-F
	Dext Company (408) 295-4022	1255 Yard Ct San Jose, CA 95133	1040	C	Mainly bakery food waste.	
	Salinas Tallow Company (408) 297-7690	704 Palm Haven Ave. San Jose, CA 95125	1020	C	Grease only	
Hazardous Materials/ Paint	**Depressurized Technologies Int.** (408) 776-7816	335 Cochrane Circle Morgan Hill, CA 95037	Exempt	C,F	Treatment of waste aerosol cans.	8-5 M-F
	Recycling Research and Dev. (510) 785-0985	20951 Cabot Blvd. Hayward, CA	Exempt	C,F	Hazardous material, latex paint.	9-5 M-F
Materials Haulers	**Ken's Hauling Service** (408) 363-9932	2951 Erica San Jose, CA 95121	1008	C F	Will haul any recyclable material	24 hours
	JHM Services (408) 258-9892	P.O. Box 3199 San Jose, CA 95156	1037	C,F	Will haul any material. Recycles metals and plastic.	8-5 M-F
	Linda Romero Inc. (408) 263-2339	P.O. Box 998 Alviso, CA 95002	1038	C	Will haul construction and demolition only.	6-6 M-F
Motor Oil	**Evergreen Environmental** (510) 795-4400	6880 Smith Ave. Newark, CA 94560	Exempt	C F	Antifreeze	7:30-5:30 M-F
	Sears Automotive Center (415) 948-8511	455 San Antonio Rd Mt. View, CA 94040	Exempt	D		7-9 M-F 7-7 Sat 9-6 Sun
Pallets/Wood Waste	**A & A Pallet Recycle** (408) 263-7878	800 Speckles Ave. Alviso, CA 95002	Exempt	C, D		7:30-4:30 M-Sa
	AC Wood Products (408) 263-4864	5164 North First St. Alviso, CA 95002	Exempt	C, D	Pallets only	7:30-4 M-Sa
	Bio Services Wood Recovery (408) 988-4303	650 Martin Ave. Santa Clara, CA 95050	Exempt	D F	Clean Demolition (wood & metal only), Yard waste	6:30-5 M-F 8-4 Sa

LEGEND: B-buy-back, D-drop-off, C-coll[illegible]ion services available, F-fee charged for service

SECTION THREE: Special Materials Recyclers

Material Type	Name/ Telephone #	Address/ City	Permit	Service Type	OTHER MATERIALS/ DETAILS	HOURS
	Butterick Enterprises (408) 292-5687	505 Burke St. San Jose,CA 95112	Exempt	C, D F	Most metals, Construction & Demolition debris, Concrete, Asphalt, wood & yard waste	7-3:30 M-sa
	Guadalupe Landfill (408) 268-1670	15999 Guadalupe Mines Rd. San Jose, CA 95120	Exempt	D F	Wood waste, Yard waste, appliances, Asphalt, Concrete	8-4:45 M-F
	Industrial Pallet (510) 489-4050	31866 Veasy St Union City, CA 94587	Exempt	C		7-4 M-F
	Larson Pallet Company (408) 946-4971	1000 Yosemite Dr. Milpitas, CA 95035	Exempt	C		7-3:45 M-F
	Recyclery, The (408) 262-1401	1601 Dixon Landing Rd. Milpitas, CA 95035	Exempt	C F, D F	Paper, Metals, Glass, Plastic, Call for more details	24 hr drop-off 4am-4pm coll.
	Tri Pallet Service (408) 779-5144	18145 Peet Road Morgan Hill, CA 95037	Exempt	C, D		
	Valley Pallet Recyclers (408) 422-3875	630 Vertin Ave. Salinas, CA 93901	Exempt	C		8-5 M-Sa
	West Coast Pallet Co. (408) 297-6958	43507 Osgood Rd. Fremont, CA 94538	Exempt	C		
	Zanker Resource Managemt. (408) 263-2383	705 Los Esteros Rd. San Jose, CA 95134	Exempt	D F	Paper, Metals, Glass, Plastic, Appliances, Construction+Demolition Waste	6-5:30 M-F 8-3:30 Sa-Su
Plastics (Industrial only)	Bay Polymer Corporation (510) 490-1791	44530 Grimmer Blvd. Fremont, CA 94538	Exempt	D,B	Most industrial plastics	8-3 M-Th 8-1 F
	Danny's Foam Recycling (408) 492-9033	3233 De La Cruz Blvd. Santa Clara, CA 95054	1005	C, B	Padding and Foam only	7-3:30 M-F
	Free Flow Packing Corp. (800) 866-9946	1093 Charter Street Redwood City, CA 94063	1007	C, B	Clean Polystyrene foam	8-5 M-F
	JDM Packing (408) 559-6201	251 S. Bascom Ave. Campbel, CA 95008	Exempt	D	Polystyrene Packaging. Also accepts boxes for recycling.	
	Mailboxes Etc. All participating locations	Check phone book for the one nearest you.	Exempt	D	Polystyrene Peanuts.	9-6 M-F
	Plactory, The (408) 462-1565	986 Tower Place Santa Cruz, CA 95602		C, B	Most industrial plastics, call for more details	7-3:30 M-F
	Polymer Recovery Services (408) 748-9715	3140 De La Cruz Rd.,#200 Santa Clara, CA 95054	1016	C	Most industrial plastics, call for more details	6:30-5 M-Th
	Recyclery, BFI (408) 262-1401	1601 Dixon Landing Rd. Milpitas, CA 95035	1002	C, B	Most plastics, polyurethane foam padding	24hr drop off 4a-4p collection
Textiles/ Clothing and Other Reuseables.*	Goodwill Industries (408) 998-5774	1080 N. 7th St. San Jose, CA 95133	Exempt	C, D	Reusable clothes	
	The Salvation Army (408) 298-7600	P.O. Box 1706 San Jose, CA 95109	Exempt	C, D	Reusable clothes	
	San Jose Rag Company (408) 287-2511	201 San Jose Ave. San Jose, CA 95125	Exempt	D	Prefer cotton, Also accepts silk, rayon, polyester, linens, etc. Call for more details	8-4:30 M-F
	St. Vincent de Paul (408) 993-9500	2040 S. 7th St. San Jose, CA	Exempt	C, D	Resuable clothes, doors, windows	
Tires	Oxford Tire Company (800) 992-3553	33950 7th St. Union City, CA 94587	1035	C		8-5 M-F

*Common Commercial Reusables: Modular and other furniture, air conditioning units, wall dividers, binders, staplers, computers, working refrigerators, file cabinets, desks, other office equipment.

LEGEND: B-buy-back, D-drop-off, C-collection services available, F-fee charged for service

Fact Sheet #6
The Recyclery at Newby Island
San Jose, California

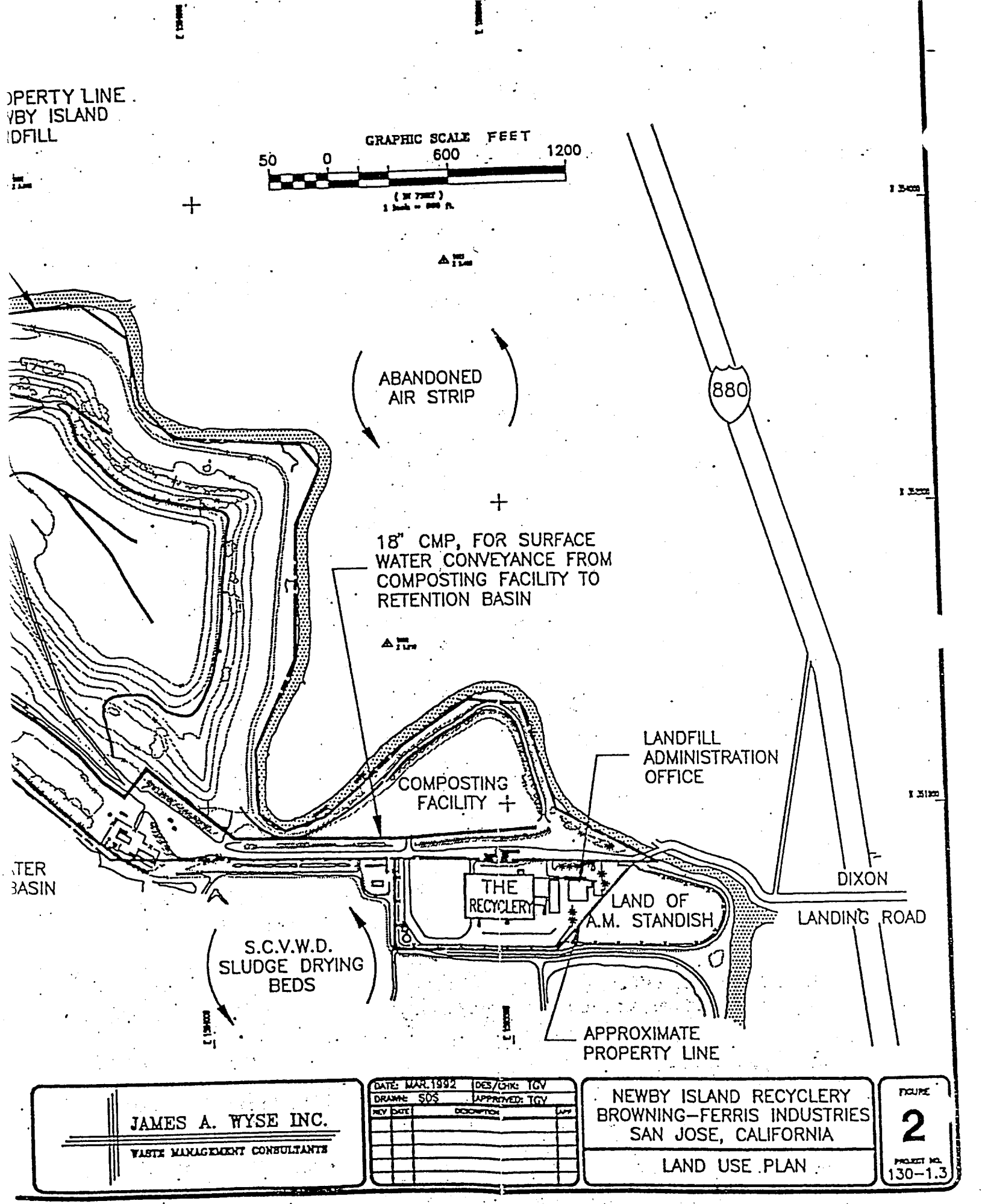
TYPE OF FACILITY:
The Recyclery at Newby Island (Facility) is an 80,000 square foot materials recovery facility. The Facility is owned and operated by Browning Ferris Industries. The permitted Facility began operation in 1991, and includes both a manual sorting system and a semi-automated sorting system. The Facility processes both commingled (mixed) and source separated loads from residential and commercial recycling programs. The Facility also diverts loads of clean wood waste and concrete to other parts of the site to be ground up and either sold as wood fuel or used on site for road construction. The Facility also includes a public education center, observation deck, and public buy-back center.

FACILITY CAPACITY:
The Facility is permitted to process a maximum of 1,600 tons per day. The Facility is currently processing approximately 250 to 300 tons per day.

DIVERSION RATE:
In 1993, the Facility diverted approximately 86% of the material received for processing. In 1994, it is estimated that approximately 41,280 tons (86%) will be diverted from the 48,000 tons accepted for processing.

JURISDICTIONS SERVED:
The Facility processes curbside and commercial recyclables for many jurisdictions in Santa Clara County. The Facility serves all of Santa Clara County and portions of Alameda, Contra Costa, and San Mateo counties. The buy-back and public education center is open to the general public.

LOCATION:
The Facility is adjacent to the Newby Island Landfill and is located at 1601 Dixon Landing Road in north San Jose, just west of Highway 880, near the southeastern end of the San Francisco Bay, (see the attached map).


GRAPHIC SCALE FEET
50 0 600 1200
ABANDONED AIR STRIP
880
18" CMP, FOR SURFACE WATER CONVEYANCE FROM COMPOSTING FACILITY TO RETENTION BASIN
LANDFILL ADMINISTRATION OFFICE
COMPOSTING FACILITY
THE RECYCLERY
LAND OF A.M. STANDISH
DIXON LANDING ROAD
S.C.V.W.D. SLUDGE DRYING BEDS
APPROXIMATE PROPERTY LINE
JAMES A. WYSE INC.
WASTE MANAGEMENT CONSULTANTS
DATE: MAR. 1992
DRAWN: SDS
DES/CHK: TGV
APPROVED: TGV
NEWBY ISLAND RECYCLERY
BROWNING-FERRIS INDUSTRIES
SAN JOSE, CALIFORNIA
LAND USE PLAN
FIGURE 2
PROJECT NO. 130-1.3

Fact Sheet #9
Zanker Road Class III Landfill
San Jose, California

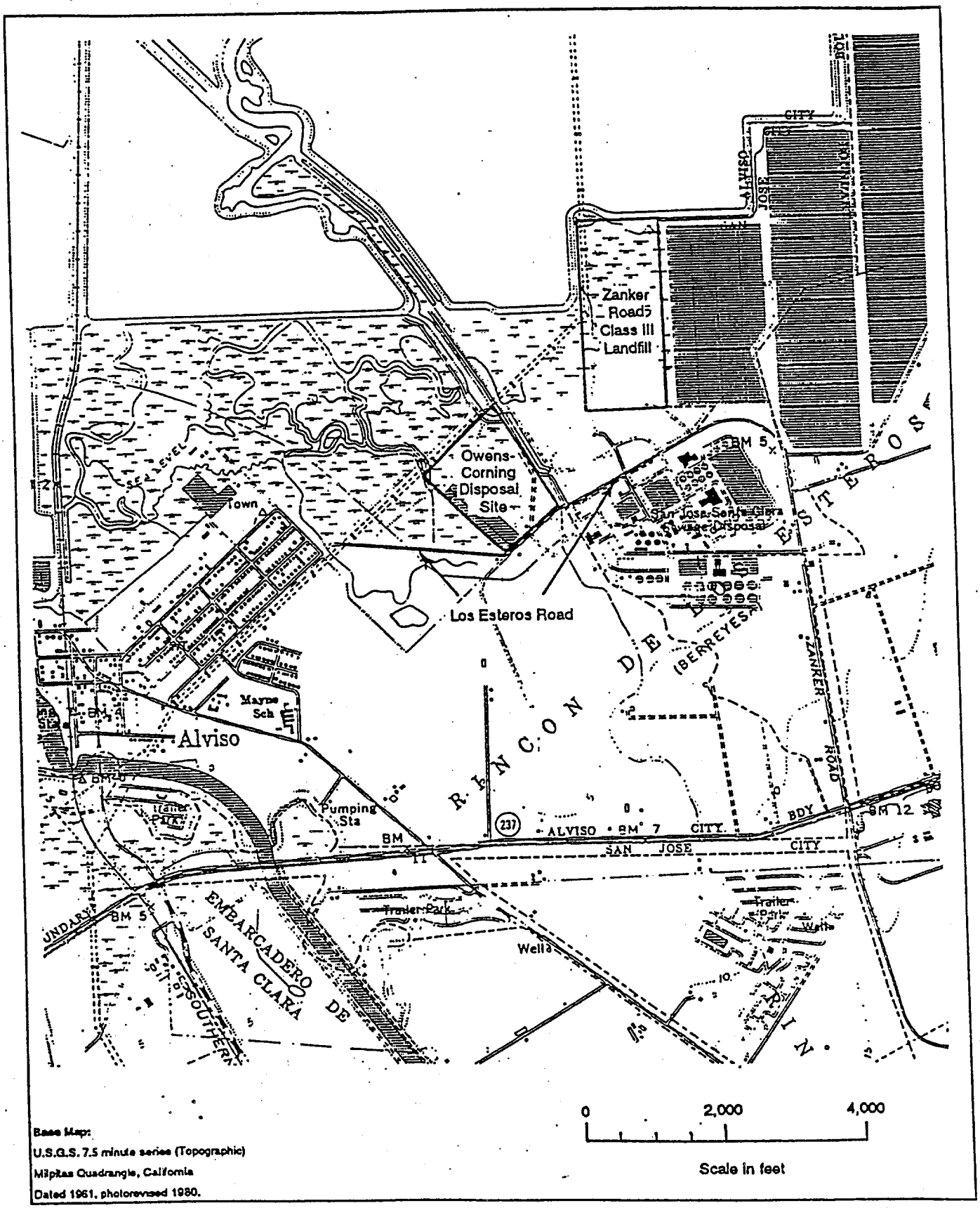
TYPE OF FACILITY:
The Zanker Road Class III Landfill (Facility) began operations in 1985 on a site formerly known as the Nine-Par Disposal Site (from 1934-1977). The 70-acre Facility (46 acres permitted for landfilling) is owned and operated by Zanker Road Resource Management Limited. The Facility is permitted to accept an unlimited amount of non-hazardous and non-liquid solid wastes (except wet garbage) for processing each day. These wastes consist mainly of construction and demolition debris, (such as soil, asphalt, concrete, rebar and wood waste) yard waste, metals, glass, plastic, and paper. The primary activities conducted at the Facility involve extensive resource recovery and recycling. Currently, there are five recycling operations that take place at the Facility: (1) sorting, splitting, chipping, screening, composting, stockpiling, and resale of wood waste; (2) separating, crushing, stockpiling, and resale of concrete waste; (3) separating recyclable materials from the incoming waste stream; (4) remediation of contaminated soils to reduce contamination to acceptable levels so the soils can be used for on-site construction or daily cover; (5) processing, screening, composting, and resale of yard waste compost products. The Facility also uses a portable picking line when necessary to assist in recovery operations. The residual solid waste after processing is landfilled using an area fill method.

FACILITY CAPACITY:
The Facility is permitted to landfill a maximum of 350 tons of inert waste per day. In 1993, approximately 50 tons of inert waste were landfilled each day.

ESTIMATED DIVERSION RATE:
Based on 1993 gate records, the Facility received approximately 675 tons of waste per day for processing. In 1993, over 90% (usually between 92% and 96%) of the material was diverted from landfilling.

JURISDICTIONS SERVED:
The Facility serves all of Santa Clara County.

FACILITY LOCATION:
The Facility is located on Los Esteros Road, off of Highway 237, in north San Jose, near the southeastern end of the San Francisco Bay (see the attached map).



Base Map:
U.S.G.S. 7.5 minute series (Topographic)
Milpitas Quadrangle, California
Dated 1961, photorevised 1980.

ZANKER
Road Landfill
Zanker Road Resource Management, Ltd.

Owens-Corning Disposal Site
Zanker Road Resource Management, Ltd.
San Jose, California

Figure 1: Vicinity Map

Fact Sheet #5
Owens Corning Landfill
San Jose, California

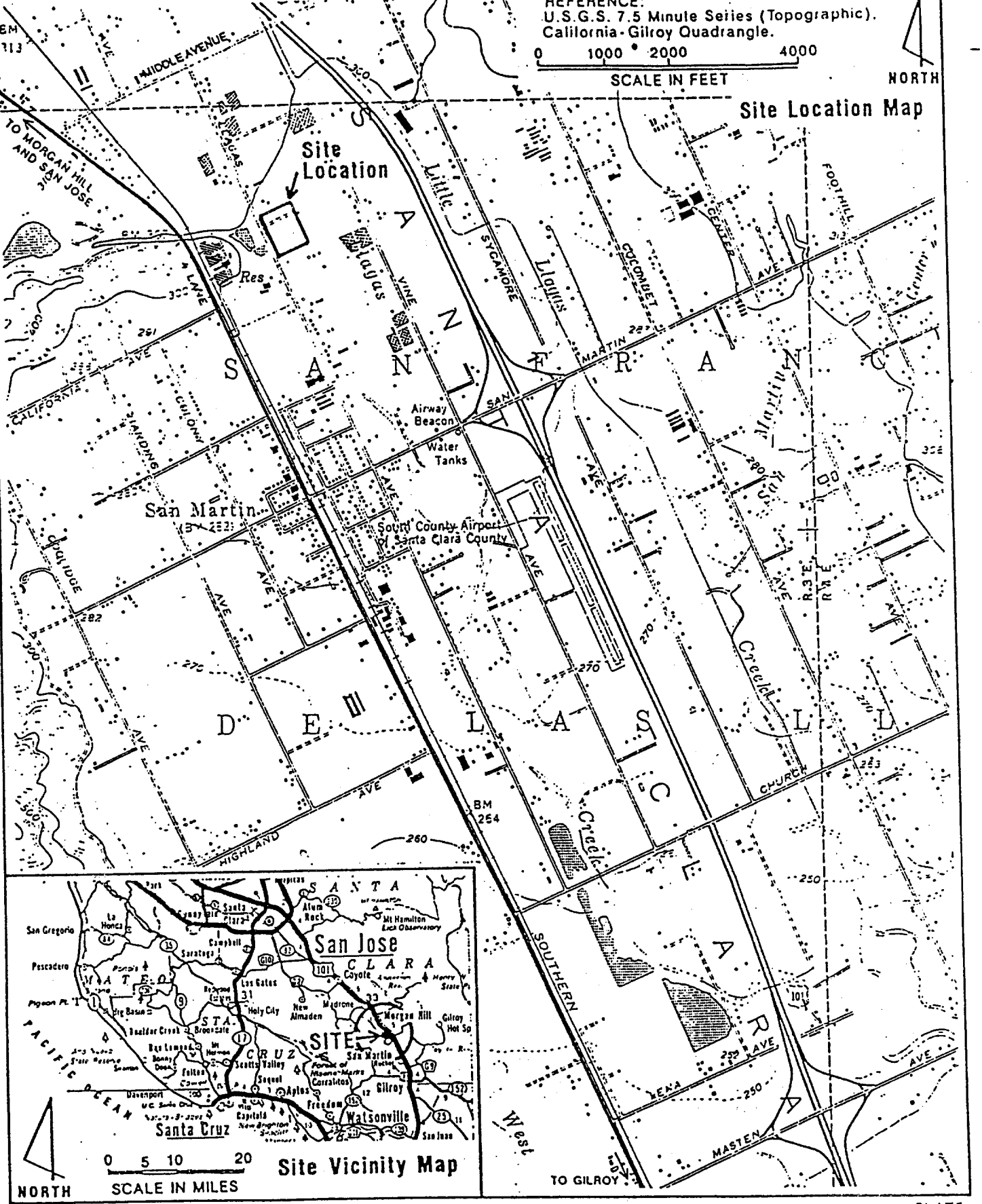
TYPE OF FACILITY:
The Owens Corning Fiberglas Landfill (Facility) is a "candidate solid waste facility" that is owned by Owens Corning Fiberglas Corporation and operated by Zanker Road Resource Management, Ltd. The 88-acre Facility began operations in 1956. The Facility currently encompasses about 46 acres. The Facility owners are proposing changes that are being reviewed by the City of San Jose Planning Department. The proposed project would rezone the Facility from M-1 (Manufacturing) to A-PD (Planned Development). The proposed project would also permit, expand, and introduce resource recovery activities to the Facility. The proposed Facility permit would allow for: continued disposal of inert, non-recyclable solid waste from the Owens Corning manufacturing plant; acceptance and disposal of non-hazardous, non-putrescible mixed wastes; and deposition of dirt and other inert residues from on-site recycling activities. Resource recovery activities proposed for the Facility include: brush drying and grinding; aerated windrow composting; production of a high-grade soil amendment product using compost, loam, and sand made from crushed glass; storage and processing of concrete rubble into aggregate and baserock; glass processing; and short-term storage of recovered materials (less than 120 days).

FACILITY CAPACITY:
The proposed Facility will have an estimated maximum processing capacity of 1,250 tons per day and will process an estimated 800 tons per day. The proposed Facility will have an estimated maximum disposal capacity of 350 tons per day and will landfill an estimated 60 tons per day.

ESTIMATED DIVERSION RATE:
The proposed Facility is anticipated to divert 92% to 96% of the waste accepted at the gate. Estimated diversion is 740 tons of 800 tons accepted at the gate each day (92%).

JURISDICTIONS SERVED:
The Facility would serve all of Santa Clara County.

FACILITY LOCATION:
The Facility is located at the east end of Los Esteros Road in north San Jose, adjacent to the Zanker Road Landfill (see the attached map).



Harding Lawson Associates
Engineering and Environmental Services

Site Location Map
Report of Station Information
San Martin Transfer Station
Santa Clara County, California

PLATE **1**

DRAWN	JOB NUMBER	APPROVED	DATE	REVISED DATE
RPS	21371.2	KMH	11/92	

Fact Sheet #2
Guadalupe Landfill
Material Recovery and Compost Processing Facility
San Jose, California

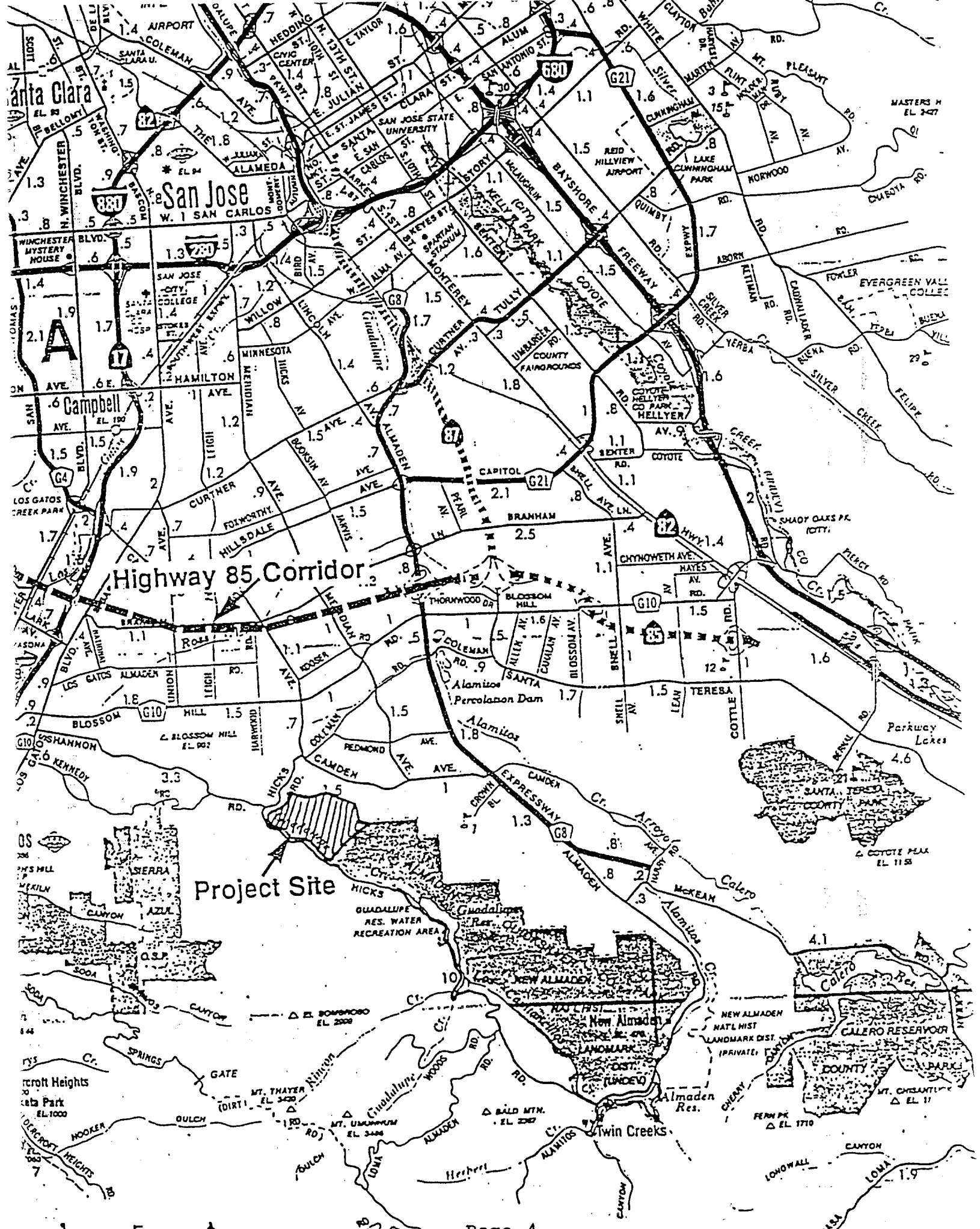
TYPE OF FACILITY:
The Guadalupe Landfill (Facility) is owned and operated by Guadalupe Rubbish Disposal Company, Incorporated. The Facility began operations as a sanitary landfill in 1956. The permitted Class III landfill has ongoing material recovery and compost processing operations. The Facility receives waste from all over Santa Clara County. Material recovery operations are conducted on the active face of the landfill. The compost processing facility area is currently undergoing environmental review and permitting procedures. The proposed compost facility would consist of a 7-acre yard and wood waste processing area and an 11-acre windrow composting area. The Facility currently accepts yard waste and clean wood waste from residential self-haulers, gardeners and landscapers, government landscape maintenance and road crews, and franchised and non-franchised municipal waste haulers. Once delivered to the Facility, yard waste is ground up and sold immediately to land application markets. The proposed compost facility permit would allow yard waste to be ground up, cured aerobically in windrows, screened after completion, and transported to markets. Wood waste is kept separate, ground up, and transported to wood fuel markets. All materials are received on a tipping fee basis. The Facility also recycles construction and demolition debris (soil, concrete, and asphalt) which is used on-site as construction materials and daily landfill cover.

FACILITY CAPACITY:
The Facility has a maximum permitted disposal capacity of 3,375 tons per day. In 1993, the Facility landfilled approximately 356 tons per day. In the currently proposed permit, the maximum processing capacity of the compost facility is 672 tons of yard and wood waste per day.

ESTIMATED DIVERSION RATE:
In 1993, the Facility had a diversion rate of approximately 39.6% (129,919 tons of the 328,361 tons received at the landfill gate).

JURISDICTIONS SERVED:
The Facility serves all of Santa Clara County.

FACILITY LOCATION:
The Facility is located in Southwestern San Jose, off of Guadalupe Mines Road, in a canyon immediately north of the Guadalupe Mines (see the attached map).


Highway 85 Corridor
Project Site
San Jose
Santa Clara
Campbell
Los Gatos
Almaden Res.
Twin Creeks
New Almaden
Guadalupe Res.
Calero Res.
Alamitos Percolation Dam
Santa Teresa County Park
Parkway Lakes
Evergreen Valley College
San Jose State University
Spartan Stadium
Lake Cunningham Park
Reid Hillview Airport
Shady Oaks Pk.
Coyote Hellyer Park
Guadalupe Res. Water Recreation Area
Coyote Peak
Bald Mtn.
Mt. Thayer
Mt. Umunhum
Fern Pk.
Mt. Chesantine
Almaden Expressway
Bayshore Freeway
Coyote Valley
Silver Creek
Yerba Buena Rd.
Los Gatos Creek Park
Winchester Mystery House
Civic Center
Airport
Santa Clara U.
Alameda
Willow
Hamilton
Minnesota
Curtner
Hillsdale
Blossom Hill
Branham
Capitol
Tully
Story
Keyes St.
Alma Av.
Monterey
Almaden
Meridian
Bird Av.
Lincoln Ave.
Guadalupe
Coleman
Camden
Hicks Rd.
Kennedy Rd.
Shannon
Redmond Ave.
Thornwood Dr.
Cherry Hills
Sierra Azul
Los Cerritos
Soda Springs
Hooker Gulch
Loma Alta
Lonewall Canyon
Almaden Quicksilver County Park
Calero Reservoir County Park
Almaden Quicksilver Landmark Dist.
New Almaden Nat'l Hist. Landmark Dist.
Alamitos Creek
Guadalupe River
Los Gatos Creek
Arroyo Calero
Silver Creek
Yerba Buena Creek
Coyote Creek
Guadalupe Creek
Hicks Creek
Alamitos Creek
Almaden Reservoir
Guadalupe Reservoir
Guadalupe Mines
Almaden Quicksilver Mines
Hellyer Park
Kelly Park
Cunningham Park
Lake Cunningham Park
Evergreen Valley College
Yerba Buena Creek
Silver Creek
Coyote Creek
Guadalupe River
Los Gatos Creek
Alamitos Creek
Arroyo Calero
Guadalupe Creek
Hicks Creek
Almaden Reservoir
Guadalupe Reservoir
Guadalupe Mines
Almaden Quicksilver Mines
Hellyer Park
Kelly Park
Cunningham Park
Lake Cunningham Park
Evergreen Valley College

GREENTEAM RPI MA ETS SUMMARY

ATTACHMENT 3

Commodity	Purchaser	Business Type	Contract?	End Markets	Likely End Products	Back-Up Purch
Used Motor Oil	Evergreen	Rerefiner	No	Newark facility	Base oils, industrial fuel, asphalt flux	None identified
OCC	Smurfit Recycling	Manufac/broker	Yes	Bay Area mills; Export	Corrugated cardboard; Coated boxboard	Recycled Fibers
ONP	Smurfit Recycling	Manufacturer	Yes	Own mills in Santa Clara & Oregon	Newspaper; Coated boxboard	Recycled Fibers
Mxd Paper	Smurfit Recycling	Manufac/broker	Yes	Bay Area mills; Export	Paperboard; roofing felt; wallboard liner	Recycled Fibers
Glass bottles	Allwaste Recycling	Beneficiation facility	Yes		Glass containers	
Aluminum	Smurfit Recycling	Broker	Yes	Domestic primary & secondary users	Cans; alloyed metals; lawn chair tubing	Two primaries
	LMC Metals	Processor/broker	No			
Tin Cans	LMC Metals	Processor/broker	No	Export; Mills in Oregon & Midwest	Rebar	Proler Corp.
Scrap Metal	LMC Metals	Processor/broker	No	Export; Mills in Oregon & Midwest	Structural iron	Markovits & Fox
Textiles	San Diego SoWst Des	Broker	No	Reuse - export and Domestic	Sold as is; rags; new fabric	U.S. Denim
Juice Bxs/Crtns	Ponderosa Fibers	Manufacturer	No	Mill in Santa Ana	Pulp sold to domestic tissue, printing & writing; Export	Smurfit
	BJ Fibers					
Plastic Bottles	Smurfit Recycling	Broker	Yes			
1)PET				PRC; Mostly Export	Filler fiber; roof racks; bottles	
2) HDPE				Export; Texas	Plastic bags	
3) Mixed bottles				Export; WeisCo	Plastic bags	
Plastic Films	Smurfit Recycling	Broker	Yes	Don't know yet		Don't know yet
EPS	NPRC	Manufacturer	No	Corona	Packaging peanuts	Cal Pak (Hayward)

WESTERN WASTE RPI MARKETS SUMMARY

Commodity	Purchaser	Business Type	Contract?	End Markets	End Products	Back-Up Purch
Used Motor Oil	Evergreen Env. Services	Rerefiner	No	Newark facility	Lubricating base oils, industrial fuel, asphalt flux	None identified
OCC	Weyerhauser	Manufac/broker	No	Own mills in Oregon; broker to Bay Area mills	Linerboard; corrugating medium	None identified
ONP	Weyerhauser	Manufacturer	No	Own mill in Longview, WA	Newspaper; Coated boxboard	None identified
	Gayloard Box	Manufacturer	No	Antioch	boxes	
	Recycled Fibers	Manufacturer	No	Stockton mill	paperboard	
Mxd Paper	Weyerhauser	Manufacturer	No	Undetermined	Undetermined	None identified
Sorted Office Papr	Bergmill supply	Broker	No	Pacific Rim		
Magazines	Pacific Forest	Broker	No	Pacific Rim		
	Cal Paper Board	Manufacturer	No	Santa Clara Recycled paper mill	paperboard; OCC pallet cardboard	
Glass bottles	California CRInc	Processor/broker	Yes	Various bottle plants in California, Seattle, Mexicali	Bottles; some insulation	None identified
Aluminum	WeisCo.	Broker	No	Primary and secondary domestic markets	Alum cans; alloyed metals; lawn chair tubing	Multiple primaries
	Markovits & Fox	Processor/broker	No			
	Smurfit	Broker				
Tin Cans	WeisCo	Broker	No	Mostly domestic	Rebar; chemical catalysts; copper precipitation; steel	Proler Internat'l
Bimetal Cans	LMC Metals	Broker steel rcylr		steel mill - domestic		
Scrap Metl/Al scr	Markovits & Fox	Processor/broker	No	Asia or anywhere in U.S.	Structural iron or steel	LMC Metals
Textiles	San Jose Rag		No	center to make rags		
	Martin Geronimo In	Retailer/broker				
Juice Bxs/Crtns	Ponderosa Fibers	Manufacturer	No	Pulp mill in Santa Ana	Pulp sold to domestic tissue, printing & writing; Export	None identified
Plastic Bottles	WeisCo	Broker	No			Smurfit Recycling
	Markovits & Fox	Processor/broker	No			Multiple primaries
	Kingman Products	Manufacturer	No			Multiple primaries
1)PET	WeisCo; M&F			Mostly export to Asia	Fiber fillers; roof racks; bottles	
2) Natural HDPE	M&F;Weisco;Kingman			Domestic & export	Plastic bags	
3) Mixed bottles	Weisco;Kingman				Plastic bags	
Plastic Films	WeisCo	Broker	No	Phillipines; China; Indonesia	Flower pots; agricultural	Multiple primaries
	Kingman Products (Alameda,Oaklanc	Manufacturer	No	Own mills in Asia	film; plastic bags	
EPS ("styrofoam")	Free-Flow	Manufacturer	No	Redwood City	Packaging peanuts	None identified

** Tonnage estimates are from submitted FY 1993 Western Waste Final Marketing Plan*

TITLE: SOURCE REDUCTION AND RECYCLING PROCUREMENT	PAGE 4 OF 4	POLICY NUMBER 4-4

VII Promotion

Whenever practicable, recycled products shall be labeled as such in a standard format. All labeled recycled paper products shall additionally indicate the percentage of total recovered material contained in the product (e.g. "40% Recycled Paper").

All current and prospective City vendors and service providers shall be apprised of this policy at the time competitive bids or proposals are solicited and at other appropriate opportunities. Grant applicants shall be notified early in the grant application process.

VIII All product providers shall be required to certify the minimum, if not the exact, percentage of post-consumer recovered material and total recovered material contained in products purchased by the City. If no recovered material has been used, then a product provider would certify zero recycled content.

Any claims of waste minimization in the manufacture or use of any product shall also be certified.

IX Implementation

The City Manager will develop administrative procedures to achieve the purposes and implement the provisions of this policy, including procedures for waiving a requirement of this policy in any necessary circumstances.

X Monitoring and Annual Report

The Department of General Services and the Office of Environmental Management shall prepare and deliver to the City Council an annual status report on implementation of this policy and the Recycled Product Requirements List. The report shall include documentation of the types, quantities, and dollar amounts of recycled products purchased in the previous year by the City, its contractors and its grantees. The report shall also identify and discuss:

1) instances where this policy is waived or its requirements found impracticable; and

2) barriers to the procurement of recycled-content products.