# CITY OF MONTE SERENO

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JUL 17 1992
COUNTY OF SANTA CLARA
OFFICE OF TOXICS AND SOLID WASTE
MANAGEMENT


July 17, 1992

Margaret Rands
Solid Waste Program Manager
Santa Clara County
Office of Toxics and Solid Waste Management
1735 North First Street, #275
San Jose, CA 95112

Dear Margaret:

In accordance with the California Integrated Waste Management Act of 1989, the City of Monte Sereno has completed its Final Draft Source Reduction and Recycling Element (SRRE) and Final Draft Household Hazardous Waste Element (HHWE). Pursuant to CCR Section 18765, a copy of the Final Draft has been enclosed for your review.

On behalf of the Local Task Force and within 15 days of receipt of the Final Draft of the SRRE and HHWE, the County is required to provide written comments to the jurisdiction and the Board regarding the Final Draft. Accordingly, please provide any comments you may have to me no later than August 3, 1992.

If you would like additional information, please contact me at (408) 867-3438.

Sincerely,

Vera Dahle

Vera Dahle
West Valley Cities Solid Waste Program Manager

Enclosure

FIN DFT.MS

# Final Draft

# Source Reduction

# And

# Recycling Element

# and

# Final Draft

# Household Hazardous

# Waste Element

City of Monte Sereno

August 1992

CITY OF MONTE SERENO

INCORPORATED MAY 14, 1957

## TABLE OF CONTENTS

**SOURCE REDUCTION AND RECYCLING ELEMENT**


| Section: | | Page |
|---|---|---|
| **1.** | **Executive Summary** | **1-1** |
| 1.1 | Introduction | |
| 1.2 | Overview of SRRE Components | |
| 1.2.1 | SRRE Goals | |
| 1.2.2 | Waste Characterization | |
| 1.2.3 | Source Reduction | |
| 1.2.4 | Recycling | |
| 1.2.5 | Composting | |
| 1.2.6 | Special Wastes | |
| 1.2.7 | Education and Public Information | |
| 1.2.8 | Solid Waste Facility Capacity | |
| 1.2.9 | Funding | |
| 1.2.10 | Integration | |
| **2.** | **Solid Waste Generation Study** | **2-1** |
| | Introduction | |
| | Demographics of Area | |
| | Methodology | |
| | Organization of Report | |
| | Disposed Wastes | |
| | Current Solid Waste Disposal Practices | |
| | Methodology | |
| | Results | |
| | Seasonality | |
| | Diverted Materials | |
| | Supplemental Processor-based Survey | |
| | Generator-based Survey | |
| | Combined Results | |
| | Waste Generation | |
| Appendix A: | Disposed Waste Field Analysis Plan | A-1 |
| Appendix B: | Method for Determination of the Composition of Unprocessed Municipal Solid Waste | B-1 |
| Appendix C: | Diversion Survey Plan | C-1 |
| Appendix D: | Confidence Intervals by Material Type | D-1 |
| Appendix E: | Supplemental Processor Survey Contacts | E-1 |

Page

Appendix F: Methodology for Solid Waste Diversion Characterization, County of Santa Clara (prepared by Emcon Associates) F-1

**3. Source Reduction Component** 3-1

3.1 Introduction

3.2 Objectives

3.3 Existing Conditions Description
- 3.3.1 Local Government Activities
- 3.3.2 Residential Activities
- 3.3.3 Commercial Activities
- 3.3.4 National Source Reduction Efforts

3.4 Evaluation of Alternatives
- 3.4.1 Alternative 1 - Rate Structure Modifications
- 3.4.2 Alternative 2 - Economic Incentives and Disincentives
- 3.4.3 Alternative 3 - Technical Assistance, Education, and Promotion
- 3.4.4 Alternative 4 - Regulatory Programs

3.5 Selection of Program
- 3.5.1 Short-Term Planning Period
- 3.5.2 Medium-Term Planning Period

3.6 Program Implementation

3.7 Monitoring and Evaluation
- 3.7.1 Monitoring Methods
- 3.7.2 Written Criteria
- 3.7.3 Responsibility For Monitoring
- 3.7.4 Funding Requirements
- 3.7.5 Contingency Measures

**4. Recycling Component** 4-1

4.1 Introduction

4.2 Objectives
- 4.2.1 Short-Term Objectives
- 4.2.2 Medium-Term Objectives

**Page**

4.3 Existing Conditions Description
4.3.1 Local Government Activities
4.3.2 Residential Activities
4.3.3 Industrial Activities
4.3.4 Landfill Salvaging and Recycling

4.4 Evaluation of Alternatives
4.4.1 Residential Alternatives
4.4.2 Non-Residential Alternatives
4.4.3 Residential & Non-Residential Alternatives
4.4.4 Materials Markets

4.5 Selection of Program
4.5.1 Short-Term Planning Period
4.5.2 Medium-Term Planning Period

4.6 Program Implementation
4.6.1 Monitoring and Evaluation
4.6.2 Written Criteria
4.6.3 Responsibility for Monitoring
4.6.4 Funding Requirements
4.6.5 Contingency Measures

**5. Composting Component** **5-1**

5.1 Introduction

5.2 Objectives
5.2.1 Short-Term Objectives
5.2.2 Medium-Term Objectives

5.3 Existing Conditions Description

5.4 Evaluation of Program Alternatives
5.4.1 Collection Alternatives
5.4.2 Compost Processing Alternatives
5.4.3 City Procurement
5.4.4 Siting Considerations
5.4.5 Market Development and Product Distribution
5.4.6 Public Information And Education
5.4.7 Requirements of the California Environmental Quality Act

Page

5.5 Program Selection
5.5.1 Short-Term
5.5.2 Medium-Term

5.6 Program Implementation
5.6.1 Program Implementation Costs
5.6.2 Monitoring and Evaluation

5.7 References

**6. Special Waste Component** 6-1

6.1 Introduction

6.2 Objectives

6.3 Existing Conditions Description

6.4 Evaluation of Alternatives
6.4.1 Alternative 1 - Disposal of Special Wastes
6.4.2 Alternative 2 - Sewage Sludge Composting
6.4.3 Alternative 3 - Land Application of Sewage Sludge
6.4.4 Alternative 4 - Divert Tires from Landfilling for Ultimate End Use
6.4.5 Alternative 5 - Prohibit Disposal of Used Tires at Landfills
6.4.6 Alternative 6 - Prohibit Disposal of White Goods at Landfill
6.4.7 Alternative 7 - White Goods Processing Operation

6.5 Selection of Program
6.5.1 Short-Term Planning Period
6.5.2 Medium-Term Planning Periods

6.6 Program Implementation
6.6.1 Multi-Jurisdictional Special Waste Efforts
6.6.2 Monitoring and Evaluation
6.6.3 Written Criteria
6.6.4 Responsibility For Monitoring
6.6.5 Funding Requirements
6.6.6 Contingency Measures

Page

**7. Education and Public Information Component** 7-1

7.1 Introduction

7.2 Goals and Objectives
- 7.2.1 Short-Term Objectives
- 7.2.2 Medium-Term Objectives

7.3 Existing Conditions Description
- 7.3.1 Residential Activities
- 7.3.2 Commercial Activities
- 7.3.3 Institutional and Municipal Activities
- 7.3.4 Other Programs

7.4 Program Alternatives
- 7.4.1 General Approaches to Education and Public Information
- 7.4.2 Education and Public Information Approaches Based on Waste Sector
- 7.4.3 Specific Approaches Based on Programs

7.5 Selection of Program
- 7.5.1 Short-Term
- 7.5.2 Medium-Term

7.6 Program Implementation
- 7.6.1 Monitoring and Evaluation
- 7.6.2 Written Criteria
- 7.6.3 Responsibility for Monitoring
- 7.6.4 Funding Requirements
- 7.6.5 Contingency Measures

**8. Solid Waste Facility Capacity Component** 8-1

8.1 Introduction

8.2 Objectives

8.3 Existing Permitted Solid Waste Disposal Facilities
- 8.3.1 Existing Disposal Facilities
- 8.3.2 Guadalupe Rubbish Disposal Site

8.4 Disposal Capacity Needs Projection

**Page**

8.5 Disposal Facility Phase-Out or Closure

8.6 Proposed Facility Improvement Activities

**9. Funding Component** **9-1**

9.1 Introduction

9.2 Current Funding Structure

9.3 Program Cost Estimates

9.4 Revenue Sources

9.5 Contingency Funding Sources

**10. Integration Component** **10-1**

10.1 Introduction

10.2 Integrated Solid Waste Management Practices

10.3 Component Integration

10.4 Compliance with Diversion Mandates

10.5 Component Priorities

10.6 Integrated Schedule

**List of Tables (All tables appear at the end of its respective section.)**

**Section:**

3.1 Typical Examples of Source Reduction
3.2 Summary of Source Reduction Alternatives Evaluation
3.3 Source Reduction Implementation Plan
3.4 Source Reduction Implementation Costs

4.1 Quantities Diverted by Existing Programs
4.2 Summary of Recycling Alternatives Evaluation
4.3 Recycling Implementation Plan
4.4 Recycling Implementation Costs

5.1 Summary of Composting Alternatives Evaluation
5.2 Composting Implementation Plan

5.3 Composting Implementation Costs

6.1 Summary of Special Waste Alternatives Evaluation
6.2 Special Waste Implementation Plan
6.3 Special Waste Implementation Costs

7.1 Education and Public Information Implementation Timeline
7.2 Education and Public Information Implementation Costs

8.1 Solid Waste Capacity Needs Evaluation (without SRRE Implementation)
8.2 Solid Waste Capacity Needs Evaluation (with SRRE Implementation)

9.1 Funds Required for Program Planning, Development and Implementation

10.1 Integrated Diversion Program Projections
10.2 Summary of Component Timelines

**Solid Waste Generation Study**

1 Santa Clara West County Area - Number of Samples from Collection Vehicles for Each Jurisdiction
2 Average Composition (% Weight) and Annual Quantities (Tons/Year) of Disposed Waste
3 Results of Regional Processor Survey: Diverted Materials (Tons/Year, 1991)
4 Results of Supplemental Processor-based Survey: Diverted Materials (Tons/Year, 1991)
5 Results of Generator-based Survey for Commercial Sector: Diverted Materials (Tons/Year, 1991)
6 Combined Results of Diversion Survey: Diverted Materials (Tons/Year, 1991)
7 Estimated 1991 Annual Quantities in TPY and Diversion Rates (%) for Disposed, Diverted, And Generated Wastes
8 Projected Disposed, Diverted, and Generated at Current Conditions (Quantities in Tons/Year)
9 Projected Disposed, Diverted, and Generated Waste for 1995 and 2000 (Quantities in Tons/Year)
10 Projected, Diposed, Diverted, and Generated Waste, Based on the Year 1995 and 2000 Diversion Goals (Quantities in Tons/Year)

**Appendix A: Evaluation Approach** A-1

# TABLE OF CONTENTS


**HOUSEHOLD HAZARDOUS WASTE ELEMENT**

**Part I:**

Chapter 1: Overview of Household Hazardous Waste Problem

Chapter 2: Introduction to Draft HHW Element

**Part II:**

Chapter 1: Household Hazardous Waste Element

Chapter 2: Existing HHW Conditions

Chapter 3: Methodology for Evaluation of HHW Management Alternatives

Chapter 4: Evaluation of Household Hazardous Waste Management Alternatives

Chapter 5: Selection of HHW Program

Chapter 6: Program Implementation

Chapter 7: Monitoring and Evaluation

Chapter 8: Education and Public Information

Chapter 9: Funding

Attachments:

1. Section 25117 of the Health & Safety Code
2. HHW Collection Information (1990)
3. Summary of HHW Management Alternatives Evaluation
4. Memorandum regarding Countywide Household Hazardous Waste Collection Program

# SECTION 1

# EXECUTIVE SUMMARY

# CITY OF MONTE SERENO

## 1.1 Introduction

The Integrated Waste Management Act of 1989 (AB 939) mandated that each City and County in the State of California develop a Source Reduction and Recycling Element (SRRE) for inclusion in the County Integrated Waste Management Plan. AB 939 is a comprehensive law since it creates a waste management hierarchy in which landfilling is the least desirable form of solid waste management. The best form of solid waste management is source reduction (including reuse), followed by recycling and composting, and then transformation (combustion) and landfilling. This hierarchy reflects a goal of minimizing the one time use of natural resources.

The law requires that each local jurisdiction in California divert from disposal 25 per cent of its waste stream by January 1995 (short term) and 50 per cent by January 1, 2000 (medium term) or risk fines of up to $10,000 per day. However, the California Integrated Waste Management Board (CIWMB) may grant extensions of up to one year in order to meet the diversion objectives if adverse market conditions beyond the control of the jurisdiction can be demonstrated.

AB 939 requires that each SRRE include the following components:

- a waste generation study;
- a source reduction component;
- a recycling component;
- a composting component;
- a special waste component;
- an education and public information component;
- a solid waste disposal facility capacity component;
- a funding component; and
- an integration component.

A household hazardous waste component was also required by 939, but was elevated to the status of an element to be prepared as a separate document as a result of the passage of AB 2707.

## 1.2 Overview of SRRE Components

### 1.2.1 SRRE Goals

The following goals helped to guide development of the City's SRRE:

- meet or exceed state-mandated waste diversion rates through source reduction, recycling and composting;
- support and encourage regional solutions to solid waste management problems;
- optimize recycling and composting opportunities within the City;
- expand community awareness in order to optimize participation in source reduction, recycling and composting programs;
- encourage development and expansion of local and regional markets for the diverted materials; and
- minimize adverse environmental impacts and ensure public health and safety.

### 1.2.2 Waste Characterization

The CIWMB defines waste generation as the sum of waste disposed and diverted. Disposal includes landfilling and transformation (combustion) in CIWMB permitted facilities. After 1995, transformation can count as diversion under certain circumstances; at this time, diversion includes source reduction, recycling and composting.

The City of Monte Sereno generated approximately 4,148 tons of solid waste in calendar year 1991 of which 3,118 tons were landfilled. Waste disposed by the franchisee at the Guadalupe Landfill in San Jose was composed of approximately 1,706 tons from the residential sector, and 1,338 from the industrial[1] sector. In addition, approximately 444 tons were self-hauled to the Guadalupe Landfill site. (As explained in Section 4.4.2, there is no commercial retail sector.) In 1991, about 24.8 per cent of the total solid waste stream was diverted. This diversion occurs in several ways, including programs sponsored by the City, the State, private recycling services, and non-profit groups. Some diversion also occurs as a result of individual decisions, such as the choice to use cloth diapers instead of disposable ones. Estimated quantities generated, diverted and disposed are presented in Tables 8, 9 and 10 of Section 2 Waste Generation Study. Each table lists 36 waste types which have been grouped into eight categories, including:

- Total Paper;
- Total Plastics;
- Total Glass;
- Total Metals;
- Yard Waste;
- Other Organics;
- Other Wastes; and
- Special Wastes.

A brief summary of the diversion programs for source reduction, recycling, composting and special wastes are presented in subsequent sections of the Executive Summary.

The State mandated diversion rates of 25 per cent in 1995 and 50 per cent in 2000 will be based on the refuse generation rates in

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[1]By definition, industrial waste includes solid waste generated by industries as well as any material placed into debris boxes, regardless of the source. Since there are no manufacturing facilities, refineries or other types of industry in the City of Monte Sereno, industrial waste will only refer to material placed in debris boxes by residential accounts.

1995 and 2000. Continued monitoring of refuse disposed and diverted is needed to meet the requirement for annual documentation.

### 1.2.3 Source Reduction

Source reduction prevents production of solid waste. It includes activities that reduce the amount of a product in use and activities that prolong the useful life of a product. For example, paper and plastic grocery bags can be source reduced either by not using them or by reusing them. Source reduction also includes back yard composting and producing more durable products.

Source reduction currently accounts for about 0.07 per cent diversion of the waste stream. The SRRE assumes the same diversion rate through January 1, 2000. These estimates are subject to revision based on field studies to be conducted, as described in Section 3. It should also be noted that although source reduction is often the least expensive form of diversion, it is extremely difficult to quantify, is personnel intensive and its effects may only be seen over time.

Although estimated diversion rates have not been specifically documented in most instances, some examples of existing source reduction activities in the City include:

- application of a variable can rate for about one-half of all the households located in the flatlands, while all households located in the hill areas are already assessed the variable fee. City staff anticipates implementing a variable can rate all remaining households in fiscal year 1993-94.
- adoption of a Source Reduction and Recycling Procurement Plan as Council policy, effective October 1991.
- using cloth diapers (diversion credit documented, see Section 3.3 Existing Conditions);
- use of double-sided copier;
- use of ceramic cups and silver utensils by employees; and
- reuse of file folders.

The programs selected for implementation between 1992 and 2000 include:

- implementing a variable rate structure for the entire residential sector;
- providing technical assistance (workshops) to homeowners;
- conducting annual surveys to monitor source reduction efforts; and
- continuing the City procurement procedure policy.

### 1.2.4 Recycling

Recycling includes returning the recovered materials to the marketplace in the form of new products. Waste used in this way is often referred to as a "secondary material" or a "secondary feedstock".

In 1991, the estimated quantity diverted as a result of recycling activities was 14.66 per cent of the total waste stream. The SRRE estimates that an additional 2.52 per cent will be diverted by January 1, 1995, and another 2.75 per cent will be diverted between January 1, 1995, and January 1, 2000. Total diversion through recycling is, therefore, estimated to be 19.93 per cent by January 1, 2000.

Existing recycling activities in the City include:

- single family recycling collection services, sponsored by the City;
- salvaging white goods, metals and tires by the landfill operator; and
- privately operated buy-back and drop-off recycling centers which are located in adjacent jurisdictions and are patronized by the City's residents.

Diversion programs selected for the short-term planning period (before 1995) have been structured to focus on materials for which markets and end uses are expected to be stable, or for which markets and end uses are local. In addition, the programs selected avoid flow control commitments during at least the short term in order to allow independent recycling services to operate. Initially, a glut of secondary materials is expected due to the

implementation of programs throughout California. Therefore, to avoid rejection of collected materials in a buyer's market due to minor contamination, the recommendations focus on collection of source separated or minimally commingled materials for the short-term planning period.

The recycling activities selected for implementation include:

- increasing participation in the single and multi-family recycling collection services. The anticipated diversion rate for the short-term is 9 per cent, and 9.5 per cent for the medium-term.

- continuing City offices recycling programs. The anticipated diversion rate for the short- and medium-terms is very small and therefore was not calculated.

- continuing a City procurement policy and evaluating regulatory approaches (eg: zoning and code revisions).

- encouraging the landfill operator to expand the diversion program for targeted materials. The anticipated diversion rate for the short-term is 2.19 per cent and 4.43 per cent for the medium-term.

- public and privately operated buy-back and drop-off centers which are located in adjacent jurisdictions are anticipated to divert 6 per cent of the waste stream in the short and medium terms. These centers assume a small level of patronage by the City's residents.

- review/expand multi-jurisdictional approaches to public education and market development.

- evaluate a program of regulatory approaches, such as zoning and building codes.

- monitor State level recycling efforts.

### 1.2.5 Composting

Composting is defined by the CIWMB as the controlled biological decomposition of wastes. 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. The feedstocks available for composting include yard waste, wood waste and food waste, the first two of which may be used as a boiler fuel. However, AB 939 specifies that only up to

10 per cent may be diverted after January 1, 1995.

In 1991, composting accounted for 10.1 per cent diversion of the total waste stream, primarily, in the form of self-haul yard waste, wood waste diverted from debris box loads, and residential Christmas tree collection. The SRRE estimates that an additional 4.12 per cent will be diverted through composting and mulching prior to January 1, 1995, and another 20 per cent will occur

between January 1, 1995, and January 1, 2000. Total anticipated diversion through composting is therefore 34.22 per cent by January 1, 2000.

The composting programs selected include:

- implementation of a residential yard waste program in fiscal year 1996-97, and continuation of Christmas tree collection until this service is incorporated into a residential program. The anticipated diversion rate for the short-term is 0.05 per cent, and 15.07 per cent for the medium-term.

- encourage landfill operators to expand the diversion program for yard and wood wastes at the designated landfill or other existing site, for debris boxes and self-haulers. The program is estimated to divert 14.4 per cent in the short-term, and 19.15 per cent in the medium-term.

- disseminate public education materials regarding yard and wood waste drop-off and curbside collection services.

- encourage a marketing program for the distribution of end-products, including compost, mulch and wood chips.

Processing programs selected include encouraging the landfill operator to expand the diversion program for wood wastes from debris boxes, and encouraging a regional composting facility. The marketing program consists of encouraging a countywide marketing program for the distribution of end-products.

### 1.2.6 Special Wastes

Special wastes are solid waste that require unique handling and disposal methods because of health hazard, environmental impact, or physical characteristics. The special wastes addressed in the component include sewage sludge, ash, asbestos, used tires, white goods (eg: appliances), auto bodies and auto shredder residue, dead animals, and other special wastes. The primary purpose of

the special waste component is to ensure that special wastes are handled in an environmentally sound way; usually their diversion from disposal is of secondary importance.

Sewage from the City is currently treated at the San Jose Water Pollution Control Plant. The sludge generated is stored on site for eventual use. No ash was reported as generated as a result of the waste generation study.

Asbestos will continue to be disposed of safely at permitted facilities. Abandoned vehicles will continue to be removed by private, City-contracted towing companies and sold to salvaging operations. Parties responsible for the proper disposal of dead animals include the Santa Clara County Animal Control Department, a County contract with a private firm and the animal owner.

Parties responsible for the continuing diversion of tires include the landfill operator and the City. White goods will also continue to be processed; entities responsible include the waste hauler, the landfill operator and the City.

### 1.2.7 Education and Public Information

Residents and businesses will be kept informed of current and future recycling services, rate increases, the availability of brochures on home composting, and waste evaluation guides. The City will also support countywide development and distribution of educational materials for schools.

The City will use the local news media, conduct compost workshops and staff information booths at public events. In addition, the City will continue to use the The Los Gatos Times Weekly, The City Council Report, and the annual newsletter distributed to all accounts by the waste hauler.

### 1.2.8 Solid Waste Facility Capacity

The City has a 20-year (1983-2003) agreement with Guadalupe Rubbish Disposal Company (GRDC) for the disposal of its municipal solid wastes. It was determined as a result of the waste generation study that most self-hauled wastes from the City are also disposed of at that landfill.

The disposal facility capacity needs projection provides an estimate of the disposal capacity (in tons per year) that is needed to accommodate projected solid waste generation for a 15-

year period commencing in 1991. Factors considered in estimating waste generation for the 15-year period included changes in population, changes in the residential, commercial and industrial units and import/export of waste. The results of the needs projection indicate that the City will not require additional disposal capacity until 2003, at which time the City's disposal agreement with GRDC will expire. The assumption that there is adequate disposal capacity is not contingent on the achievement of the AB 939 diversion goals. In order to secure the required additional capacity for each year after 2003, the City will either renew the disposal agreement with GRDC or enter into a new disposal agreement with a different operator.

### 1.2.9 Funding

The estimated annual program costs are listed in Section 8 for each year from 1991-1996. All costs are in 1992 dollars.

Education and public information costs for each program have been included in the cost estimates, as have costs for planning, preparing, and monitoring the programs to be implemented. The anticipated program costs do not include the anticipated revenue from the sale of the recyclables since market prices will likely continue to fluctuate. Also excluded are the avoided collection and disposal costs, although these cost savings can be recaptured during program implementation.

Recycling services will continue to be initiated by negotiating agreements and user fees with the existing hauler or independent recycling companies. In addition, the City's refuse collection rate structure for the flatland areas will be revised from a flat fee to a variable can rate in FY 93-94 so that flatland and hill area residential users receive clear and substantial economic incentives to reduce and recycle their solid waste.

While funding is not provided by AB 939, the regulations based on this law allow municipalities to levy fees (either directly on residents or passed through costs from the waste hauler) to pay all program costs. The City intends to make adjustments to its existing rate system to fund the implementation of the provisions of AB 939 and other applicable legislation. This approach can accommodate changing economic conditions, including unexpected developments.

If contingency funding is needed to preserve the health and welfare of the City, the City Council has the authority to implement an emergency surcharge to existing rates. Other

sources of contingency funding include grants and loans, and are described in Section 8.

### 1.2.10 Integration

The solid waste management practices described in the source reduction, recycling, composting, and special wastes components of this document (Sections 3 through 6), which are to be continued, expanded or implemented in the City, are designed to comply with the integrated waste management hierarchy established by AB 939. Consistent with this hierarchy, the City will promote source reduction activities targeted at decreasing the amount of solid wastes being generated in the City. For wastes that continue to be generated in the City, recycling and composting programs will contribute to diverting wastes from disposal to the extent feasible. For wastes that cannot be diverted, the City will ensure that they are transformed or landfilled in an environmentally safe manner.

In developing the City's SRRE, priorities had to be set among the components in those instances with various available diversion options. Prioritizing among the specific components and programs or activities for each targeted material was based on several regulatory, technical, institutional and economic considerations. These included:

- location of the activity or program in the integrated waste management hierarchy;
- effectiveness in reducing the volume, weight, or hazard of the targeted wastes;
- consistency with existing waste management practices; and
- cost effectiveness and ease of implementation.

Based on these criteria, the components of the City's SRRE were prioritized to effectively achieve the mandated diversion goals of 25 per cent by 1995 and 50 per cent by 2000.

Pursuant to 939, included in the Integration Component (Section 10) is a table indicating the estimated diversion rates for the source reduction, recycling and composting components for each year of the 15-year planning period (1991-2006). Also presented in Section 10 is a proposed implementation timeline for 1992-95 for the source reduction, recycling, composting, special wastes and public education components.

## 1.3 Future Waste Generation Studies

### 1.3.1 Guidelines and Regulatory Requirements

The Santa Clara County Integrated Waste Management Plan, of which this Source Reduction and Recycling Element is a part, is to be submitted to the CIWMB by January 1, 1994. This date is based on the fact that the County of Santa Clara, as a whole, has remaining landfill capacity of greater than eight years (PRC Section 41791). A lesser Countywide landfill capacity would necessitate an earlier submittal of the County Plan.

Each year after 1994, Campbell's SRRE is to be reviewed by the City and County; and an annual report is to be submitted to the CIWMB (Sections 18771 and 18787). The annual reviews are to be used to assess the progress toward the diversion objectives and must address the issue of changes in the quantity and composition of the waste stream. Either the jurisdiction, in performing the review, or the CIWMB, in evaluating the review, can determine that a revised SRRE is needed. A revision could necessitate another, and more extensive, waste generation study.

Furthermore, prior to the third anniversary of the approval of the County Plan (i.e., in 1997 unless an earlier revision is found to be necessary in the annual reviews), the local task force must review the County Plan to ensure that it is consistent with the diversion goals. The task force must prepare comments on the Plan for the County and for the CIWMB. The County must determine if a revision of the Plan is needed. The County and the CIWMB are to decide what aspects of the Plan are to be revised. The revised Plan is to be submitted to the CIWMB within five years of the previously approved Plan.

If a waste generation study is required in a revised SRRE or in a revised County Plan, the study must be done by a quantitative field analysis (QFA) (CIWMB Regulations Section 18726) unless the CIWMB approves the use of another method. A QFA is a costly task and is not necessarily the best way to get the information needed to design, implement, and monitor diversion programs. The City may choose to perform a QFA if it is appropriate at some future date. However, the need to do a QFA can be delayed by carrying out selectively targeted waste characterization studies on an on-going basis and by aggressively pursuing the diversion objectives in the short- and medium-term time periods.

### 1.3.2 Annual Monitoring and Future Studies

Selectively targeted studies are discussed in the monitoring and evaluation sections of the source reduction, recycling and composting components (Sections 3, 4 and 5). The studies are primarily intended to provide adequate information to allow the City to annually evaluate the diversion programs and to modify the programs as needed.

**Final**

# Waste Generation Study for the City of Monte Sereno

CalRecovery
INCORPORATED

June 1992

Report 1306

**Final**

# WASTE GENERATION STUDY
# FOR THE CITY OF MONTE SERENO

CalRecovery Inc.
725C Alfred Nobel Drive
Hercules, California 94547

June 1992

Printed on Recycled Paper

## TABLE OF CONTENTS

**1. INTRODUCTION ..... 1**

DEMOGRAPHICS OF AREA ..... 1
METHODOLOGY ..... 1
ORGANIZATION OF REPORT ..... 2

**2. DISPOSED WASTES ..... 3**

CURRENT SOLID WASTE DISPOSAL PRACTICES ..... 3
METHODOLOGY ..... 3
RESULTS ..... 9
SEASONALITY ..... 12

**3. DIVERTED MATERIALS ..... 15**

SUPPLEMENTAL PROCESSOR-BASED SURVEY ..... 15
GENERATOR-BASED SURVEY ..... 19
COMBINED RESULTS ..... 20

**4. WASTE GENERATION ..... 24**

**APPENDIX A ..... A-1**

**APPENDIX B ..... B-1**

**APPENDIX C ..... C-1**

**APPENDIX D ..... D-1**

**APPENDIX E ..... E-1**

Section 1

# INTRODUCTION

The California Integrated Waste Management Act, Assembly Bill 939, requires local governments to reduce, reuse, recycle, and compost a portion of the materials that are typically disposed by their jurisdictions. The State has mandated that 25% and 50% solid waste diversion rates be met in 1995 and 2000, respectively.

CalRecovery was retained by the City of Saratoga, on behalf of the City of Campbell, Town of Los Gatos, City of Monte Sereno, and Santa Clara County, to conduct a solid waste generation study for the four cities, and a disposed waste characterization study for the unincorporated area within the sphere of influence of the cities. For purposes of this study, this geographic area is termed West County. The results of the study help to establish baseline data for future integrated waste management practices.

This report presents the results of the solid waste generation study conducted for the City of Monte Sereno, California.

## DEMOGRAPHICS OF AREA

The City of Monte Sereno is located in the western portion of Santa Clara County. The City's 1991 population is 3,288 residents according to figures published by the California Department of Finance. The total number of residents is anticipated to remain essentially unchanged over the next 15 years, according to the Association of Bay Area Governments (ABAG).

The total number of jobs in the City, as of 1990, was 350, according to ABAG. Most of the jobs in the City are in the service sector. The City has no commercial business district, and no industry.

## METHODOLOGY

The information presented in this report has been prepared in accordance with the requirements of the California Integrated Waste Management Act of 1989 (AB 939), as modified by AB 1820 and subsequent legislation and regulations.

Field work was conducted following the methodology specified in Section 18722 of the regulations regarding the preparation of the Source Reduction and Recycling Element. Disposed waste was sorted into the categories listed in the regulations over a 10-day period. Quantities of disposed waste were estimated based on information provided by the landfill operator and waste hauler. This information was supplemented by data obtained in the field. Seasonal variations are described based on comparative and historical information.

The quantity and composition of materials diverted from disposal were estimated based upon three sources of information: 1) a regional processor-based survey conducted previously for Santa Clara County; 2) a supplemental processor-based telephone survey; and 3) a generator-based mail and telephone survey. The supplemental processor-based survey concentrated on non-respondents from the initial survey conducted for the County. The generator-based survey focussed on commercial and industrial generators.

Existing waste generation rates were calculated using the information obtained from the disposed waste and diverted waste studies. The quantity and composition of solid waste generated by the City were extrapolated in one year iterative increments for a 15-year period (1991 to 2006), using a rate of escalation based upon population projections.

In the conduct of the present waste generation study, quantities of wastes disposed and diverted by the waste hauler and the landfill operator were reported to the City. These quantities were based on computerized records maintained by the hauler and landfill operator. The composition of disposed wastes was determined using field analysis. To maintain consistency, this procedure will also be followed in future studies. Diverted wastes from other than the waste hauler and the landfill operator were quantified and characterized by means of surveys and estimation, as described in Section 3 of this report. To improve upon the estimations in the future, the City will work with the various recycling firms to institute a standard reporting system.

## ORGANIZATION OF REPORT

The results of the study are presented in Sections 2 through 4. Section 2 (Disposed Waste) provides the results of the waste characterization study; Section 3 (Diverted Materials) presents the results of the diverted waste analysis; and Section 4 (Waste Generation) combines the data from the previous sections.

**Section 2**

# DISPOSED WASTES

A disposed waste characterization study was conducted during July 1991 for the City of Campbell, Town of Los Gatos, City of Monte Sereno, City of Saratoga, and the unincorporated area within the sphere of influence of these cities in West Santa Clara County (West County). Data collected during the field sampling program are used to define the existing conditions regarding quantities of solid waste disposed at permitted disposal facilities.

## CURRENT SOLID WASTE DISPOSAL PRACTICES

The cities of Campbell, Monte Sereno, and Saratoga, and the Town of Los Gatos have signed 20-year agreements (expiring in the year 2003) with Green Valley Disposal Company for refuse collection. The refuse is disposed at the Guadalupe Landfill, located in the City of San Jose. The landfill is operated by Guadalupe Rubbish Disposal Company. The waste collection services contracted by the County for the adjacent unincorporated areas are comparable to services provided for each of the West County cities. The County Board of Supervisors approved a franchise agreement with Green Valley on July 30, 1991. This agreement will expire in 2003.

Weekly residential collection services are provided in all communities. Residential wastes are collected at the curb or from backyards.

## METHODOLOGY

The field sampling program was designed: 1) to determine the composition of the residential, commercial, and industrial waste streams for each jurisdiction by manually sorting samples of refuse from collection vehicles into prescribed waste types; and 2) to estimate through visual observation the composition of self-haul waste. The following subsections describe the methodology for each element of the sampling program.

### Sample Methodology for Collection Vehicle Waste

A Test Plan which outlines the field and sorting activities for the jurisdictions and lists the disposed waste components for sorting is included as Appendix A. The California Integrated Waste Management Board (CIWMB) has developed the list of waste categories and types that are used in this report, to reflect the common practices of solid waste management and recycling industries in California and provide recognizable names for waste types requiring special handling and/or disposal. The state-wide uniform application of the list of waste categories and types allows the CIWMB to compare the appropriateness of the jurisdiction's chosen diversion methods with the quantities and types of waste currently disposed.

The following CIWMB definitions are used when referring to residential, commercial, and industrial wastes. A brief description of how these wastes were typically received for sampling follows each definition.

- **Residential Waste**: Solid waste originating from single-family or multi-family dwellings (apartments). Single-family residential waste arrived for sampling primarily in rear-loading vehicles. Apartment waste was received in front-loading vehicles.

- **Commercial Waste**: Solid waste originating from stores; business offices; commercial warehouses; hospitals; educational, health care, military, and correctional institutions; non-profit research organizations; and government offices. The majority of commercial waste was received for sampling in front-loading vehicles.

- **Industrial Waste**: Solid waste originating from mechanical manufacturing facilities, factories, refineries, construction and demolition projects, and publicly-operated treatment works; and/or solid waste placed in debris boxes regardless of whether the debris boxes are from residential, commercial, or industrial accounts. All industrial waste was sampled from debris boxes.

The characterization of disposed waste from solid waste collection vehicles was conducted on weekdays from July 16 to July 25, 1991 at the Guadalupe Landfill. Assistance in the study was provided by Green Valley Disposal Company and Guadalupe Rubbish Disposal Company. Initial discussions with Green Valley, Guadalupe, and the jurisdictions prior to sampling provided background information regarding jurisdictional boundaries, collection routes, mixed loads, and frequency of collection of solid waste.

The Draft ASTM "Method for the Determination of the Composition of Unprocessed Municipal Solid Waste," which describes the testing, analytical, and statistical methods for sampling, is included as Appendix B. Based on the Green Valley background data, daily residential, commercial, and industrial waste sources could be readily sampled during the 10 days of sampling. For sampling of the residential waste stream, vehicles were identified by the hauler to represent the different geographical areas of the jurisdictions. Loads were then selected from each area on an as-needed basis. The as-needed procedure for selection of vehicle loads provides an unbiased method of selection because the investigator has no basis (other than the need to sort) upon which to subjectively select one vehicle over another. Loads of commercial wastes were identified for sampling based on routing information provided by the hauler which indicated which vehicles contained discrete loads of commercial wastes from each of the jurisdictions. During the study, approximately 16% of the industrial debris boxes sampled were targeted for sampling because the business or institution either disposes significant amounts of waste, or represents a large percentage of the jobs in the jurisdiction. Other debris boxes were sampled at random. Debris boxes containing hospital wastes are not sorted if the load contains quantities of materials potentially dangerous to the health and safety of the workers.

**Accuracy Statement**

The sampling program for disposed waste was designed to achieve composition results that would be within ±10% to 15% of the population mean (x) of the jurisdiction's composite disposed waste sources at the 90% level of confidence for the majority of waste categories (see Test Plan in Appendix A). The jurisdiction's composite disposed waste stream is defined as the sum of its waste from residential, commercial, and industrial sources. Because jurisdiction-specific waste composition data were not available at the time of this study, the Test Plan assumes a coefficient of variation of 0.3 (s/x) among the majority of waste categories. The selection of the 0.3 value for coefficient of variation is based on the average and standard deviations of component compositions (in particular but not exclusively, the total paper category (selected as the governing component for this study) as noted below) measured in previous waste characterizations in California after 1984. For example, the residential and commercial total paper average compositions (x) and standard deviations (s), as determined in the October 1990 waste characterization study for the City of Sunnyvale[1] (located in Santa Clara County) waste characterization study, yield a coefficient of variation of approximately 0.3. Substituting this value would produce sample sizes similar to those developed with the Test Plan coefficient of variation.

Using the ASTM Draft "Method for Determination of the Composition of Unprocessed Municipal Solid Waste," the appropriate number of samples (n) required to achieve an accuracy within 15% of the population mean is computed by invoking the relation for accuracy (e) as a fraction and the number of samples (n):

$$n = \left[ \frac{t^* \ (s/x)}{e} \right]^2$$

where $t^*$ is the t-statistic and s/x is the coefficient of variation. Through substitution:

$$n = \left[ \frac{1.684 \ (0.3)}{0.15} \right]^2$$

$$n \simeq 12$$

using $t^*_{90}$ (n=12) through substitution:

$$n = \left[ \frac{1.7959 \ (0.3)}{0.15} \right]^2$$

$$n \simeq 13$$

Under these conditions, the minimum total number of samples that should be collected for each jurisdiction is 13.

1 "Source Reduction and Recycling Element," prepared by Cal Recovery Systems, Inc. for the City of Sunnyvale, 1990.

## Number of Vehicles Sampled

The total number of solid waste collection vehicles sampled for each jurisdiction for the disposed waste analysis is presented in Table 1. The table also shows the number of vehicles sampled by waste type. For the City of Monte Sereno, 5 loads were sampled. Approximately 75% of the disposed residential waste in Monte Sereno is collected in one vehicle on one day of the week. Discrete samples of waste from this vehicle were sampled on two different dates; no other discrete residential loads were available for sampling. Commercial waste in Monte Sereno represents approximately 1% of the total disposed waste stream; no commercial loads were available for sampling. Three debris boxes from Monte Sereno were identified at random by the hauler and were sampled during the field study. The debris boxes sampled represent approximately 33% of the debris boxes from the jurisdiction delivered to the landfill during the study period.

Although the number of total samples taken was less than the total number of required samples calculated using the ASTM method, the sampling program was determined to be representative of the City's waste stream because of the large percentage of vehicles sampled, i.e., 1) 75% of the residential waste stream was sampled on two different days; and 2) 33% of the debris boxes were sampled.

Commercial wastes are collected with residential wastes by the hauler. Because the quantity of commercial wastes represent such a small portion of the waste stream (i.e., less than 1%), it was decided not to define commercial wastes as a separate source in the study, but to combine the residential/commercial waste streams for purposes of waste disposal characterization. The sampling program obtained representative composition data for the combined waste stream.

## Sampling Methodology for Self-Haul Waste

The primary sources of self-haul waste are residents of single-family dwellings and small business operators. It is advantageous, for planning purposes, to make the distinction between compacted residential and commercial waste, and noncompacted self-haul waste. Programs selected for implementation to meet the required 25% and 50% diversion goals can be better determined if self-haul waste is addressed as a separate source.

A visual survey to develop average compositions of the self-haul wastes was conducted from July 16 to July 22, 1991, at the Guadalupe Landfill. This site was chosen for the self-haul waste characterization because of its proximity to the West County jurisdictions, and was therefore a likely location for disposal of those wastes. Self-haul loads attributable to the City were determined by asking the vehicle operators the jurisdiction in which the wastes were produced. Approximately 50% of the self-haul loads originating from the City were surveyed for composition. This high rate of sampling provided a representative composition of the City's self-haul waste.

Self-haul waste was classified into one of four categories: yard waste, construction/demolition debris, dirt/rubble, or miscellaneous (household refuse). For example, if a load was estimated

**Table 1. Santa Clara West County Area -- Number of Samples from Collection Vehicles for Each Jurisdiction**

| | Waste Source | | | |
|---|---|---|---|---|
| | Residential | Commercial | Debris Boxes | Total |
| **Campbell** | 14 | 12 | 31 | 57 |
| **Los Gatos** | 13 | 5 | 16 | 34 |
| **Monte Sereno** | 2 | 0 | 3 | 5 |
| **Saratoga** | 12 | 7 | 11 | 30 |
| **Unincorporated**[1] | 5 | 0 | 0 | 5 |
| **Total** | 46 | 24 | 61 | 131 |

[1] Composition for commercial and debris boxes based on data from neighboring jurisdiction(s).

by visual observation to contain a majority of yard waste, it was designated as a yard waste load. The categories are defined as follows:

- **Yard waste**: loads typically consisting of residential yard clean-up and maintenance debris
- **Construction/demolition**: loads resulting from construction, repairs, remodeling, and demolition projects
- **Dirt/rubble**: loads consisting of debris-filled dirt and, on occasion, clean dirt for use as landfill cover
- **Miscellaneous**: loads which cannot be classified into one of the categories listed above and often contain large percentages of solid waste from residents who do not receive curbside or regular collection service

The yard waste, construction/demolition, and dirt/rubble categories generally contain small percentages of residential and/or commercial type waste. While most self-haul waste can be readily categorized into one of the above four categories, purely homogeneous self-haul waste loads are generally quite rare.

The data from each category were then used to calculate an average self-haul composition for each jurisdiction. Since self-haul waste is typically bulky and relatively uniform, trained field observers were able to analyze and record a large number of vehicle loads. Over 725 self-haul vehicles were visually surveyed at the Guadalupe Landfill for volume, waste type, and composition. Loads of self-haul waste that were diverted from landfill disposal were not sampled as part of this program.

Concurrent with the visual sampling, scalehouse personnel recorded the origin (jurisdiction) of self-haul loads during the visual sampling period. The recorded volumes, by load type, were used to apportion the quantity of self-haul waste to each of the jurisdictions. During the sampling period, less than 1% of the disposed self-haul waste volume was attributed to the City of Monte Sereno.

Self-haul data from January through June 1991 were obtained from the Guadalupe Rubbish Disposal Company to calculate quantities of self-haul waste disposed at the Guadalupe Landfill. In addition CalRecovery contacted the following sources to obtain self-haul quantity data: Browning-Ferris Industries (Newby Island Landfill), Mt. View Landfill, and Zanker Road Landfill and Recycling Center. Data received from these sources showed that quantities of self-haul wastes from the West County jurisdictions were negligible.

In summary, composition and quantity data for self-haul waste were developed based on discussions with hauler and landfill personnel, field observations and measurements by CalRecovery, and data reported from the scalehouse.

## RESULTS

The average compositions (% weight) and the estimated annual disposed quantities (in tons/year) for residential, commercial, industrial, and self-haul waste are shown in Table 2. The results, which are presented in accordance with the categories required by the California Integrated Waste Management Board, are similar to results of studies conducted elsewhere.

Confidence intervals by waste source and waste type are presented in Appendix D, which represent the accuracy of the current disposed waste analysis.

Examples of the types of materials included in the mixed paper, other paper, other plastics, other recyclable glass, other non-recyclable glass, other metals, other miscellaneous organics, and special wastes material types are provided below:

- **Mixed paper:** magazines, advertisement inserts from newspapers (if separate), colored office paper
- **Other paper:** tissue, toilet paper, paper towels, waxed containers (e.g., drinking cups, milk cartons), contaminated paper, envelopes with plastic windows
- **Other plastics:** PVC piping, disposable razors, toys, electrical components
- **Other recyclable glass:** food jars, miscellaneous containers
- **Other non-recyclable glass:** light bulbs, safety glass, mirrors
- **Other metals:** clothes hangers, rebar, tools, scrap
- **Other miscellaneous organics:** natural fiber, diapers, animal waste, hair
- **Special wastes:** stereos, radios, telephones (common household appliances predominant in compacted residential waste)

The composition for each waste stream presented in the table is an average of the compositions of the respective samples that were hand sorted or visually surveyed during the field study.

Data on the quantity of residential and commercial collection vehicle wastes disposed by West County jurisdictions were provided by Green Valley, based on scalehouse weight data. Quantity data on debris boxes were provided by Green Valley based on volume data. The data were apportioned to each of the jurisdictions based on previous studies by Green Valley which estimated the percentage of West County wastes disposed by each of the jurisdictions. These percent distributions were based on the number of units serviced and were used to apportion the quantity data for collection vehicle wastes to each jurisdiction.

**Table 2. Average Composition (% Weight) and Annual Quantities (Tons/Year) of Disposed Waste.**

Monte Sereno
July 16-25, 1991
Disposed Waste Characterization

| Material | Residential N = 2 % | Residential N = 2 TPY | Commercial N = 0 % | Commercial N = 0 TPY | Industrial a N = 3 % | Industrial a N = 3 TPY | Self Haul (Visual) % | Self Haul (Visual) TPY | Total Disposed % | Total Disposed TPY |
|---|---|---|---|---|---|---|---|---|---|---|
| 1) TOTAL PAPER | 29.2 | 499 | 0 | | 4.0 | 54 | 1.8 | 1 | 17.7 | 553 |
| OCC/Kraft | 5.8 | 98 | 0 | | 1.3 | 18 | 1.1 | 1 | 3.7 | 117 |
| Mixed | 13.2 | 225 | 0 | | 0.3 | 4 | 0.7 | 1 | 7.4 | 230 |
| Newspaper | 7.4 | 127 | 0 | | 2.0 | 27 | 0.0 | 0 | 4.9 | 154 |
| High-Grade | 0.0 | 0 | 0 | | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 |
| Other | 2.8 | 48 | 0 | | 0.3 | 4 | 0.0 | 0 | 1.7 | 53 |
| 2) TOTAL PLASTICS | 6.2 | 106 | 0 | | 7.7 | 103 | 0.6 | 0 | 6.7 | 210 |
| HDPE | 1.0 | 17 | 0 | | 1.0 | 13 | 0.0 | 0 | 1.0 | 30 |
| PET | 0.3 | 4 | 0 | | 0.3 | 4 | 0.0 | 0 | 0.3 | 9 |
| Film | 1.6 | 27 | 0 | | 0.5 | 7 | 0.4 | 0 | 1.1 | 34 |
| Other | 3.4 | 58 | 0 | | 5.8 | 78 | 0.2 | 0 | 4.4 | 136 |
| 3) TOTAL GLASS | 3.1 | 52 | 0 | | 0.5 | 7 | 0.2 | 0 | 1.9 | 59 |
| Refillable Beverage | 0.0 | 0 | 0 | | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 |
| Cal Redemption | 1.0 | 17 | 0 | | 0.5 | 7 | 0.0 | 0 | 0.8 | 24 |
| Other Recyclable | 2.1 | 35 | 0 | | 0.0 | 0 | 0.0 | 0 | 1.1 | 35 |
| Other Non-Recycl | 0.0 | 0 | 0 | | 0.0 | 0 | 0.1 | 0 | 0.0 | 0 |
| 4) TOTAL METALS | 2.7 | 46 | 0 | | 9.3 | 125 | 2.1 | 2 | 5.5 | 173 |
| Aluminum Cans | 1.1 | 19 | 0 | | 1.0 | 13 | 0.0 | 0 | 1.0 | 33 |
| Bimetal | 0.0 | 0 | 0 | | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 |
| Tin F/B | 0.4 | 7 | 0 | | 0.0 | 0 | 0.0 | 0 | 0.2 | 7 |
| Non-Fe | 0.3 | 4 | 0 | | 2.0 | 27 | 0.2 | 0 | 1.0 | 31 |
| White Goods | 0.0 | 0 | 0 | | 0.0 | 0 | 0.6 | 0 | 0.0 | 0 |
| Other | 0.9 | 16 | 0 | | 6.3 | 85 | 1.3 | 1 | 3.3 | 102 |
| 5) YARD WASTE | 40.4 | 690 | 0 | | 12.7 | 169 | 43.7 | 32 | 28.6 | 891 |
| 6) OTHER ORGANICS | 18.3 | 313 | 0 | | 63.7 | 852 | 20.7 | 15 | 37.8 | 1180 |
| Food | 2.1 | 35 | 0 | | 0.0 | 0 | 0.1 | 0 | 1.1 | 35 |
| Tires/Rubber | 0.0 | 0 | 0 | | 1.0 | 13 | 0.0 | 0 | 0.4 | 13 |
| Wood | 2.8 | 49 | 0 | | 55.0 | 736 | 20.2 | 15 | 25.6 | 799 |
| Ag. Crop Residue | 0.0 | 0 | 0 | | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 |
| Manure | 0.0 | 0 | 0 | | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 |
| Textile/Leather | 9.9 | 169 | 0 | | 5.3 | 71 | 0.4 | 0 | 7.7 | 241 |
| Other Misc Org. | 3.5 | 60 | 0 | | 2.3 | 31 | 0.0 | 0 | 2.9 | 91 |
| 7) OTHER WASTES | 0.0 | 0 | 0 | | 1.7 | 22 | 30.9 | 23 | 1.4 | 45 |
| Inerts | 0.0 | 0 | 0 | | 1.7 | 22 | 30.9 | 23 | 1.4 | 45 |
| HHW | 0.0 | 0 | 0 | | 0.0 | 0 | 0.1 | 0 | 0.0 | 0 |
| 8) SPECIAL WASTES b) | 0.0 | 0 | 0 | | 0.5 | 7 | 0.0 | 0 | 0.2 | 7 |
| Total | 100.0 | 1706 c) | 0.0 | 0 | 100.0 | 1338 | 100.0 | 74 | 100.0 | 3118 |
| Compacted Volume (cu yd) d) | | | | | | | | | | 5197 |

Average may not sum to 100% due to rounding

a) Debris box waste disposed by residential accounts.
b) Small Household Appliances
c) Includes 43 TPY of commercial waste. This represent 1.4% of the total disposed waste. Discrete loads of commercial waste were not available for sorting.
d) Based on 1200 lb/cu yd average in-place density.

Data on the quantity of self-haul wastes were provided by Guadalupe. The quantity data were apportioned to each jurisdiction as described previously (see Sampling Methodology for Self-Haul Wastes).

The average compositions were calculated based on the waste types identified, regardless of the extent of contamination. Less than 100% of these materials can be expected to be recovered in a recycling or composting program.

The results of the disposed waste characterization for the City of Monte Sereno are discussed below.

## Residential Wastes

Solid waste collection vehicles containing residential waste were sampled during the 10-day collection vehicle sample period. Disposed residential waste is approximately 55% of the total disposed solid waste stream.

As shown in Table 2, yard waste is the single largest contributor to the residential waste stream. According to the results of the study, yard waste comprises 40.4% of disposed residential waste in the City of Monte Sereno. Most of the yard waste consisted of grass clippings, tree trimmings, and shrubs, with a small amount of leaves present.

The total paper category is the category with the second highest concentration (29.2%) in the disposed residential waste stream. Mixed paper alone comprises approximately 13.2% of the disposed residential waste. The textile/leather waste type accounts for 9.9% of the disposed residential waste.

## Commercial Wastes

Commercial waste was not identified during the waste sort because no discrete commercial loads were available for sampling.

Based on data received from Green Valley, commercial waste in Monte Sereno represents approximately 1.4% of the jurisdiction's total disposed waste stream (43 tons/year). This quantity has been presented with the residential waste stream in this report.

## Industrial Wastes

By definition, industrial waste includes not only solid waste generated by industries but also includes any material placed into debris boxes, regardless of the source. Since there are no manufacturing facilities, refineries or other types of industry in the City of Monte Sereno, industrial waste will only refer to material placed in debris boxes by residential accounts. Wastes classified in this manner were sampled during the sample period. Disposed industrial waste is approximately 43% of the total disposed solid waste stream.

Table 2 shows that the other organics category represents the highest concentration of materials (63.7%) in the disposed industrial waste stream. Wood is the waste type with the largest concentration within this category, at 55.0% of the disposed industrial waste stream.

The yard waste category accounts for 12.7% of the disposed industrial waste stream.

### Self-Haul Wastes

Vehicles containing self-haul waste were sampled during the visual sampling period. Disposed self-haul waste is approximately 2% of the total disposed solid waste stream.

As shown in Table 2, yard waste is the category with the largest concentration (43.7%) in the disposed self-haul wastes. Inerts and wood waste comprise 30.9% and 20.2% of this waste stream, respectively.

### Additional Results

The results of the analysis for the City of Monte Sereno indicate that no bimetal, white goods, HHW, or special waste were identified in the disposed residential waste stream during the field study. This is not unusual given the relatively low concentrations of these materials in the total generated waste stream, and the likelihood that these materials are diverted from disposal by recycling, reuse, or special handling.

A moderate amount of disposable diapers was found in the overall disposed waste stream. Disposable diapers constituted approximately 31.2% of the other miscellaneous organics waste type for the five jurisdictions sampled, or 0.8% of the total disposed waste stream. Polystyrene constituted approximately one-quarter (23.8%) of the other plastics waste type, or 0.9% of the total disposed waste stream.

Approximately 4.9% of the cardboard sorted during the study was waxed or otherwise heavily contaminated. This represents 0.5% of the total disposed waste stream. Based on visual observation, between 20% and 25% of the mixed paper was comprised of magazines.

The concentrations of white goods for the West County study area ranged from zero to 0.4% of the disposed total waste stream. Results from other studies conducted by CalRecovery in Santa Clara County showed that white goods comprised between <0.1% and 1.5% of total disposed wastes.

## SEASONALITY

It has been assumed that four seasons could potentially impact the disposed wastes in the City of Monte Sereno. This assumption is based on three years of historical quantity data from Green Valley for wastes commercially collected and disposed, and on six months of data from Guadalupe for self-haul wastes.

The quantities of waste delivered by collection vehicles servicing the West County study area, (i.e., Cities of Campbell, Monte Sereno, and Saratoga; Town of Los Gatos; and Santa Clara County) for the years 1988 through 1990 are presented in Figure 1. The quantity of wastes disposed over the three-year period averaged 10,631 tons/month. A summary of the quantity of waste disposed per month per season over the three-year period is as follows:

| | |
|---|---|
| Spring (March - May) | 11,296 tons/month |
| Summer (June - August) | 10,988 tons/month |
| Autumn (September - November) | 10,569 tons/month |
| Winter (December - February) | 9,673 tons/month |

The monthly average of disposed waste quantities during the winter season was 9% less than the overall monthly average for the three-year period. The largest quantities of waste were disposed during the spring season; the monthly average during the spring was 6% greater than the overall monthly average. Based on this data, it appears that the quantities of waste disposed by the City of Monte Sereno demonstrate seasonal variations similar to those identified by CalRecovery during other waste characterization studies conducted in California. It should be noted that these tonnage figures may not reflect typical quantities of waste disposed, due to the five-year drought in this area of California.

The contribution to the disposed waste stream made by self-haul vehicles is only about 2% of the total disposed waste stream for the City of Monte Sereno. Consequently, seasonal variations in self-haul waste will not significantly affect the overall waste stream.

The potential seasonal impacts on the composition of the waste stream were considered based on the following factors: demographics of the area, degree of commercial development, local meteorology, general economic conditions, the results of the disposed waste characterization, historical quantity data from the hauler, and the results of seasonal waste characterization studies conducted for the City and County of San Francisco (1985/86),[2] the City of Berkeley (1988/89), North Santa Clara County (NSCC) (1982/83),[3] and San Diego County (1988/89).[4] This information was reviewed with emphasis placed upon the prior four-season waste characterization study for North Santa Clara County. Based on review and on the fact that yard waste is a large percentage of the waste stream, yard waste is judged to be the only component that may undergo a substantial seasonal variation in generation. Based on the results of the NSCC study, the concentration of yard waste is expected to fluctuate within $\pm$20% of the estimated annual average over the course of a year.

2 "Solid Waste Characterization Study," study prepared by Cal Recovery Systems, Inc. for the City of San Francisco, 1987.
3 "North Santa Clara County Comprehensive Waste Characterization Study (1982-83) Final Summary Report," prepared by Cal Recovery Systems, Inc. for the NSCC Solid Waste Management Authority, 1984.
4 "Waste Characterization and Market Study," prepared for the County of San Diego by Recovery Sciences, Inc., 1989.

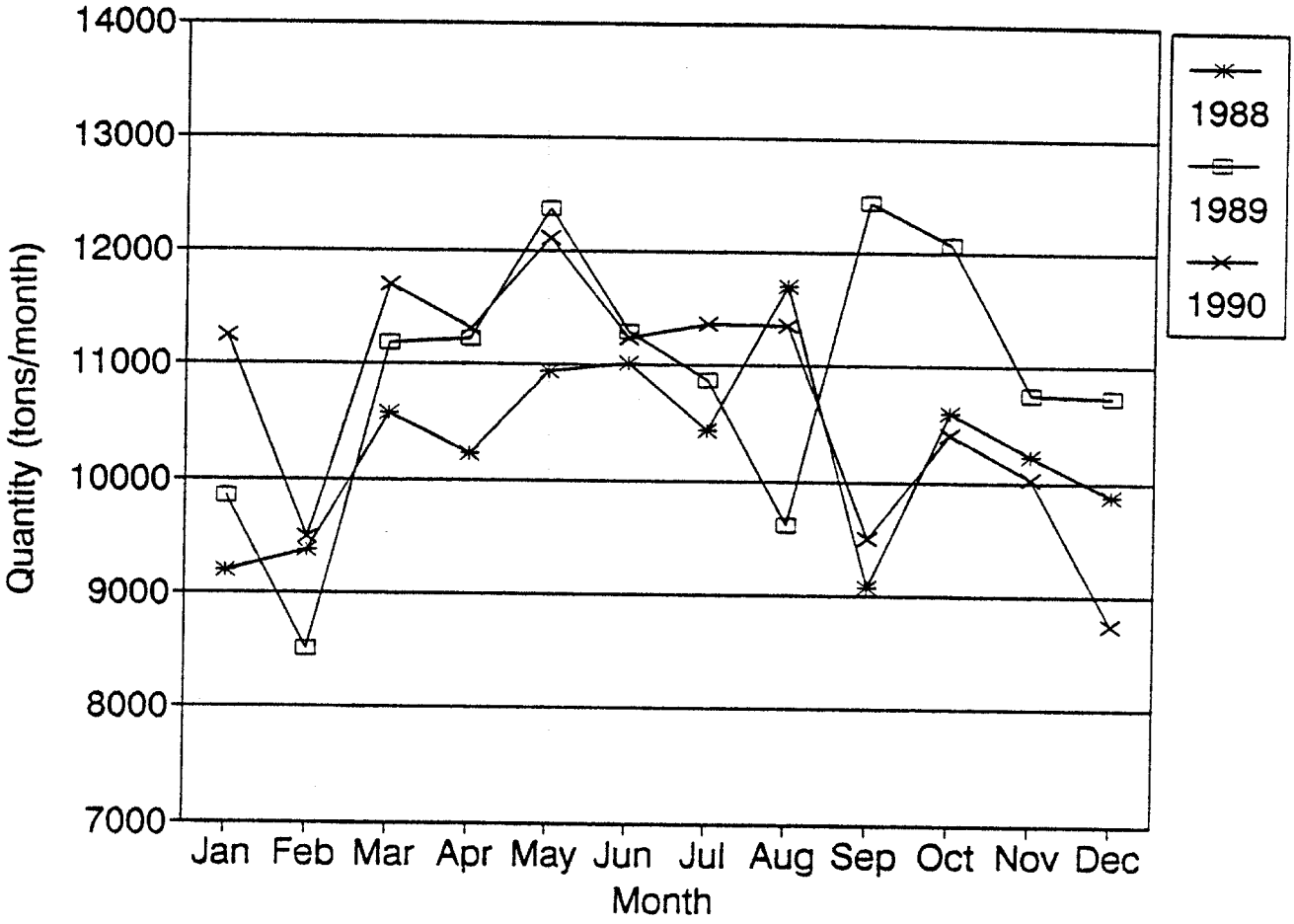


Figure 1. Quantity of Wastes Delivered by Collection Vehicles for Disposal by West Santa Clara County Jurisdictions from 1988 to 1990.

Section 3

# DIVERTED MATERIALS

The California Integrated Waste Management Act (AB 939) requires that jurisdictions assess the quantity and composition of solid wastes that are currently being diverted from landfill disposal (e.g., through recycling, composting, source reduction). The primary objective of the diversion analysis is to determine, by sector, the existing diversion level for the City of Monte Sereno on a material-by-material basis. This baseline level of diversion activity will be used to determine the total amount of waste generated in the City and its existing diversion rate, as well as to measure future progress, as the City develops its source reduction, recycling, and composting programs.

The amount of existing diversion of materials from solid waste disposal facilities was determined from: 1) regional data collected previously by Santa Clara County on existing diversion programs; 2) a telephone survey of processors conducted by CalRecovery that was supplemental to the County study (supplemental processor-based survey); and 3) a telephone survey of generators conducted by CalRecovery (generator-based survey). The regional data collection was conducted in March and April 1991, and the surveys conducted by CalRecovery were completed in August and September 1991.

The methodology used during the study is defined in the Test Plan developed for the work (see Appendix C). A description of the methodology and a presentation of the results of the supplemental processor-based and generator-based surveys conducted by CalRecovery are discussed in this section. In addition, the results of these surveys are combined with data gathered in the regional study for Santa Clara County to arrive at overall diversion figures for the City of Monte Sereno.

## SUPPLEMENTAL PROCESSOR-BASED SURVEY

A telephone survey of regional processors and other handlers of recyclable materials was undertaken to collect data on the quantity and composition of materials that are diverted from the solid waste stream. This survey was designed to supplement information on materials diversion that was gathered previously on a regional basis for Santa Clara County. The goal of the supplemental survey was to increase the response rate of the initial diversion survey.

The results of the regional processor survey are presented in Table 3. The results have been updated by CalRecovery with data provided since the completion of the County's study. The data in the table are presented for the residential, commercial, and self-haul sectors. The information indicates that the residential sector diverted 283.4 tons, the commercial sector diverted 0.4 tons, and self-haul diverted 370.2 tons for a total diversion of 654.0 tons. Approximately 299 tons, or about 46% of the total amount diverted, are diverted in the form of yard waste.

**Table 3. Results of Regional Processor Survey: City of Monte Sereno a)**
**Diverted Materials (Tons/Year, 1991)**

| Material | Residential | Commercial | Industrial | Self Haul | Totals |
|---|---|---|---|---|---|
| **1) TOTAL PAPER** | **187.2** | **0.4** | **0.0** | **0.0** | **187.6** |
| OCC/Kraft | 8.3 | 0.4 | | | 8.7 |
| Newspaper | 173.7 | | | | 173.7 |
| High-Grade | | | | | |
| Mixed | | | | | |
| Other | 5.2 | | | | 5.2 |
| **2) TOTAL PLASTICS** | **1.0** | **0.0** | **0.0** | **0.0** | **1.0** |
| HDPE | | | | | |
| PET | 1.0 | | | | 1.0 |
| Film | | | | | |
| Other | | | | | |
| **3) TOTAL GLASS** | **80.1** | **0.0** | **0.0** | **0.0** | **80.1** |
| Refillable Beverage | | | | | |
| Cal Redemption | 69.7 | | | | 69.7 |
| Other Recyclable | 10.4 | | | | 10.4 |
| Other Non-Recyclable | | | | | |
| **4) TOTAL METALS** | **9.4** | **0.0** | **0.0** | **59.6** | **69.0** |
| Aluminum Cans | 3.2 | | | 0.3 | 3.5 |
| Bimetal | | | | | |
| Tin F/B | 6.2 | | | 9.5 | 15.7 |
| Other Ferrous | | | | 41.8 | 41.8 |
| Other Aluminum | | | | 4.1 | 4.1 |
| Other Non-Ferrous | | | | 3.6 | 3.6 |
| White Goods | | | | 0.3 | 0.3 |
| **5) YARD WASTE** | **2.9** | **0.0** | **0.0** | **295.9** | **298.8** |
| **6) OTHER ORGANICS** | **2.8** | **0.0** | **0.0** | **14.7** | **17.5** |
| Food | | | | | |
| Tires/Rubber | | | | | |
| Wood | | | | 14.7 | 14.7 |
| Ag. Crop Residue | | | | | |
| Manure | | | | | |
| Textile/Leather | | | | | |
| Diapers | 2.8 | | | | 2.8 |
| Other Misc Org. | | | | | |
| **7) OTHER WASTES** | **0.0** | **0.0** | **0.0** | **0.0** | **0.0** |
| Inerts | | | | | |
| Batteries | | | | | |
| HHW b) | | | | | |
| **8) SPECIAL WASTES** | **0.0** | **0.0** | **0.0** | **0.0** | **0.0** |
| Ash | | | | | |
| Sewage Sludge | | | | | |
| Industrial Sludge | | | | | |
| Asbestos | | | | | |
| Auto Shredder Waste | | | | | |
| Auto Bodies | | | | | |
| Mattresses | | | | | |
| Other Special Waste | | | | | |
| Total | 283.4 | 0.4 | 0.0 | 370.2 | 654.0 |

Blanks indicate that no diversion was found for these materials.

a) Based on Regional Processor Survey, modified to include updated Guadalupe landfill diversion data.
b) Excludes 2.2 tons of waste oil per year from residential curbside collection program.

The waste categories and types used in the survey are the same as those utilized in the characterization of disposed solid waste. These categories and types meet the requirements of the California Integrated Waste Management Board (CIWMB).

## Methodology

A list of contacts was prepared consisting of processors that did not respond to the initial study conducted for the County, as well as processors that had not been included in the previous study. The list included processors that ranged in size from small local ones to large regional ones. Most of these processors are located within a 50-mile radius of the jurisdiction's boundaries.

Information solicited during the survey included: the types of materials accepted for diversion; the quantities accepted; and the source of the materials, by jurisdiction and sector.

A total of 100 processors were telephoned, including 88 non-respondents from the initial study conducted for the County. Two unanswered telephone calls to any potential respondent were treated as a non-response. An overall response rate of 82% was obtained. A breakdown of the response rate is presented below:

| | |
|---|---|
| Quantified data provided | 26% |
| Data not available | 21% |
| Area not serviced by respondent | 35% |
| No response | 18% |
| Total | 100% |

Quantity and composition data were reported by jurisdiction if available. When data were reported in aggregate form, apportionment of the data was based on the jurisdiction's percentage of the total service area population. Total service area was determined based on information provided by the respondent.

## Results

The results of the supplemental processor-based survey for the City of Monte Sereno are presented in Table 4. Only the quantities reported by processors are presented in the table; the data were not extrapolated to account for non-respondents. A list of the processors contacted during the survey is included in Appendix E. The list indicates the materials reported as recycled by each of the processors responding to the survey.

A discussion of the results by waste sector is provided in the following paragraphs.

### Residential/Commercial

As shown in Table 4, 260.5 tons/yr of materials were identified by the survey as being diverted by processors for the residential sector. Included in this amount are approximately 10 tons/yr of diverted materials that are attributable to the commercial sector.

**Table 4. Results of Supplemental Processor-based Survey: City of Monte Sereno**
**Diverted Materials (tons/year, 1991)**

| Waste Category/Type | Residential a) | Commercial a) | Industrial | Total |
|---|---|---|---|---|
| **1) TOTAL PAPER** | | | | |
| OCC/Kraft | 18.5 | | | 18.5 |
| Mixed | | | | |
| Newspaper | 108.5 | | | 108.5 |
| High-Grade | NA | | 1.0 | 1.0 |
| Other | 2.7 | | | 2.7 |
| **2) TOTAL PLASTICS** | | | | |
| HDPE | | | | |
| PET | 2.1 | | | 2.1 |
| Film | * | | | * |
| Other | | | | |
| **3) TOTAL GLASS** | | | | |
| Refillable Beverage | 0.3 | | | 0.3 |
| Cal Redemption | 74.1 | | | 74.1 |
| Other Recyclable | 7.7 | | | 7.7 |
| **4) TOTAL METALS** | | | | |
| Aluminum Cans | 18.9 | | | 18.9 |
| Bimetal | 0.4 | | | 0.4 |
| Tin F/B | | | | |
| Non-Ferrous | NA | | 16.0 | 16.0 |
| White Goods | 1.5 | | NA | 1.5 |
| Other | NA | | NA | |
| **5) YARD WASTE** | | | | |
| **6) OTHER ORGANICS** | | | | |
| Food | | | | |
| Tires/Rubber | NA | | | |
| Wood | 11.7 | | 93.6 | 105.3 |
| Ag. Crop Residue | | | | |
| Manure | | | | |
| Textile/Leather b) | 3.8 | | | 3.8 |
| Other Misc Org. | | | | |
| **7) OTHER WASTES** | | | | |
| Inerts | NA | | | |
| HHW c) | 10.3 | | 5.0 | 15.3 |
| **8) SPECIAL WASTES** | * | | NA | * |
| Total | 260.5 | | 115.6 | 376.1 |

NA: Quantity estimates either not available or could not be determined from available data.
Blanks indicate that no diversion was found for these materials.
* Includes less than 0.1 tons/yr.

a) Residential sector includes 10 tons/yr of diverted materials attributable to the commercial sector.
b) Includes 1 ton/yr reuse.
c) Residential HHW diverted includes used motor oil, batteries, and anti-freeze.

Information on quantities diverted were reported for: OCC/Kraft, newspaper, other paper, plastic beverage containers (PET), film plastic, refillable glass containers, California redemption glass, other recyclable glass, aluminum cans, bimetal cans, white goods, wood, textiles, household hazardous wastes, and special wastes. Other materials were reported as being recycled, but quantities for them were not available. These materials include: high-grade paper, non-ferrous and aluminum scrap, other metals, tires, and inerts.

The greatest supplementary quantities were reported for newspaper and California redemption glass, at 108.5 and 74.1 tons/yr, respectively. Film plastics, in the form of plastic shopping bags, are being returned to grocery stores outside the City to be recycled. Diverted household hazardous waste includes used motor oil, batteries, and anti-freeze. Diverted special waste includes dead animals, collected by a rendering company.

### Industrial

While the City of Monte Sereno has no industry, materials which are diverted from disposal in roll-off boxes are considered by the CIWMB as being diverted from the industrial sector. As stated in Table 4, 115.6 tons/yr of materials were identified by the survey as being diverted by processors for the industrial sector.

Diversion quantity data for the industrial sector were reported for high-grade paper, non-ferrous and aluminum scrap, wood, and hazardous wastes. Other materials that were identified as being recycled from the industrial sector are: white goods, other metals, and special wastes. Quantities were not available for these materials.

Wood accounts for about 81% of the quantified industrial diversion, most of which is processed into mulch. Wood waste that is processed into wood chips for use as boiler fuel is not included in these diversion figures.

## GENERATOR-BASED SURVEY

A survey of commercial waste generators in the City of Monte Sereno was undertaken to help estimate the quantity and composition of materials that are diverted from the solid waste stream. The data obtained during the survey complemented the data obtained during the survey of recyclable materials processors.

The categories and types of materials are identical to those utilized in the characterization of disposed solid waste. These categories and types meet the requirements of the California Integrated Waste Management Board.

### Methodology

A survey was conducted of institutions and commercial businesses in the City of Monte Sereno, in an effort to gather information on existing diversion activity by waste generators. This approach was used in order to identify materials that are diverted through means other than through the regional processors previously contacted.

The survey included questions on the types of materials recycled, quantities recycled (in volume or weight), materials preparation, market (recipient or collector), quantity of disposed waste, and number of employees. Source reduction activities were not included in the survey because they are difficult to quantify on a generator-by-generator basis.

The following commercial businesses and institutions were identified for the City of Monte Sereno: City Hall, American Red Cross, Central Fire District, Daves Avenue School, First Baptist Church, and Stable of Loma Serena. Due to the limited number of businesses and institutions to survey from, all were surveyed by telephone. Any potential respondent for whom no listing was found was treated as a non-response. Five of the six businesses and institutions responded to the survey; a response rate of 83% was achieved.

### Results

The results of the generator-based survey for the City of Monte Sereno are presented in Table 5. The survey identified 4.5 tons/yr of materials being diverted from the solid waste stream. Only the quantities reported by generators are presented in the table; the data were not extrapolated to account for non-responses.

At City Hall, newspaper, low-grade mixed paper, and aluminum cans are recycled. The American Red Cross recycles small quantities of cardboard. The church accepts aluminum containers (0.3 tons/yr) from the community for recycling. The school reported that it is involved in recycling, but no details were provided.

## COMBINED RESULTS

### Methodology

The results of the County-wide processor-based survey, the supplemental processor-based survey, and the generator-based survey were compiled to determine existing diversion rates for the City of Monte Sereno.

Available information on source and destination of the materials was evaluated in order to avoid double counting of materials. Data that were identified as overlapping in compiling the results of all the surveys were excluded from the results.

For some material types, insufficient information was made available by generators to determine the destination of certain materials and it was not possible to ascertain whether these materials had already been quantified during the processor surveys. These quantities have been excluded from the results, to guard against the possibility of overaccounting. Consequently, the reported levels of diversion are a conservative estimate.

**Table 5. Results of Generator-based Survey: City of Monte Sereno**
**Diverted Materials (tons/year, 1991)**

| Waste Category/Type | Quantity |
|---|---|
| **1) TOTAL PAPER** | |
| OCC/Kraft | 0.1 |
| Mixed | 0.9 |
| Newspaper | 3.2 |
| High-Grade | |
| Other | |
| **2) TOTAL PLASTICS** | |
| HDPE | |
| PET | |
| Film | |
| Other | |
| **3) TOTAL GLASS** | |
| Refillable Beverage | |
| Cal Redemption | |
| Other Recyclable | |
| **4) TOTAL METALS** | |
| Aluminum Cans | 0.3 |
| Bimetal | |
| Tin F/B | |
| Non-Ferrous | |
| White Goods | |
| Other | |
| **5) YARD WASTE** | NA |
| **6) OTHER ORGANICS** | |
| Food | |
| Tires/Rubber | |
| Wood | |
| Ag. Crop Residue | |
| Manure | |
| Textile/Leather | |
| Other Misc Org. | |
| **7) OTHER WASTES** | |
| Inerts | |
| HHW | |
| **8) SPECIAL WASTES** | |
| Total | 4.5 |

NA: Quantity estimates either not available or could not be determined from available data.

Blanks indicate that no diversion was found for these materials.

**Results**

Information presented in Table 6 summarizes, by material category and type, and by waste sector, the estimated diversion of materials. The existing level of diversion in the City of Monte Sereno is 1030.1 tons/yr. The residential and commercial sectors are diverting approximately 544.3 tons/yr; the industrial sector, 115.6 tons/yr; and self-haul, 370.2 tons/yr.

The primary materials that are being diverted from the City are yard waste, newspaper, glass beverage containers, and wood. Several other materials are being diverted as well.

**Table 6. Combined Results of Diversion Survey: City of Monte Sereno a)**
**Diverted Materials (tons/year, 1991)**

| Waste Category/Type | Residential b) | Commercial b) | Industrial | Self Haul | Total |
|---|---|---|---|---|---|
| **1) TOTAL PAPER** | | | | | |
| OCC/Kraft | 27.2 | | | | 27.2 |
| Mixed | | | | | |
| Newspaper | 282.2 | | | | 282.2 |
| High-Grade | NA | | 1.0 | | 1.0 |
| Other | 7.9 | | | | 7.9 |
| **2) TOTAL PLASTICS** | | | | | |
| HDPE | | | | | |
| PET | 3.1 | | | | 3.1 |
| Film | NA | | | | NA |
| Other | | | | | |
| **3) TOTAL GLASS** | | | | | |
| Refillable Beverage | 0.3 | | | | 0.3 |
| Cal Redemption | 143.8 | | | | 143.8 |
| Other Recyclable | 18.1 | | | | 18.1 |
| **4) TOTAL METALS** | | | | | |
| Aluminum Cans | 22.1 | | | 0.3 | 22.4 |
| Bimetal | 0.4 | | | | 0.4 |
| Tin F/B | 6.2 | | | 9.5 | 15.7 |
| Non-Fe | | | 16.0 | 7.7 | 23.7 |
| White Goods | 1.5 | | NA | 0.3 | 1.8 |
| Other | | | NA | 41.8 | 41.8 |
| **5) YARD WASTE** | 2.9 | | | 295.9 | 298.8 |
| **6) OTHER ORGANICS** | | | | | |
| Food | | | | | |
| Tires/Rubber | NA | | | | NA |
| Wood | 11.7 | | 93.6 | 14.7 | 120.0 |
| Ag. Crop Residue | | | | | |
| Manure | | | | | |
| Textile/Leather | 3.8 | | | | 3.8 |
| Other Misc Org. | 2.8 | | | | 2.8 |
| **7) OTHER WASTES** | | | | | |
| Inerts | NA | | | | NA |
| HHW | 10.3 | | 5.0 | | 15.3 |
| **8) SPECIAL WASTES** | NA | | NA | | |
| TOTALS | 544.3 | 0.0 | 115.6 | 370.2 | 1030.1 |

NA: Quantity estimates either not available or could not be determined from available data.
Blanks indicate that no diversion programs were found for these materials.

a) Excludes possible double accounting.
b) Residential sector includes diverted materials attributable to the commercial sector.

Section 4

# WASTE GENERATION

Generated waste is the sum of disposed waste and diverted waste. Waste generation quantity and composition data are used to plan diversion programs and thereafter to assist in the monitoring and documentation of the progress of programs implemented to achieve the mandated 25% and 50% diversion goals.

Table 7 presents, by waste category and type and by waste source, the estimated current quantities and composition of disposed, diverted, and generated waste for the City of Monte Sereno. Current diversion rates for each material are presented for the residential, commercial, industrial, and self-haul sectors and for the total solid waste stream. As shown in the table, the study determined the existing level of waste diversion to be approximately 24.8% (by weight) of the City's total generated waste. For particular materials, the diversion is relatively high. Where the diversion is 100% for a material, none of that material was encountered during the disposed waste study. Thus, the diversion is 100% of generation for that material. In other cases of high diversion (e.g., residential California redemption glass), substantial recycling was found to have occurred.

Fifteen-year projections of total disposed, diverted, and generated wastes under existing conditions are shown in Table 8. The data in the table are presented by waste category and type. The projected waste generation quantities are based on the following population projections published by the Association of Bay Area Governments (ABAG):

| Year | Population |
|---|---|
| 1990 | 4,300 |
| 1995 | 4,250 |
| 2000 | 4,250 |
| 2005 | 4,300 |

The population projections from ABAG are used only to calculate the escalation rate of the disposed waste quantities. Population data were interpolated to provide yearly estimates.

Table 7. Estimated 1991 Annual Quantities in TPY and Diversion Rates (%) for Disposed, Diverted, And Generated Wastes -- City of Monte Sereno

| | RESIDENTIAL | | | | COMMERCIAL | | | | INDUSTRIAL | | | | SELF-HAUL | | | | TOTAL | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Material | DISP | DIV | GEN | % DIV | DISP | DIV | GEN | % DIV | DISP | DIV | GEN | % DIV | DISP | DIV | GEN | % DIV | DISP | DIV | GEN | % DIV |
| **1) TOTAL PAPER** | **499** | **317** | **815** | **38.9** | | | | | **54** | **1** | **55** | **1.8** | **1** | | **1** | **0.0** | **553** | **318** | **871** | **36.5** |
| OCC/Kraft | 98 | 27 | 125 | 21.5 | | | | | 18 | | 18 | 0.0 | 1 | | 1 | 0.0 | 117 | 27 | 144 | 18.7 |
| Mixed | 225 | | 225 | 0.0 | | | | | 4 | | 4 | 0.0 | 1 | | 1 | 0.0 | 230 | | 230 | 0.0 |
| Newspaper | 127 | 282 | 409 | 69.0 | | | | | 27 | | 27 | 0.0 | 0 | | 0 | 0.0 | 154 | 282 | 436 | 64.7 |
| High-Grade | | | | | | | | | | 1 | 1 | 100.0 | 0 | | 0 | 0.0 | 0 | 1 | 1 | 99.5 |
| Other | 48 | 8 | 56 | 14.1 | | | | | 4 | | 4 | 0.0 | 0 | | 0 | 0.0 | 53 | 8 | 60 | 13.1 |
| **2) TOTAL PLASTICS** | **106** | **3** | **110** | **2.8** | | | | | **103** | | **103** | **0.0** | **0** | | **0** | **0.0** | **210** | **3** | **213** | **1.5** |
| HDPE | 17 | | 17 | 0.0 | | | | | 13 | | 13 | 0.0 | 0 | | 0 | 0.0 | 30 | | 30 | 0.0 |
| PET | 4 | 3 | 7 | 42.1 | | | | | 4 | | 4 | 0.0 | 0 | | 0 | 0.0 | 9 | 3 | 12 | 26.2 |
| Film | 27 | | 27 | 0.0 | | | | | 7 | | 7 | 0.0 | 0 | | 0 | 0.0 | 34 | | 34 | 0.0 |
| Other | 58 | | 58 | 0.0 | | | | | 78 | | 78 | 0.0 | 0 | | 0 | 0.0 | 136 | | 136 | 0.0 |
| **3) TOTAL GLASS** | **52** | **162** | **214** | **75.7** | | | | | **7** | | **7** | **0.0** | **0** | | **0** | **0.0** | **59** | **162** | **221** | **73.4** |
| Refillable Beverage | | 0 | | | | | | | | | | | 0 | | 0 | 0.0 | 0 | 0 | 0 | 99.9 |
| Cal Redemption | 17 | 144 | 161 | 89.5 | | | | | 7 | | 7 | 0.0 | 0 | | 0 | 0.0 | 24 | 144 | 167 | 85.9 |
| Other Recyclable | 35 | 18 | 53 | 34.0 | | | | | | | | | 0 | | 0 | 0.0 | 35 | 18 | 53 | 34.0 |
| Other Non-Recycl | | | | | | | | | | | | | 0 | | 0 | 0.0 | 0 | | 0 | 0.0 |
| **4) TOTAL METALS** | **46** | **30** | **77** | **39.4** | | | | | **125** | **16** | **141** | **11.4** | **2** | **60** | **61** | **97.5** | **173** | **106** | **279** | **38.0** |
| Aluminum Cans | 19 | 22 | 41 | 53.6 | | | | | 13 | | 13 | 0.0 | 0 | 0 | 0 | 95.3 | 33 | 22 | 55 | 40.8 |
| Bimetal | | 0 | | | | | | | | | | | 0 | | 0 | 0.0 | 0 | 0 | 0 | 99.0 |
| Tin F/B | 7 | 6 | 13 | 46.3 | | | | | | | | | 0 | 10 | 10 | 100.0 | 7 | 16 | 23 | 68.6 |
| Non-Fe | 4 | | 4 | 0.0 | | | | | 27 | 16 | 43 | 37.4 | 0 | 8 | 8 | 98.3 | 31 | 24 | 55 | 43.2 |
| White Goods | 0 | 2 | 2 | 100.0 | | | | | | | | | 0 | 0 | 1 | 40.1 | 0 | 2 | 2 | 80.1 |
| Other | 16 | | 16 | 0.0 | | | | | 85 | | 85 | 0.0 | 1 | 42 | 43 | 97.8 | 102 | 42 | 143 | 29.2 |
| **5) YARD WASTE** | **690** | **3** | **692** | **0.4** | | | | | **169** | | **169** | **0.0** | **32** | **296** | **328** | **90.1** | **891** | **299** | **1190** | **25.1** |
| **6) OTHER ORGANICS** | **313** | **18** | **331** | **5.5** | | | | | **852** | **94** | **946** | **9.9** | **15** | **15** | **30** | **49.0** | **1180** | **127** | **1307** | **9.7** |
| Food | 35 | | 35 | 0.0 | | | | | | | | | 0 | | 0 | 0.0 | 35 | | 35 | 0.0 |
| Tires/Rubber | | | | | | | | | 13 | | 13 | 0.0 | 0 | | 0 | 0.0 | 13 | | 13 | 0.0 |
| Wood | 49 | 12 | 60 | 19.4 | | | | | 736 | 94 | 830 | 11.3 | 15 | 15 | 30 | 49.6 | 799 | 120 | 920 | 13.1 |
| Ag. Crop Residue | | | | | | | | | | | | | | | | | | | | |
| Manure | | | | | | | | | | | | | | | | | | | | |
| Textile/Leather | 169 | 4 | 173 | 2.2 | | | | | 71 | | 71 | 0.0 | 0 | | 0 | 0.0 | 241 | 4 | 245 | 1.6 |
| Other Misc Org. | 60 | 3 | 63 | 4.4 | | | | | 31 | | 31 | 0.0 | 0 | | 0 | 0.0 | 91 | 3 | 94 | 3.0 |
| **7) OTHER WASTES** | | **10** | **10** | **100.0** | | | | | **22** | **5** | **27** | **18.3** | **23** | **0** | **23** | **0.0** | **45** | **15** | **60** | **25.3** |
| Inerts | | | | 0.0 | | | | | 22 | | 22 | 0.0 | 23 | | 23 | 0.0 | 45 | | 45 | 0.0 |
| HHW | | 10 | 10 | 100.0 | | | | | | 5 | 5 | 100.0 | 0 | | 0 | 0.0 | 0 | 15 | 15 | 99.7 |
| **8) SPECIAL WASTES** | | | | **0.0** | | | | | **7** | | **7** | **0.0** | **0** | | **0** | **0.0** | **7** | | **7** | **0.0** |
| TOTALS | 1706 | 544 | 2249 | 24.2 | 0 | 0 | 0 | 0.0 | 1338 | 116 | 1454 | 8.0 | 74 | 370 | 444 | 83.3 | 3118 | 1030 | 4148 | 24.8 |

Note: A (0) for a disposed or diverted material type indicates a quantity less than 0.5 tons/year. A blank signifies no quantity reported.

**Table 8. Projected Disposed, Diverted, and Generated at Current Conditions -- City of Monte Sereno**
**(Quantities in Tons/Year)**

Part 1, of 2

| Material | 1991 | | | 1992 | | | 1993 | | | 1994 | | | 1995 | | | 1996 | | | 1997 | | | 1998 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | DISP | DIV | GEN | DISP | DIV | GEN | DISP | DIV | GEN | DISP | DIV | GEN | DISP | DIV | GEN | DISP | DIV | GEN | DISP | DIV | GEN | DISP | DIV | GEN |
| **1) TOTAL PAPER** | 553 | 318 | 871 | 552 | 317 | 870 | 551 | 317 | 868 | 550 | 316 | 866 | 549 | 315 | 864 | 549 | 315 | 864 | 549 | 315 | 864 | 549 | 315 | 864 |
| OCC/Kraft | 117 | 27 | 144 | 117 | 27 | 144 | 116 | 27 | 143 | 116 | 27 | 143 | 116 | 27 | 143 | 116 | 27 | 143 | 116 | 27 | 143 | 116 | 27 | 143 |
| Mixed | 230 | | 230 | 230 | | 230 | 230 | | 230 | 229 | | 229 | 229 | | 229 | 229 | | 229 | 229 | | 229 | 229 | | 229 |
| Newspaper | 154 | 282 | 436 | 153 | 282 | 435 | 153 | 281 | 434 | 153 | 281 | 433 | 152 | 280 | 432 | 152 | 280 | 432 | 152 | 280 | 432 | 152 | 280 | 432 |
| High-Grade | 0 | 1 | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 0 | 1 | 1 |
| Other | 53 | 8 | 60 | 52 | 8 | 60 | 52 | 8 | 60 | 52 | 8 | 60 | 52 | 8 | 60 | 52 | 8 | 60 | 52 | 8 | 60 | 52 | 8 | 60 |
| **2) TOTAL PLASTICS** | 210 | 3 | 213 | 209 | 3 | 212 | 209 | 3 | 212 | 208 | 3 | 211 | 208 | 3 | 211 | 208 | 3 | 211 | 208 | 3 | 211 | 208 | 3 | 211 |
| HDPE | 30 | | 30 | 30 | | 30 | 30 | | 30 | 30 | | 30 | 30 | | 30 | 30 | | 30 | 30 | | 30 | 30 | | 30 |
| PET | 9 | 3 | 12 | 9 | 3 | 12 | 9 | 3 | 12 | 9 | 3 | 12 | 9 | 3 | 12 | 9 | 3 | 12 | 9 | 3 | 12 | 9 | 3 | 12 |
| Film | 34 | | 34 | 34 | | 34 | 34 | | 34 | 34 | | 34 | 34 | | 34 | 34 | | 34 | 34 | | 34 | 34 | | 34 |
| Other | 136 | | 136 | 136 | | 136 | 135 | | 135 | 135 | | 135 | 135 | | 135 | 135 | | 135 | 135 | | 135 | 135 | | 135 |
| **3) TOTAL GLASS** | 59 | 162 | 221 | 59 | 162 | 221 | 59 | 162 | 220 | 59 | 161 | 220 | 58 | 161 | 219 | 58 | 161 | 219 | 58 | 161 | 219 | 58 | 161 | 219 |
| Refillable Beverage | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Cal Redemption | 24 | 144 | 167 | 24 | 144 | 167 | 23 | 143 | 167 | 23 | 143 | 166 | 23 | 143 | 166 | 23 | 143 | 166 | 23 | 143 | 166 | 23 | 143 | 166 |
| Other Recyclable | 35 | 18 | 53 | 35 | 18 | 53 | 35 | 18 | 53 | 35 | 18 | 53 | 35 | 18 | 53 | 35 | 18 | 53 | 35 | 18 | 53 | 35 | 18 | 53 |
| Other Non-Recycl | 0 | | 0 | 0 | | 0 | 0 | | 0 | 0 | | 0 | 0 | | 0 | 0 | | 0 | 0 | | 0 | 0 | | 0 |
| **4) TOTAL METALS** | 173 | 106 | 279 | 173 | 106 | 278 | 172 | 105 | 278 | 172 | 105 | 277 | 171 | 105 | 276 | 171 | 105 | 276 | 171 | 105 | 276 | 171 | 105 | 276 |
| Aluminum Cans | 33 | 22 | 55 | 32 | 22 | 55 | 32 | 22 | 55 | 32 | 22 | 55 | 32 | 22 | 55 | 32 | 22 | 55 | 32 | 22 | 55 | 32 | 22 | 55 |
| Bimetal | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Tin F/B | 7 | 16 | 23 | 7 | 16 | 23 | 7 | 16 | 23 | 7 | 16 | 23 | 7 | 16 | 23 | 7 | 16 | 23 | 7 | 16 | 23 | 7 | 16 | 23 |
| Non-Fe | 31 | 24 | 55 | 31 | 24 | 55 | 31 | 24 | 55 | 31 | 24 | 55 | 31 | 24 | 54 | 31 | 24 | 54 | 31 | 24 | 54 | 31 | 24 | 54 |
| White Goods | 0 | 2 | 2 | 0 | 2 | 2 | 0 | 2 | 2 | 0 | 2 | 2 | 0 | 2 | 2 | 0 | 2 | 2 | 0 | 2 | 2 | 0 | 2 | 2 |
| Other | 102 | 42 | 143 | 101 | 42 | 143 | 101 | 42 | 143 | 101 | 42 | 142 | 101 | 41 | 142 | 101 | 41 | 142 | 101 | 41 | 142 | 101 | 41 | 142 |
| **5) YARD WASTE** | 891 | 299 | 1190 | 890 | 298 | 1188 | 888 | 298 | 1185 | 886 | 297 | 1183 | 884 | 296 | 1181 | 884 | 296 | 1181 | 884 | 296 | 1181 | 884 | 296 | 1181 |
| **6) OTHER ORGANICS** | 1180 | 127 | 1307 | 1178 | 126 | 1304 | 1175 | 126 | 1301 | 1173 | 126 | 1299 | 1171 | 126 | 1296 | 1171 | 126 | 1296 | 1171 | 126 | 1296 | 1171 | 126 | 1296 |
| Food | 35 | | 35 | 35 | | 35 | 35 | | 35 | 35 | | 35 | 35 | | 35 | 35 | | 35 | 35 | | 35 | 35 | | 35 |
| Tires/Rubber | 13 | | 13 | 13 | | 13 | 13 | | 13 | 13 | | 13 | 13 | | 13 | 13 | | 13 | 13 | | 13 | 13 | | 13 |
| Wood | 799 | 120 | 919 | 798 | 120 | 918 | 796 | 120 | 916 | 795 | 119 | 914 | 793 | 119 | 912 | 793 | 119 | 912 | 793 | 119 | 912 | 793 | 119 | 912 |
| Ag. Crop Residue | | | | | | | | | | | | | | | | | | | | | | | | |
| Manure | | | | | | | | | | | | | | | | | | | | | | | | |
| Textile/Leather | 241 | 4 | 245 | 240 | 4 | 244 | 240 | 4 | 244 | 239 | 4 | 243 | 239 | 4 | 243 | 239 | 4 | 243 | 239 | 4 | 243 | 239 | 4 | 243 |
| Other Misc Org. | 91 | 3 | 94 | 91 | 3 | 94 | 91 | 3 | 94 | 91 | 3 | 94 | 91 | 3 | 93 | 91 | 3 | 93 | 91 | 3 | 93 | 91 | 3 | 93 |
| **7) OTHER WASTES** | 45 | 15 | 60 | 45 | 15 | 60 | 45 | 15 | 60 | 45 | 15 | 60 | 45 | 15 | 60 | 45 | 15 | 60 | 45 | 15 | 60 | 45 | 15 | 60 |
| Inerts | 45 | | 45 | 45 | | 45 | 45 | | 45 | 45 | | 45 | 45 | | 45 | 45 | | 45 | 45 | | 45 | 45 | | 45 |
| HHW | 0 | 15 | 15 | 0 | 15 | 15 | 0 | 15 | 15 | 0 | 15 | 15 | 0 | 15 | 15 | 0 | 15 | 15 | 0 | 15 | 15 | 0 | 15 | 15 |
| **8) SPECIAL WASTES** | 7 | | 7 | 7 | | 7 | 7 | | 7 | 7 | | 7 | 7 | | 7 | 7 | | 7 | 7 | | 7 | 7 | | 7 |
| TOTALS | 3118 | 1030 | 4148 | 3112 | 1028 | 4140 | 3106 | 1026 | 4132 | 3099 | 1024 | 4123 | 3093 | 1022 | 4115 | 3093 | 1022 | 4115 | 3093 | 1022 | 4115 | 3093 | 1022 | 4115 |

Note: A (0) for a disposed or diverted material type indicates a quantity less than 0.5 tons/year. A blank signifies no quantity reported.

Table 8. Projected Disposed, Diverted, and Generated at Current Conditions -- City of Monte Sereno
(Quantities in Tons/Year)

Part 2, of 2

| Material | 1999 | | | 2000 | | | 2001 | | | 2002 | | | 2003 | | | 2004 | | | 2005 | | | 2006 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | DISP | DIV | GEN | DISP | DIV | GEN | DISP | DIV | GEN | DISP | DIV | GEN | DISP | DIV | GEN | DISP | DIV | GEN | DISP | DIV | GEN | DISP | DIV | GEN |
| 1) TOTAL PAPER | 549 | 315 | 864 | 549 | 315 | 864 | 550 | 316 | 866 | 551 | 317 | 868 | 552 | 317 | 870 | 553 | 318 | 871 | 554 | 319 | 873 | 556 | 319 | 875 |
| OCC/Kraft | 116 | 27 | 143 | 116 | 27 | 143 | 116 | 27 | 143 | 116 | 27 | 143 | 117 | 27 | 144 | 117 | 27 | 144 | 117 | 27 | 144 | 117 | 27 | 145 |
| Mixed | 229 | | 229 | 229 | | 229 | 229 | | 229 | 230 | | 230 | 230 | | 230 | 230 | | 230 | 231 | | 231 | 231 | | 231 |
| Newspaper | 152 | 280 | 432 | 152 | 280 | 432 | 153 | 281 | 433 | 153 | 281 | 434 | 153 | 282 | 435 | 154 | 282 | 436 | 154 | 283 | 437 | 154 | 283 | 438 |
| High-Grade | 0 | 1 | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 0 | 1 | 1 |
| Other | 52 | 8 | 60 | 52 | 8 | 60 | 52 | 8 | 60 | 52 | 8 | 60 | 52 | 8 | 60 | 53 | 8 | 60 | 53 | 8 | 61 | 53 | 8 | 61 |
| 2) TOTAL PLASTICS | 208 | 3 | 211 | 208 | 3 | 211 | 208 | 3 | 211 | 209 | 3 | 212 | 209 | 3 | 212 | 210 | 3 | 213 | 210 | 3 | 213 | 210 | 3 | 213 |
| HDPE | 30 | | 30 | 30 | | 30 | 30 | | 30 | 30 | | 30 | 30 | | 30 | 30 | | 30 | 31 | | 31 | 31 | | 31 |
| PET | 9 | 3 | 12 | 9 | 3 | 12 | 9 | 3 | 12 | 9 | 3 | 12 | 9 | 3 | 12 | 9 | 3 | 12 | 9 | 3 | 12 | 9 | 3 | 12 |
| Film | 34 | | 34 | 34 | | 34 | 34 | | 34 | 34 | | 34 | 34 | | 34 | 34 | | 34 | 35 | | 35 | 35 | | 35 |
| Other | 135 | | 135 | 135 | | 135 | 135 | | 135 | 135 | | 135 | 136 | | 136 | 136 | | 136 | 136 | | 136 | 136 | | 136 |
| 3) TOTAL GLASS | 58 | 161 | 219 | 58 | 161 | 219 | 59 | 161 | 220 | 59 | 162 | 220 | 59 | 162 | 221 | 59 | 162 | 221 | 59 | 163 | 222 | 59 | 163 | 222 |
| Refillable Beverage | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Cal Redemption | 23 | 143 | 166 | 23 | 143 | 166 | 23 | 143 | 166 | 23 | 143 | 167 | 24 | 144 | 167 | 24 | 144 | 167 | 24 | 144 | 168 | 24 | 144 | 168 |
| Other Recyclable | 35 | 18 | 53 | 35 | 18 | 53 | 35 | 18 | 53 | 35 | 18 | 53 | 35 | 18 | 53 | 35 | 18 | 53 | 35 | 18 | 53 | 35 | 18 | 53 |
| Other Non-Recycl | 0 | | 0 | 0 | | 0 | 0 | | 0 | 0 | | 0 | 0 | | 0 | 0 | | 0 | 0 | | 0 | 0 | | 0 |
| 4) TOTAL METALS | 171 | 105 | 276 | 171 | 105 | 276 | 172 | 105 | 277 | 172 | 105 | 278 | 173 | 106 | 278 | 173 | 106 | 279 | 173 | 106 | 279 | 174 | 106 | 280 |
| Aluminum Cans | 32 | 22 | 55 | 32 | 22 | 55 | 32 | 22 | 55 | 32 | 22 | 55 | 32 | 22 | 55 | 33 | 22 | 55 | 33 | 22 | 55 | 33 | 22 | 55 |
| Bimetal | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Tin F/B | 7 | 16 | 23 | 7 | 16 | 23 | 7 | 16 | 23 | 7 | 16 | 23 | 7 | 16 | 23 | 7 | 16 | 23 | 7 | 16 | 23 | 7 | 16 | 23 |
| Non-Fe | 31 | 24 | 54 | 31 | 24 | 54 | 31 | 24 | 55 | 31 | 24 | 55 | 31 | 24 | 55 | 31 | 24 | 55 | 31 | 24 | 55 | 31 | 24 | 55 |
| White Goods | 0 | 2 | 2 | 0 | 2 | 2 | 0 | 2 | 2 | 0 | 2 | 2 | 0 | 2 | 2 | 0 | 2 | 2 | 0 | 2 | 2 | 0 | 2 | 2 |
| Other | 101 | 41 | 142 | 101 | 41 | 142 | 101 | 42 | 142 | 101 | 42 | 143 | 101 | 42 | 143 | 102 | 42 | 143 | 102 | 42 | 144 | 102 | 42 | 144 |
| 5) YARD WASTE | 884 | 296 | 1181 | 884 | 296 | 1181 | 886 | 297 | 1183 | 888 | 298 | 1185 | 890 | 298 | 1188 | 891 | 299 | 1190 | 893 | 299 | 1193 | 895 | 300 | 1195 |
| 6) OTHER ORGANICS | 1171 | 126 | 1296 | 1171 | 126 | 1296 | 1173 | 126 | 1299 | 1175 | 126 | 1301 | 1178 | 126 | 1304 | 1180 | 127 | 1307 | 1182 | 127 | 1309 | 1185 | 127 | 1312 |
| Food | 35 | | 35 | 35 | | 35 | 35 | | 35 | 35 | | 35 | 35 | | 35 | 35 | | 35 | 35 | | 35 | 35 | | 35 |
| Tires/Rubber | 13 | | 13 | 13 | | 13 | 13 | | 13 | 13 | | 13 | 13 | | 13 | 13 | | 13 | 13 | | 13 | 13 | | 13 |
| Wood | 793 | 119 | 912 | 793 | 119 | 912 | 795 | 119 | 914 | 796 | 120 | 916 | 798 | 120 | 918 | 799 | 120 | 919 | 801 | 120 | 921 | 803 | 120 | 923 |
| Ag. Crop Residue | | | | | | | | | | | | | | | | | | | | | | | | |
| Manure | | | | | | | | | | | | | | | | | | | | | | | | |
| Textile/Leather | 239 | 4 | 243 | 239 | 4 | 243 | 239 | 4 | 243 | 240 | 4 | 244 | 240 | 4 | 244 | 241 | 4 | 245 | 241 | 4 | 245 | 242 | 4 | 246 |
| Other Misc Org. | 91 | 3 | 93 | 91 | 3 | 93 | 91 | 3 | 94 | 91 | 3 | 94 | 91 | 3 | 94 | 91 | 3 | 94 | 92 | 3 | 94 | 92 | 3 | 95 |
| 7) OTHER WASTES | 45 | 15 | 60 | 45 | 15 | 60 | 45 | 15 | 60 | 45 | 15 | 60 | 45 | 15 | 60 | 45 | 15 | 60 | 45 | 15 | 61 | 45 | 15 | 61 |
| Inerts | 45 | | 45 | 45 | | 45 | 45 | | 45 | 45 | | 45 | 45 | | 45 | 45 | | 45 | 45 | | 45 | 45 | | 45 |
| HHW | 0 | 15 | 15 | 0 | 15 | 15 | 0 | 15 | 15 | 0 | 15 | 15 | 0 | 15 | 15 | 0 | 15 | 15 | 0 | 15 | 15 | 0 | 15 | 15 |
| 8) SPECIAL WASTES | 7 | | 7 | 7 | | 7 | 7 | | 7 | 7 | | 7 | 7 | | 7 | 7 | | 7 | 7 | | 7 | 7 | | 7 |
| TOTALS | 3093 | 1022 | 4115 | 3093 | 1022 | 4115 | 3099 | 1024 | 4123 | 3106 | 1026 | 4132 | 3112 | 1028 | 4140 | 3118 | 1030 | 4148 | 3124 | 1032 | 4156 | 3130 | 1034 | 4165 |

Note: A (0) for a disposed or diverted material type indicates a quantity less than 0.5 tons/year. A blank signifies no quantity reported.

## Section 4

### WASTE GENERATION

Fifteen-year projections of total disposed, diverted, and generated wastes under those conditions expected to be realized after the City's implementation of its Source Reduction and Recycling Element are shown in Tables 10 and 11. The data in Table 10 reflect such projected quantities for 1995 and 2000. Table 11 lists projected quantities diverted for each year from 1991 through 2006. The data in each of the tables are presented by waste category and type. As was done for Table 9, the projected waste quantities are based on the following population projections published by the Association of Bay Area Governments (ABAG):

| Year | Population |
|---|---|
| 1990 | 4,300 |
| 1995 | 4,250 |
| 2000 | 4,250 |
| 2005 | 4,300 |

The population projections from ABAG are used only to calculate the escalation rate of the disposed waste quantities. Population data were interpolated to provide yearly estimates.

**Waste Types Targeted for Diversion**

The following is a list of the waste types that are currently disposed of in the City of Monte Sereno that are targeted for potential through the diversion programs identified in the Source Reduction, Recycling, Composting, and Special Waste Components (Sections 3 through 6). Only those materials that can be counted towards the AB 939 diversion mandates are shown.

**Paper**
- Corrugated containers
- Newspaper

**Plastics**
- PETe containers

**Yard Waste**

**Metals**
- Aluminum cans
- Steel food/beverage cans
- Non-ferrous, incl. aluminum scrap, white goods
- Other ferrous

**Other Organics**
- Wood wastes
- Textiles/Leather
- Other Misc. Organics

**Glass**
- CA Redemption Value
- Other recyclable glass

**Waste Types Targeted for Disposal**

The following list identifies the materials that are currently being disposed of in Monte Sereno that will not be diverted from disposal by the programs identified in Sections 3 through 6. The programs identified in Sections 3 through 6 do not target the following list of materials because (1) the waste type is difficult to recycle; (2) the quantity being disposed of is relatively insignificant; or (3) there is no existing market. Only those materials that qualify as solid waste under AB 939 are shown.

**Paper**
- Mixed Paper
- High-grade Ledger
- Other Paper

**Plastics**
- HDPE
- Film plastics
- Other plastics

**Metals**
- Bi-metal containers

**Glass**
- Refillable beverage containers

**Other Organics**
- Food waste
- Agricultural crop residue
- Manure
- Tires/rubber

**Other Wastes**
- Inert Solids

**Table 9. Projected Disposed, Diverted, and Generated Waste for 1995 and 2000 -- City of Monte Sereno**
**(Quantities in Tons/Year)**

| Material | 1995 DISP | 1995 DIV | 1995 GEN | 1995 % DIV | 2000 DISP | 2000 DIV | 2000 GEN | 2000 % DIV |
|---|---|---|---|---|---|---|---|---|
| **1) TOTAL PAPER** | **476** | **388** | **864** | **44.9** | **402** | **463** | **864** | **53.5** |
| OCC/Kraft | 93 | 49 | 143 | 34.7 | 62 | 80 | 143 | 56.3 |
| Mixed | 229 | 0 | 229 | 0.0 | 229 | 0 | 229 | 0.0 |
| Newspaper | 108 | 324 | 432 | 75.0 | 68 | 365 | 432 | 84.3 |
| High-Grade | 0 | 1 | 1 | 89.4 | 0 | 1 | 1 | 89.4 |
| Other | 46 | 14 | 60 | 23.1 | 43 | 17 | 60 | 27.7 |
| **2) TOTAL PLASTICS** | **207** | **4** | **211** | **2.1** | **204** | **7** | **211** | **3.1** |
| HDPE | 30 | 0 | 30 | 0.0 | 30 | 0 | 30 | 0.0 |
| PET | 7 | 4 | 12 | 37.3 | 5 | 7 | 12 | 55.9 |
| Film | 34 | 0 | 34 | 0.0 | 34 | 0 | 34 | 0.0 |
| Other | 135 | 0 | 135 | 0.0 | 135 | 0 | 135 | 0.0 |
| **3) TOTAL GLASS** | **55** | **164** | **219** | **74.9** | **44** | **175** | **219** | **79.8** |
| Refillable Beverage | 0 | 0 | 0 | 0.0 | 0 | 0 | 0 | 0.0 |
| Cal Redemption | 23 | 143 | 166 | 86.3 | 15 | 151 | 166 | 91.0 |
| Other Recyclable | 32 | 21 | 53 | 39.9 | 29 | 24 | 53 | 44.9 |
| Other Non-Recyclable | 0 | 0 | 0 | 0.0 | 0 | 0 | 0 | 0.0 |
| **4) TOTAL METALS** | **158** | **118** | **276** | **41.3** | **148** | **128** | **276** | **45.4** |
| Aluminum Cans | 22 | 33 | 55 | 60.0 | 18 | 37 | 55 | 67.5 |
| Bimetal | 0 | 0 | 0 | 0.0 | 0 | 0 | 0 | 0.0 |
| Tin F/B | 8 | 15 | 23 | 49.0 | 6 | 16 | 23 | 60.7 |
| Non-Fe | 26 | 29 | 54 | 52.5 | 22 | 33 | 54 | 60.2 |
| White Goods | 1 | 2 | 2 | 76.6 | 0 | 2 | 2 | 84.9 |
| Other | 102 | 40 | 142 | 28.3 | 102 | 40 | 142 | 28.3 |
| **5) YARD WASTE** | **871** | **309** | **1181** | **26.2** | **428** | **753** | **1181** | **63.7** |
| **6) OTHER ORGANICS** | **1000** | **296** | **1296** | **22.9** | **604** | **692** | **1296** | **53.4** |
| Food | 35 | 0 | 35 | 0.0 | 35 | 0 | 35 | 0.0 |
| Tires/Rubber | 13 | 0 | 13 | 0.0 | 13 | 0 | 13 | 0.0 |
| Wood | 636 | 276 | 912 | 30.3 | 257 | 655 | 912 | 71.8 |
| Ag. Crop Residue | 0 | 0 | 0 | 0.0 | 0 | 0 | 0 | 0.0 |
| Manure | 0 | 0 | 0 | 0.0 | 0 | 0 | 0 | 0.0 |
| Textile/Leather | 226 | 17 | 243 | 7.1 | 208 | 34 | 243 | 14.1 |
| Other Misc Org. | 90 | 3 | 93 | 3.3 | 90 | 3 | 93 | 3.3 |
| **7) OTHER WASTES** | **46** | **14** | **60** | **22.7** | **46** | **14** | **60** | **22.7** |
| Inerts | 45 | 0 | 45 | 0.0 | 45 | 0 | 45 | 0.0 |
| HHW | 2 | 14 | 15 | 89.6 | 2 | 14 | 15 | 89.6 |
| **8) SPECIAL WASTES** | **7** | **0** | **7** | **0.0** | **7** | **0** | **7** | **0.0** |
| TOTALS | 2820 | 1295 | 4115 | **31.5** | 1884 | 2231 | 4115 | **54.2** |

Totals may not sum exactly due to rounding.

Note: A (0) for a disposed or diverted waste type indicates a quantity less than 0.5 tons/year.

CalRecovery, Inc. MSRNO 9.WQ1

**Table 9. Projected Disposed, Diverted, and Generated Waste for 1995 and 2000 -- City of Monte Sereno**
**(Quantities in Tons/Year)**

| Material | 1995 DISP | 1995 DIV | 1995 GEN | 1995 % DIV | 2000 DISP | 2000 DIV | 2000 GEN | 2000 % DIV |
|---|---|---|---|---|---|---|---|---|
| **1) TOTAL PAPER** | **476** | **388** | **864** | **44.9** | **402** | **463** | **864** | **53.5** |
| OCC/Kraft | 93 | 49 | 143 | 34.7 | 62 | 80 | 143 | 56.3 |
| Mixed | 229 | 0 | 229 | 0.0 | 229 | 0 | 229 | 0.0 |
| Newspaper | 108 | 324 | 432 | 75.0 | 68 | 365 | 432 | 84.3 |
| High-Grade | 0 | 1 | 1 | 89.4 | 0 | 1 | 1 | 89.4 |
| Other | 46 | 14 | 60 | 23.1 | 43 | 17 | 60 | 27.7 |
| **2) TOTAL PLASTICS** | **207** | **4** | **211** | **2.1** | **204** | **7** | **211** | **3.1** |
| HDPE | 30 | 0 | 30 | 0.0 | 30 | 0 | 30 | 0.0 |
| PET | 7 | 4 | 12 | 37.3 | 5 | 7 | 12 | 55.9 |
| Film | 34 | 0 | 34 | 0.0 | 34 | 0 | 34 | 0.0 |
| Other | 135 | 0 | 135 | 0.0 | 135 | 0 | 135 | 0.0 |
| **3) TOTAL GLASS** | **55** | **164** | **219** | **74.9** | **44** | **175** | **219** | **79.8** |
| Refillable Beverage | 0 | 0 | 0 | 0.0 | 0 | 0 | 0 | 0.0 |
| Cal Redemption | 23 | 143 | 166 | 86.3 | 15 | 151 | 166 | 91.0 |
| Other Recyclable | 32 | 21 | 53 | 39.9 | 29 | 24 | 53 | 44.9 |
| Other Non-Recyclable | 0 | 0 | 0 | 0.0 | 0 | 0 | 0 | 0.0 |
| **4) TOTAL METALS** | **158** | **118** | **276** | **41.3** | **148** | **128** | **276** | **45.4** |
| Aluminum Cans | 22 | 33 | 55 | 60.0 | 18 | 37 | 55 | 67.5 |
| Bimetal | 0 | 0 | 0 | 0.0 | 0 | 0 | 0 | 0.0 |
| Tin F/B | 8 | 15 | 23 | 49.0 | 6 | 16 | 23 | 60.7 |
| Non-Fe | 26 | 29 | 54 | 52.5 | 22 | 33 | 54 | 60.2 |
| White Goods | 1 | 2 | 2 | 76.6 | 0 | 2 | 2 | 84.9 |
| Other | 102 | 40 | 142 | 28.3 | 102 | 40 | 142 | 28.3 |
| **5) YARD WASTE** | **871** | **309** | **1181** | **26.2** | **428** | **753** | **1181** | **63.7** |
| **6) OTHER ORGANICS** | **1000** | **296** | **1296** | **22.9** | **604** | **692** | **1296** | **53.4** |
| Food | 35 | 0 | 35 | 0.0 | 35 | 0 | 35 | 0.0 |
| Tires/Rubber | 13 | 0 | 13 | 0.0 | 13 | 0 | 13 | 0.0 |
| Wood | 636 | 276 | 912 | 30.3 | 257 | 655 | 912 | 71.8 |
| Ag. Crop Residue | 0 | 0 | 0 | 0.0 | 0 | 0 | 0 | 0.0 |
| Manure | 0 | 0 | 0 | 0.0 | 0 | 0 | 0 | 0.0 |
| Textile/Leather | 226 | 17 | 243 | 7.1 | 208 | 34 | 243 | 14.1 |
| Other Misc Org. | 90 | 3 | 93 | 3.3 | 90 | 3 | 93 | 3.3 |
| **7) OTHER WASTES** | **46** | **14** | **60** | **22.7** | **46** | **14** | **60** | **22.7** |
| Inerts | 45 | 0 | 45 | 0.0 | 45 | 0 | 45 | 0.0 |
| HHW | 2 | 14 | 15 | 89.6 | 2 | 14 | 15 | 89.6 |
| **8) SPECIAL WASTES** | **7** | **0** | **7** | **0.0** | **7** | **0** | **7** | **0.0** |
| TOTALS | 2820 | 1295 | 4115 | 31.5 | 1884 | 2231 | 4115 | 54.2 |

Totals may not sum exactly due to rounding.

Note: A (0) for a disposed or diverted waste type indicates a quantity less than 0.5 tons/year.

**Table 10. Projected Disposed, Diverted, and Generated Waste, Based on the Year 1995 and 2000 Diversion Goals -- City of Monte Sereno**
**(Quantities in Tons/Year)**

Part 2 of 2

| Material | 1999 | | | 2000 | | | 2001 | | | 2002 | | | 2003 | | | 2004 | | | 2005 | | | 2006 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | DISP | DIV | GEN | DISP | DIV | GEN | DISP | DIV | GEN | DISP | DIV | GEN | DISP | DIV | GEN | DISP | DIV | GEN | DISP | DIV | GEN | DISP | DIV | GEN |
| **1) TOTAL PAPER** | 417 | 448 | 864 | 402 | 463 | 864 | 403 | 464 | 866 | 403 | 464 | 868 | 404 | 465 | 870 | 405 | 466 | 871 | 406 | 467 | 873 | 407 | 468 | 875 |
| OCC/Kraft | 69 | 74 | 143 | 62 | 80 | 143 | 62 | 81 | 143 | 63 | 81 | 143 | 63 | 81 | 144 | 63 | 81 | 144 | 63 | 81 | 144 | 63 | 81 | 145 |
| Mixed | 229 | 0 | 229 | 229 | 0 | 229 | 229 | 0 | 229 | 230 | 0 | 230 | 230 | 0 | 230 | 230 | 0 | 230 | 231 | 0 | 231 | 231 | 0 | 231 |
| Newspaper | 76 | 357 | 432 | 68 | 365 | 432 | 68 | 365 | 433 | 68 | 366 | 434 | 68 | 367 | 435 | 68 | 368 | 436 | 68 | 368 | 437 | 69 | 369 | 438 |
| High-Grade | 0 | 1 | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 0 | 1 | 1 |
| Other | 44 | 16 | 60 | 43 | 17 | 60 | 43 | 17 | 60 | 43 | 17 | 60 | 44 | 17 | 60 | 44 | 17 | 60 | 44 | 17 | 61 | 44 | 17 | 61 |
| **2) TOTAL PLASTICS** | 205 | 6 | 211 | 204 | 7 | 211 | 205 | 7 | 211 | 205 | 7 | 212 | 206 | 7 | 212 | 206 | 7 | 213 | 206 | 7 | 213 | 207 | 7 | 213 |
| HDPE | 30 | 0 | 30 | 30 | 0 | 30 | 30 | 0 | 30 | 30 | 0 | 30 | 30 | 0 | 30 | 30 | 0 | 30 | 31 | 0 | 31 | 31 | 0 | 31 |
| PET | 6 | 6 | 12 | 5 | 7 | 12 | 5 | 7 | 12 | 5 | 7 | 12 | 5 | 7 | 12 | 5 | 7 | 12 | 5 | 7 | 12 | 5 | 7 | 12 |
| Film | 34 | 0 | 34 | 34 | 0 | 34 | 34 | 0 | 34 | 34 | 0 | 34 | 34 | 0 | 34 | 34 | 0 | 34 | 35 | 0 | 35 | 35 | 0 | 35 |
| Other | 135 | 0 | 135 | 135 | 0 | 135 | 135 | 0 | 135 | 135 | 0 | 135 | 136 | 0 | 136 | 136 | 0 | 136 | 136 | 0 | 136 | 136 | 0 | 136 |
| **3) TOTAL GLASS** | 46 | 173 | 219 | 44 | 175 | 219 | 44 | 175 | 220 | 45 | 176 | 220 | 45 | 176 | 221 | 45 | 176 | 221 | 45 | 177 | 222 | 45 | 177 | 222 |
| Refillable Beverage | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Cal Redemption | 16 | 150 | 166 | 15 | 151 | 166 | 15 | 151 | 166 | 15 | 152 | 167 | 15 | 152 | 167 | 15 | 152 | 167 | 15 | 153 | 168 | 15 | 153 | 168 |
| Other Recyclable | 30 | 23 | 53 | 29 | 24 | 53 | 29 | 24 | 53 | 29 | 24 | 53 | 29 | 24 | 53 | 29 | 24 | 53 | 29 | 24 | 53 | 29 | 24 | 53 |
| Other Non-Recycl | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **4) TOTAL METALS** | 150 | 126 | 276 | 148 | 128 | 276 | 149 | 128 | 277 | 149 | 129 | 278 | 149 | 129 | 278 | 150 | 129 | 279 | 150 | 129 | 279 | 150 | 130 | 280 |
| Aluminum Cans | 19 | 36 | 55 | 18 | 37 | 55 | 18 | 37 | 55 | 18 | 37 | 55 | 18 | 37 | 55 | 18 | 37 | 55 | 18 | 37 | 55 | 18 | 37 | 55 |
| Bimetal | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Tin F/B | 7 | 16 | 23 | 6 | 16 | 23 | 6 | 16 | 23 | 6 | 16 | 23 | 6 | 17 | 23 | 6 | 17 | 23 | 6 | 17 | 23 | 6 | 17 | 23 |
| Non-Fe | 22 | 32 | 54 | 22 | 33 | 54 | 22 | 33 | 55 | 22 | 33 | 55 | 22 | 33 | 55 | 22 | 33 | 55 | 22 | 33 | 55 | 22 | 33 | 55 |
| White Goods | 0 | 2 | 2 | 0 | 2 | 2 | 0 | 2 | 2 | 0 | 2 | 2 | 0 | 2 | 2 | 0 | 2 | 2 | 0 | 2 | 2 | 0 | 2 | 2 |
| Other | 102 | 40 | 142 | 102 | 40 | 142 | 102 | 40 | 142 | 102 | 40 | 143 | 103 | 40 | 143 | 103 | 41 | 143 | 103 | 41 | 144 | 103 | 41 | 144 |
| **5) YARD WASTE** | 517 | 664 | 1181 | 428 | 753 | 1181 | 429 | 754 | 1183 | 430 | 756 | 1185 | 431 | 757 | 1188 | 432 | 759 | 1190 | 433 | 760 | 1193 | 433 | 762 | 1195 |
| **6) OTHER ORGANICS** | 683 | 613 | 1296 | 604 | 692 | 1296 | 605 | 694 | 1299 | 606 | 695 | 1301 | 607 | 697 | 1304 | 609 | 698 | 1307 | 610 | 699 | 1309 | 611 | 701 | 1312 |
| Food | 35 | 0 | 35 | 35 | 0 | 35 | 35 | 0 | 35 | 35 | 0 | 35 | 35 | 0 | 35 | 35 | 0 | 35 | 35 | 0 | 35 | 35 | 0 | 35 |
| Tires/Rubber | 13 | 0 | 13 | 13 | 0 | 13 | 13 | 0 | 13 | 13 | 0 | 13 | 13 | 0 | 13 | 13 | 0 | 13 | 13 | 0 | 13 | 13 | 0 | 13 |
| Wood | 333 | 579 | 912 | 257 | 655 | 912 | 258 | 656 | 914 | 258 | 658 | 916 | 259 | 659 | 918 | 259 | 660 | 919 | 260 | 662 | 921 | 260 | 663 | 923 |
| Ag. Crop Residue | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Manure | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Textile/Leather | 212 | 31 | 243 | 208 | 34 | 243 | 209 | 34 | 243 | 209 | 34 | 244 | 210 | 34 | 244 | 210 | 35 | 245 | 210 | 35 | 245 | 211 | 35 | 246 |
| Other Misc Org. | 90 | 3 | 93 | 90 | 3 | 93 | 91 | 3 | 94 | 91 | 3 | 94 | 91 | 3 | 94 | 91 | 3 | 94 | 91 | 3 | 94 | 91 | 3 | 95 |
| **7) OTHER WASTES** | 46 | 14 | 60 | 46 | 14 | 60 | 46 | 14 | 60 | 47 | 14 | 60 | 47 | 14 | 60 | 47 | 14 | 60 | 47 | 14 | 61 | 47 | 14 | 61 |
| Inerts | 45 | 0 | 45 | 45 | 0 | 45 | 45 | 0 | 45 | 45 | 0 | 45 | 45 | 0 | 45 | 45 | 0 | 45 | 45 | 0 | 45 | 45 | 0 | 45 |
| HHW | 2 | 14 | 15 | 2 | 14 | 15 | 2 | 14 | 15 | 2 | 14 | 15 | 2 | 14 | 15 | 2 | 14 | 15 | 2 | 14 | 15 | 2 | 14 | 15 |
| **8) SPECIAL WASTES** | 7 | 0 | 7 | 7 | 0 | 7 | 7 | 0 | 7 | 7 | 0 | 7 | 7 | 0 | 7 | 7 | 0 | 7 | 7 | 0 | 7 | 7 | 0 | 7 |
| TOTALS | 2071 | 2044 | 4115 | 1884 | 2231 | 4115 | 1888 | 2235 | 4123 | 1892 | 2240 | 4132 | 1896 | 2244 | 4140 | 1899 | 2249 | 4148 | 1903 | 2253 | 4156 | 1907 | 2258 | 4165 |

Totals may not sum exactly due to rounding.

Note: A (0) for a disposed or diverted waste type indicates a quantity less than 0.5 tons/year.

## Appendix A

## DISPOSED WASTE FIELD ANALYSIS PLAN

### INTRODUCTION

This test plan presents the methodology for estimating the composition of solid waste generated within the cities of Campbell, Los Gatos, Monte Sereno, Saratoga, and the Unincorporated West County areas. The field analyses will be conducted at the Guadalupe Landfill beginning Tuesday, July 16, 1991, for 1½ weeks.

### SAMPLE COLLECTION AND SORTING METHODS

The methods of sample collection and of sorting will be those adapted from the ASTM Draft "Method for Determination of the Composition of Unprocessed Municipal Solid Waste." Loads of waste will be directed at the landfill to the load sampling and sorting location. Waste categories and types for the field analyses will be those specified in Section 18722 (j) of the Emergency Regulations. A listing of the waste categories and types is presented in Table 1.

The study is not limited to the categories presented in the table. Special wastes (such as sludge, asbestos, etc.) will be sorted to the extent that it is safe to do so and to the extent that the materials are present in loads designated for sampling. Data will be recorded on field sample data sheets similar to those in Table 2.

No sources of marine waste were identified during the planning process for the field analysis program. However, while conducting the field study, such wastes will be noted if they are observed.

### WASTE SAMPLING PLAN

The waste sampling plan for each jurisdiction and waste source is delineated in Table 3. In addition to the field sorting program for waste delivered to the landfill by collection vehicles, self-haul wastes and wastes delivered by small haulers will be visually surveyed to establish an estimation of the quantity, composition, and jurisdictional source of this waste. The objective will be to visually survey the majority (greater than 50%) of self-haul wastes disposed during the sample period to develop average compositions of four self-haul waste categories: yard debris, construction/demolition, dirt/rubble, and miscellaneous. Special wastes may also be observed during the visual survey of self-haul wastes. Scalehouse data will be recorded to determine waste type, origin, and quantity on a data sheet similar to that in Table 4. The objective will be to survey all incoming self-haul waste during the sample period to provide a means of apportionment of self-haul waste types to respective jurisdictions. Based on this information an aggregate self-haul disposed quantity and composition will be determined for each jurisdiction.

The sampling plan is structured to achieve the following objectives:

- Provide an accurate accounting of waste materials by jurisdiction and waste source (residential, commercial, industrial, and self-haul generators).

**Table 1. Refuse Components for Sorting Study**

1) **TOTAL PAPER**
   - Corrugated containers
   - Mixed paper
   - Newspaper
   - High grade ledger paper
   - Other paper

2) **TOTAL PLASTICS**
   - HDPE containers
   - PET containers
   - Film plastics
   - Other plastics

3) **TOTAL GLASS**
   - Refillable beverage
   - California Redemption Value
   - Other recyclable
   - Other non-recyclable

4) **TOTAL METALS**
   - Aluminum cans
   - Bi-metal cans
   - Tin F&B cans
   - Non-ferrous/other aluminum
   - White goods
   - Other metals

5) **YARD WASTES**

6) **OTHER ORGANICS**
   - Food waste
   - Tires/rubber products
   - Wood wastes
   - Agricultural crop residues
   - Manure
   - Textiles/leather
   - Other miscellaneous organics

7) **OTHER WASTES**
   - Inert solids
   - HHW

8) **OTHER SPECIAL WASTES**

Table 2

WASTE COMPOSITION DATA SHEET
FOR _____

Sample Notes: _____

JURISDICTION: _____
Day/Date: _____
Sample No.: _____
Recorded By: _____

Truck Co./No.: _____
Truck Type: _____
Waste Type: _____

| Component | Cont. Tare | Gross Weights (lb) Tare | | | | No Tare | | | | Total |
|---|---|---|---|---|---|---|---|---|---|---|
| Corrugated containers | | | | | | | | | | |
| Mixed paper | | | | | | | | | | |
| Newspaper | | | | | | | | | | |
| High grade ledger paper | | | | | | | | | | |
| Other paper | | | | | | | | | | |
| HDPE containers | | | | | | | | | | |
| PET containers | | | | | | | | | | |
| Film plastics | | | | | | | | | | |
| Other plastics | | | | | | | | | | |
| Refillable beverage | | | | | | | | | | |
| CA Redemption Value | | | | | | | | | | |
| Other recyclable | | | | | | | | | | |
| Other non-recyclable | | | | | | | | | | |
| Aluminum cans | | | | | | | | | | |
| Bi-metal cans | | | | | | | | | | |
| Tin F&B cans | | | | | | | | | | |
| Non-ferrous/other aluminum | | | | | | | | | | |
| White goods | | | | | | | | | | |
| Other metals | | | | | | | | | | |
| Yard waste | | | | | | | | | | |
| Food waste | | | | | | | | | | |
| Tires/rubber products | | | | | | | | | | |
| Wood wastes | | | | | | | | | | |
| Agricultural crop residues | | | | | | | | | | |
| Manure | | | | | | | | | | |
| Textiles/leather | | | | | | | | | | |
| Other organics | | | | | | | | | | |
| Inert solids | | | | | | | | | | |
| HHW | | | | | | | | | | |
| Other special wastes | | | | | | | | | | |
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Notes on HHW:

Misc. Notes:

**Table 3. Santa Clara West County Area -- Estimated Number of Samples from Collection Vehicles to be Sorted for Each Jurisdiction**

| Waste Source | Campbell | Los Gatos | Monte Sereno | Saratoga | Unincorporated | Total[1] |
|---|---|---|---|---|---|---|
| Residential | 12 | 12 | 2 | 12 | 4 | 42 |
| Commercial | 10 | 6 | -- | 5 | 0[2] | 21 |
| Debris Boxes | 5 | 5 | 5 | 5 | 5 | 25 |
| Total | 27 | 23 | 7 | 22 | 9 | 88 |



1 The actual number of samples by waste source to be collected and sorted depends upon the arrival times, and availability, of vehicles to the landfill. The total number of samples to be collected is estimated to be in the range of 80 to 90.

2 Composition to be based on data from similar jurisdiction(s) -- (reference letter dated July 9, 1991).

Table 4

# SCALEHOUSE LOG SHEET

Location:

Date:

Recorded by:

| COLLECT. AREA | COMPANY NAME | TRUCK NUMBERS ID.* COMP. OPEN | TRUCK/ WASTE TYPE** RES COM / CONST YARD IND / DIRT MISC | WEIGHT (LB) NET | ESTIMATED VOLUME $YD^3$ | REMARKS |
|---|---|---|---|---|---|---|
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* TRUCK OR ROUTE # OR ROLL-OFF (RO) OR ROLL-OFF COMPACTOR (ROC)

** RES - RESIDENTIAL
COM - COMMERCIAL
IND - INDUSTRIAL

- Provide an estimated composition measurement accuracy for the primary waste categories of the disposed composite waste stream in the range of 10% to 15% of the population mean for each jurisdiction at the 90% confidence level. The jurisdictions composite waste stream is defined as the sum of its residential, commercial, and industrial sources.

Since composition sampling has not been performed before on wastes from all five jurisdictions, the sampling plan is based on information regarding sample variability obtained from the October 1990 Waste Characterization for the City of Sunnyvale. Specifically, the plan has been developed using a ratio of standard deviation to mean value (coefficient of variation) of 0.3 based on Sunnyvale's residential and commercial waste sources' total paper category. An objective of the analysis is to characterize the composite waste stream from each jurisdiction within an accuracy of approximately 10% to 15%.

Each jurisdiction has specific pick-up days for the majority of its residential waste. Residential waste collection vehicles will be selected to be representative of waste from within each jurisdiction by random sampling of loads from the north, south, east, and west pick-up areas when available and practical.

For commercial wastes, CalRecovery will select for sampling, to the extent possible, those loads which exclusively service one jurisdiction. Because commercial waste is less homogeneous and represents a smaller proportion of each jurisdiction's total waste stream than residential waste, a higher percentage of available commercial loads will be sampled. The selection of representative loads of waste will be based on information from Green Valley and CalRecovery's knowledge of commercial waste sources within the jurisdictions.

Specific industrial generators identified prior to the field work in cooperation with the jurisdictions will be sampled to the extent possible. The remaining debris boxes will be sampled at random at the landfill during the course of the 1½ week field study in order to characterize industrial waste sources in the five jurisdictions. Due to oversize bulky wastes, some debris box loads may require visual survey rather than field sorting.

When the number of samples by waste source available during the sampling period is less than the proposed test plan size, CalRecovery will sample all or as many vehicles as possible and practical.

## ANCILLARY DATA COLLECTION

Ancillary data collection activities before, during and after the field analyses will include where possible the following for each vehicle load:

### Residential

- Collection company and route number
- Truck type and number

**Commercial**

- Collection company and route number
- Type of generator
- Truck type and number

**Industrial**

- Collection company
- Type of container (open top or compactor)
- Type of generator

Appendix B

ASTM Designation: DXXXX-XX

Draft Number 4: 1/24/90
D34.01.02 Waste Sampling
Author: G. Savage

# METHOD FOR DETERMINATION OF THE COMPOSITION OF UNPROCESSED MUNICIPAL SOLID WASTE

## 1. Scope

1.1 The method describes the procedures for measuring the composition of unprocessed municipal solid waste (MSW) by employing manual sorting. The procedure applies to the determination of the mean composition of MSW based on the collection and manual sorting of a number of samples of waste over a selected period of time with a minimum of one week.

1.2 The procedures include those for collection of a representative sorting sample of unprocessed waste, manual sorting of the waste into individual waste components, data reduction, and reporting of results.

1.3 The method may be applied at landfill sites, waste processing and conversion facilities, and transfer stations.

## 2. Definitions

2.1 Sorting Sample: A 200 to 300 lb portion that is deemed to represent the characteristics of a vehicle load of MSW.

2.2 Unprocessed Municipal Solid Waste: Solid waste in its discarded form, i.e., waste that has not been size reduced or otherwise processed.

2.3 Waste Component: A category of solid waste composed of materials of similar physical properties and chemical composition, which is used to define the composition of solid waste, e.g., ferrous, glass, newsprint, yard waste, aluminum, etc.

2.4 Solid Waste Composition or Waste Composition: The characterization of solid waste as represented by a breakdown of the mixture into specified waste components on the basis of mass fraction or of weight percentage.

2.5 Composite Item:. An object in the waste that is composed of multiple waste components or dissimilar materials, such as disposable diapers, bi-metal beverage containers, electrical conductor composed of metallic wire encased in plastic insulation, etc.

## 3. Summary of Methods

3.1 The number of samples to be sorted is calculated based upon statistical criteria selected by the investigators.

3.2 Vehicle loads of waste are designated for sampling, and a sorting sample is collected from the discharged vehicle load.

3.3 The sorting sample is manually sorted into waste components. The weight fraction of each component in the sorting sample is calculated from the weights of the components.

3.4 The mean waste composition is calculated using the results of the composition of each of the sorting samples.

## 4. Significance and Use

4.1 Waste composition information has wide application and can be used for such activities as solid waste planning, designing waste management facilities, and establishing a reference waste composition for use as a baseline standard in facility contracts and in acceptance test plans.

4.2 The method can be used to define and report the composition of municipal solid waste through the selection and manual sorting of samples of waste. Care should be taken to consider the source and seasonal variation of waste, where applicable.

4.3 After performing a waste composition analysis, laboratory analyses may be performed on representative samples of waste components or mixtures of waste components for purposes related to the planning, management, design, testing, and operation of resource recovery facilities.

## 5. Apparatus

5.1 Sufficient metal, plastic, or fiber containers for storing and weighing each waste component, labeled accordingly. For components that will have a substantial moisture content (e.g., food waste), metal or plastic containers are recommended to avoid absorption of moisture by the container and, thus, the need for a substantial number of weighings to maintain an accurate tare weight for the container.

5.2 A mechanical or electronic weigh scale with a capacity of at least 200 lb, and a precision of at least 0.1 lb.

5.3 Heavy-duty tarps, shovels, rakes, push brooms, dust pans, hand brooms, magnets, sorting table, first aid kit, miscellaneous small tools, traffic cones, traffic vests, leather gloves, hardhats, safety glasses, and leather boots.

## 6. Precautions

6.1 Review the precautions and procedures with the operating and sorting personnel prior to the conduct of the field activities.

6.2 Sharp objects such as nails, razor blades, hypodermic needles, and pieces of glass are present in solid waste. Personnel should be instructed of this danger and to brush waste particles aside while sorting, as opposed to projecting their hands with force into the mixture. Personnel handling and sorting solid waste should wear appropriate protection. Appropriate protection includes heavy leather gloves, hardhats, safety glasses, and safety boots.

6.3 During the process of unloading waste from collection vehicles and of handling waste with heavy equipment, projectiles may issue from the mass of waste. The projectiles can include flying glass particles from breaking glass containers and metal lids from plastic and metal containers that burst under pressure when run over by heavy equipment. The problem is particularly severe when the waste handling surface is of high compressive strength, e.g., concrete. Personnel should be made aware of the danger and wear eye and head protection if in the vicinity of the collection vehicle unloading point, or in the vicinity of heavy equipment, or both.

6.4 Select a location for discharge of designated loads, manual sorting activities, and weighing operation that is flat, level, and away from the normal waste handling and processing areas.

6.5 Weigh storage containers each day, or more frequently if necessary, in order to maintain an accounting of the tare weight.

## 7. Calibration

7.1 All weigh scale equipment shall be calibrated according to the manufacturer's instructions. Take appropriate corrective action if the readings are different than the calibration weights.

## 8. Procedures

8.1 Secure a flat and level area for discharge of the vehicle load. The surface should be swept clean or covered with a clean, durable tarp prior to discharge of the load.

8.2 Position the scale on a clean, flat, and level surface and adjust the level of the scale if necessary. Check the accuracy and operation of the scale with a known (i.e., reference) weight.

8.3 Weigh all empty storage containers and record the tare weights.

8.4 Determine the number of sorting samples to be sorted. The determination is a function of the waste components to be sorted and the desired precision as applied to each component. Weights of 200 to 300 lb for sorting samples of unprocessed solid waste are recommended. The number of samples is determined using the calculational method described in section 9.1.

8.5 A comprehensive list of waste components for sorting is shown in Table A. A description of some of the waste component categories is given in Table B. Other waste components can be defined and sorted depending upon the purpose of the waste composition determination. The list in Table A is comprised of those components most commonly used to define and report the composition of solid waste. At a minimum, it is recommended that the complement of left-justified categories in Table A be sorted. Therefore, similar breakdowns of solid waste composition are available for purposes of comparison, if desired. Label the storage containers accordingly.

TABLE A. List of Waste Component Categories

| | |
|---|---|
| Mixed Paper | Other Organics |
| High Grade Paper | Ferrous |
| Computer Printout | Cans |
| Other Office Paper | Other Ferrous |
| Newsprint | Aluminum |
| Corrugated | Cans |
| Plastic | Foil |
| PET Bottles | Other Aluminum |
| HDPE Bottles | Glass |
| Film | Clear |
| Other Plastic | Brown |
| Yard Waste | Green |
| Food Waste | Other Inorganics |
| Wood | |

TABLE B. Description of Some Waste Component Categories

| Category | Description |
|---|---|
| Mixed Paper | Office paper, computer paper, magazines, glossy paper, waxed paper, other paper not fitting categories of "Newsprint" and "Corrugated" |
| Newsprint | Newspaper |
| Corrugated | Corrugated medium, corrugated boxes or cartons, brown (kraft) paper (i.e., corrugated) bags |
| Plastic | All plastics |
| Yard Waste | Branches, twigs, leaves, grass, other plant material |
| Food Waste | All food waste except bones |
| Wood | Lumber, wood products, pallets, furniture |
| Other Organics/ Combustibles | Textiles, rubber, leather, other primarily burnable materials not included in the above component categories |
| Ferrous | Iron, steel, tin cans, bi-metal cans |
| Aluminum | Aluminum, aluminum cans, aluminum foil |
| Glass | All glass |
| Other Inorganics/ Non-combustibles | Rock, sand, dirt, ceramics, plaster, non-ferrous non-aluminum metals (copper, brass, etc.), bones |

8.6 Vehicles for sampling shall be selected at random during each day of the one-week sampling period, or so as to be representative of the waste stream as agreed to by the affected parties. With respect to random selection of vehicles, any method is acceptable that does not introduce a bias into the selection. An acceptable method is use of a random number generator. For a weekly sampling period of k days, the number of vehicles sampled each day shall be approximately n/k, where n is the total number of vehicle loads to be selected for determination of waste composition. A weekly period is defined to be 5 to 7 days.

8.7 Direct the designated vehicle containing the load of waste to the area secured for discharge of the load and collection of the sorting sample.

8.8 Direct the vehicle operator to discharge the load onto the clean surface in one contiguous pile, i.e., to avoid gaps in the discharged load. Collect any required information from the vehicle operator prior to the vehicle leaving the discharge area.

8.9 Using mechanical equipment, remove material longitudinally along one entire side of the discharged load, sufficient to form a mass of material which, on a visual basis, is at least four times the desired weight of the sorting sample (i.e., about 1,000 lb). Mix, cone and quarter the material and select one quarter to be the sorting sample, using a random method of selection or a sequence agreed to by all affected parties, for the purpose of eliminating or minimizing biasing of the sample. If an oversize item (e.g., water heater) composes a large weight percentage of the sorting sample, add a notation on the data sheet and weigh it, if possible.

8.10 One sorting sample is selected from each collection vehicle load that is designated for sampling. All handling and manipulation of the discharged load, longitudinal sample, and sorting sample shall be conducted on previously cleaned surfaces. If necessary, remove the sorting sample to a secured manual sorting area. The sorting sample may be placed on a clean table for sorting for the convenience of the sorting personnel. The sorting area shall be a previously cleaned, flat, and level surface.

8.11 Position the storage containers around the sorting sample. From the sorting sample, empty all containers such as capped jars, paper bags, and plastic bags of their contents. Segregate each waste item and place it in the appropriate storage container.

8.12 In the case of composite items found in the waste, separate the individual materials where practical and place the individual materials into the appropriate storage containers. Where impractical, segregate and classify the composite item according to the following order:

8.12.1 If there are many identical composite items (e.g., plastic-sheathed aluminum electrical conductor), place them into the waste component containers corresponding to the materials present in the item and in the approximate proportions according to the estimated mass fraction of each material in the item.

8.12.2 If there are only a few of the identical composite item, place them in the storage container corresponding to the material which comprises, on a weight basis, the majority of the item (e.g., place bi-metal beverage cans in the ferrous container).

8.12.3 If composite items represent substantial weight percentages of the sorting sample, a separate category should be established, e.g., composite roofing shingles.

8.12.4 If none of the above procedures is appropriate, place the item(s) (or proportion it (them)) in the storage container labeled "Other Non-Combustible" or "Other Combustible" as appropriate.

8.13 Sorting continues until the maximum particle size of the remaining waste particles is approximately 0.5 in. At this point, apportion the remaining particles into the storage containers corresponding to the waste components represented in the remaining mixture. The apportionment shall be accomplished by making a visual estimate of the mass fraction of waste components represented in the remaining mixture.

8.14 Record the gross weights of the storage containers and of any waste items sorted but not stored in containers. The data sheet shown in Fig. 1 can be used to record gross weights as well as tare weights.

8.15 After recording the gross weights, empty the storage containers and weigh them again, if appropriate. Re-weighing is important and necessary if the containers become moisture-laden, e.g., from wet waste.

8.16 Clean the sorting site as well as the load discharge area of all waste materials.

9. Calculations

9.1 Number of 200 to 300 lb samples.

9.1.1 The number of sorting samples (i.e., vehicle loads) (n) required to achieve a desired level of measurement precision is a function of the component(s) under consideration, and the confidence level. The governing equation for n is:

$$n = (t^* \, s/e \cdot \bar{x})^2 \qquad (1)$$

where t* is the student t statistic corresponding to the desired level of confidence, s is the estimated standard deviation, e is the desired level of precision, and $\bar{x}$ is the estimated mean.

All numerical values for the symbols are in decimal notation. For example, a value of precision (e) of 20% is represented as 0.2.

One sorting sample is chosen per vehicle load.

Waste Composition Data Sheet

Day/Date: _____
Site: _____
Weather: _____

Collection Company: _____
Vehicle Type: _____
Route No.: _____
Recorded by: _____

| Component | Weight in Pounds | | | Percent of Total |
|---|---|---|---|---|
| | Gross | Tare | | |
| Mixed Paper | | | | |
| High Grade Paper | | | | |
| Computer Printout | | | | |
| Other Office Paper | | | | |
| Newsprint | | | | |
| Corrugated | | | | |
| Plastic | | | | |
| PET bottles | | | | |
| HDPE bottles | | | | |
| Film | | | | |
| Other Plastic | | | | |
| Food Waste | | | | |
| Wood | | | | |
| Other Organics | | | | |
| Ferrous | | | | |
| Cans | | | | |
| Other Ferrous | | | | |
| Aluminum | | | | |
| Cans | | | | |
| Foil | | | | |
| Other Aluminum | | | | |
| Glass | | | | |
| Clear | | | | |
| Brown | | | | |
| Green | | | | |
| Other Inorganics | | | | |

TOTALS _____

NOTES: _____

Lab sample taken? Yes____ No____

Figure 1. Waste Composition Data Sheet

Suggested values of s and of $\bar{x}$ for waste components are listed in Table C. Values of t* are given in Table D for 90% and 95% levels of confidence, respectively.

9.1.2 Estimate the number of samples (n′) for the selected conditions (i.e., precision and level of confidence) and components using equation 1. For the purpose of estimation, select from Table D the t* value for $n = \infty$ for the selected level of confidence. Since the required number of samples will vary among the components for a given set of conditions, a compromise will be required in terms of selecting a sample size, i.e., the number of samples that will be sorted. The component that is chosen to govern the precision of the composition measurement (and therefore the number of samples required for sorting) is termed the "governing component" for the purpose of this method.

9.1.3 After determining the governing component and its corresponding number of samples ($n_0$), return to Table D and select the student t statistic ($t^*_0$) corresponding to $n_0$. Recalculate the number of samples, i.e., n′, using $t^*_0$.

9.1.4 Compare $n_0$ to the new estimate of n, i.e., n′, which was calculated for the governing component. If the values differ by more than 10%, repeat the calculations of 9.1.2 and 9.1.3.

9.1.5 If the values are within 10%, select the larger value as the number of samples to be sorted. Refer to Appendix A for a sample calculation of n.

9.2 Component Composition

9.2.1 The component composition of solid waste is reported on the basis of the mass fraction (expressed as a decimal) or percentage of waste component i in the solid waste mixture. The reporting is on the basis of wet weight, i.e., the weight of materials immediately after sorting.

9.2.2 The mass fraction of component i, $mf_i$, is defined and computed as:

$$mf_i = \frac{w_i}{\sum_{i=1}^{j} w_i} \qquad (2)$$

where $w_i$ is the weight of component i and j is the number of waste components. In those cases where a container is used to store and weigh the materials:

$$w_i = \text{gross weight} - \text{tare weight of container} \qquad (3)$$

TABLE C. Values of Mean ($\bar{x}$) and of Standard Deviation (s) for Within Week Sampling to Determine MSW Component Composition[A]

| Component | Standard Deviation (s) | Mean ($\bar{x}$) |
|---|---|---|
| Mixed Paper | 0.05 | 0.22 |
| Newsprint | 0.07 | 0.10 |
| Corrugated | 0.06 | 0.14 |
| Plastic | 0.03 | 0.09 |
| Yard Waste | 0.14 | 0.04 |
| Food Waste | 0.03 | 0.10 |
| Wood | 0.06 | 0.06 |
| Other Organics | 0.06 | 0.05 |
| Ferrous | 0.03 | 0.05 |
| Aluminum | 0.004 | 0.01 |
| Glass | 0.05 | 0.08 |
| Other Inorganics | 0.03 | 0.06 |
| | | 1.00 |

A) The tabulated mean values and standard deviations are estimates based on field test data reported for municipal solid waste sampled during weekly sampling periods at several locations around the U.S.

TABLE D. Values of t Statistics (t*) as a Function of Number of Samples and Confidence Interval

| No. of Samples (n) | 90% | 95% |
|---|---|---|
| 2 | 6.314 | 12.706 |
| 3 | 2.920 | 4.303 |
| 4 | 2.353 | 3.182 |
| 5 | 2.132 | 2.776 |
| 6 | 2.015 | 2.571 |
| 7 | 1.943 | 2.447 |
| 8 | 1.895 | 2.365 |
| 9 | 1.860 | 2.306 |
| 10 | 1.833 | 2.262 |
| 11 | 1.812 | 2.228 |
| 12 | 1.796 | 2.201 |
| 13 | 1.782 | 2.179 |
| 14 | 1.771 | 2.160 |
| 15 | 1.761 | 2.145 |
| 16 | 1.753 | 2.131 |
| 17 | 1.746 | 2.120 |
| 18 | 1.740 | 2.110 |
| 19 | 1.734 | 2.101 |
| 20 | 1.729 | 2.093 |
| 21 | 1.725 | 2.086 |
| 22 | 1.721 | 2.080 |
| 23 | 1.717 | 2.074 |
| 24 | 1.714 | 2.069 |
| 25 | 1.711 | 2.064 |
| 26 | 1.708 | 2.060 |
| 27 | 1.706 | 2.056 |
| 28 | 1.703 | 2.052 |
| 29 | 1.701 | 2.048 |
| 30 | 1.699 | 2.045 |
| 31 | 1.697 | 2.042 |
| 36 | 1.690 | 2.030 |
| 41 | 1.684 | 2.021 |
| 46 | 1.679 | 2.014 |
| 51 | 1.676 | 2.009 |
| 61 | 1.671 | 2.000 |
| 71 | 1.667 | 1.994 |
| 81 | 1.664 | 1.990 |
| 91 | 1.662 | 1.987 |
| 101 | 1.660 | 1.984 |
| 121 | 1.658 | 1.980 |
| 141 | 1.656 | 1.977 |
| 161 | 1.654 | 1.975 |
| 189 | 1.653 | 1.973 |
| 201 | 1.653 | 1.972 |
| ∞ | 1.645 | 1.960 |

9.2.3 The percentage of component i, $P_i$, is defined and computed as:

$$P_i = mf_i \times 100 \tag{4}$$

9.2.4 For the data analysis to be correct, the denominator of equation (2) must be unity and,

$$\sum_{i=1}^{j} P_i = 100 \tag{5}$$

9.3 The mean component composition for the one-week period is calculated using the component composition results from each of the analysis samples. The mean mass fraction of component i, $\overline{mf_i}$, is calculated as:

$$\overline{mf_i} = \frac{1}{n} \sum_{k=1}^{n} (mf_i)_k \tag{6}$$

and the mean percentage of component i, $\overline{P_i}$, is calculated as,

$$\overline{P_i} = \frac{1}{n} \sum_{k=1}^{n} (P_i)_k \tag{7}$$

where n is the number of samples.

## APPENDIX A. ESTIMATE OF NUMBER OF SAMPLES FOR ANALYSIS

### ASSUMPTIONS

1. Corrugated is selected as the governing component
2. A 90% confidence level is selected
3. A precision of 10% is desired

Therefore:

$s = 0.06$ (from Table C)
$\bar{X} = 0.14$ (from Table C)
$e = 0.10$
$t^*$ $(n = \infty) = 1.645$ (from Table D)

Using equation 1:

$$n = [t^* \, s/(e \cdot \bar{x})]^2$$

$$= \left[ \frac{1.645 \ (0.06)}{0.1 \ (0.14)} \right]^2$$

$$= 50$$
$$= n_o$$

Referring again to Table D, for $n = 50$

$$t^*_{90} \ (n = 50) = 1.677$$

and,

$$n = \left[ \frac{1.677 \ (0.06)}{0.1 \ (0.14)} \right]^2$$

$$= 52$$
$$= n'$$

Since 52 (i.e., $n'$) is within 10% of 50 (i.e., $n_o$), 52 samples should be selected for analysis.

## Appendix C

## DIVERSION SURVEY PLAN

The diversion study for the jurisdictions of Campbell, Los Gatos, Monte Sereno, and Saratoga will be made up of two parts: 1) a supplemental telephone survey of regional processors; and 2) a targeted mail survey of commercial and industrial generators. A plan for each segment of the study follows.

### Supplemental Regional Processor

#### Purpose

A supplemental survey of regional processors and other handlers of recyclable materials will be undertaken to help estimate the quantity of materials that are diverted from the solid waste streams of the jurisdictions. The goal of this survey is to increase the response rate of the initial diversion survey conducted for Santa Clara County.

The waste categories and types will be identical to those utilized in the characterization of disposed solid waste. These categories and types meet the requirements of the California Integrated Waste Management Board.

#### Methodology

This survey will expand the initial study by: a) contacting non-respondents from the initial study; and 2) developing a list of processors not contacted previously and contacting them.

The survey will be conducted by telephone. Questions to be asked will include: 1) Which cities do you process recyclable materials from? 2) What types and quantities of materials do you accept? 3) Do you record the quantities by city? If so, what are the quantities for Saratoga, Campbell, Los Gatos, and Monte Sereno? If not, can you estimate a percent distribution for Saratoga, Campbell, Los Gatos, and Monte Sereno?

When reported data is in aggregate form, apportionment of the data will be based on the jurisdiction's percent of the total service area population. Total service area will be estimated based on information provided by the respondent.

All telephone calls will be recorded on a survey form developed for this project. Two unanswered telephone calls to a potential respondent will be treated as a non-response. No more than two telephone calls will be made in an effort to clarify inconsistent or non-standard information provided by respondents.

This survey will supplement information gathered in the waste diversion analysis that was conducted on a regional basis for Santa Clara County. It also will complement the waste diversion

survey of commercial and industrial generators being conducted on a jurisdiction-specific basis by CalRecovery.

## Targeted Generator-Based Diversion Survey Plan

### Purpose

A waste diversion survey of commercial and industrial generators will be undertaken to help estimate the quantity of materials that are diverted from the solid waste streams of the jurisdictions.

The waste categories and types will be identical to those utilized in the characterization of disposed solid waste. These categories and types meet the requirements of the California Integrated Waste Management Board.

### Methodology

This survey will focus on: 1) large businesses and institutions; 2) businesses and types of businesses that are identified by each jurisdiction as being of particular interest; and 3) a random selection of businesses and institutions.

Businesses and institutions will be sent the survey form by mail. One week after the survey form is sent, a telephone call will be made to a minimum of 50% of those included in the survey sample to determine whether the information requested in the survey is receiving attention. Data will be collected both by telephone and by mail. Two unanswered telephone calls to a potential respondent will be treated as a non-response.

Sample size by jurisdiction was determined based on a combination of several factors including: number of businesses and institutions, total number of employees, expected variability in results, and available resources and time.

The estimated number of samples by jurisdiction are:

| | |
|---|---|
| City of Campbell | 70 - 90 |
| Town of Los Gatos | 60 - 80 |
| City of Monte Sereno | 5 - 10 |
| City of Saratoga | 35 - 40 |
| Total | 170 - 228 |

Residential generators are not included in this survey, because the materials generated by them can be quantified more readily through a regional processor survey. Source reduction activities are not included because they are difficult to quantify on a generator-by-generator basis.

The survey form developed for this survey will be provided to the jurisdictions for review in advance of the survey.

The data obtained during the survey will serve to complement the data obtained during the regional processor survey.

# Appendix D

Confidence Interval by Material Type

Jurisdiction: Monte Sereno
Waste Source: Residential
No. of Samples: 2

| Material | Average Composition (%) | Sample Standard Deviation (s,%) | 90% Confidence Interval (+/-,%) |
|---|---|---|---|
| TOTAL PAPER | 29.2 | 6.0 | 26.7 |
| OCC/KRAFT | 5.8 | 1.1 | 4.7 |
| MIXED | 13.2 | 4.5 | 20.3 |
| NEWSPAPER | 7.4 | 3.4 | 15.4 |
| HIGH-GRADE | 0.0 | 0.0 | 0.0 |
| OTHER | 2.8 | 3.1 | 13.8 |
| TOTAL PLASTICS | 6.2 | 4.6 | 20.6 |
| HDPE | 1.0 | 1.4 | 6.3 |
| PET | 0.3 | 0.4 | 1.6 |
| FILM | 1.6 | 0.5 | 2.5 |
| OTHER | 3.4 | 2.3 | 10.2 |
| TOTAL GLASS | 3.1 | 1.3 | 6.0 |
| REFILLABLE BEVERAGE | 0.0 | 0.0 | 0.0 |
| CAL REDEMPTION | 1.0 | 0.0 | 0.1 |
| OTHER RECYCLABLE | 2.1 | 1.3 | 5.9 |
| OTHER NON-RECYCL | 0.0 | 0.0 | 0.0 |
| TOTAL METALS | 2.7 | 0.4 | 1.8 |
| ALUMINUM CANS | 1.1 | 1.2 | 5.5 |
| BIMETAL | 0.0 | 0.0 | 0.0 |
| TIN F/B | 0.4 | 0.1 | 0.5 |
| NON-FE | 0.3 | 0.4 | 1.6 |
| WHITE GOODS | 0.0 | 0.0 | 0.0 |
| OTHER | 0.9 | 1.3 | 5.9 |
| YARD | 40.4 | 6.5 | 28.9 |
| OTHER ORGANICS | 18.3 | 6.8 | 30.6 |
| FOOD | 2.1 | 0.1 | 0.3 |
| TIRES/RUBBER | 0.0 | 0.0 | 0.0 |
| WOOD | 2.8 | 2.6 | 11.7 |
| AG. CROP RESIDUE | 0.0 | 0.0 | 0.0 |
| MANURE | 0.0 | 0.0 | 0.0 |
| TEXTILE/LEATHER | 9.9 | 6.2 | 27.9 |
| OTHR MISC ORG. | 3.5 | 2.1 | 9.3 |
| OTHER WASTES | 0.0 | 0.0 | 0.0 |
| INERTS | 0.0 | 0.0 | 0.0 |
| HHW | 0.0 | 0.0 | 0.0 |
| SPECIAL WASTES | 0.0 | 0.0 | 0.0 |
| Total | 100.0 | | |

Average may not sum to 100.0% due to rounding

Confidence Interval by Material Type

Jurisdiction: Monte Sereno
Waste Source: Industrial
No. of Samples: 3

| Material | Average Composition (%) | Sample Standard Deviation (s,%) | 90% Confidence Interval (+/-,%) |
|---|---|---|---|
| TOTAL PAPER | 4.0 | 4.0 | 6.7 |
| OCC/KRAFT | 1.3 | 1.5 | 2.6 |
| MIXED | 0.3 | 0.6 | 1.0 |
| NEWSPAPER | 2.0 | 2.0 | 3.4 |
| HIGH-GRADE | 0.0 | 0.0 | 0.0 |
| OTHER | 0.3 | 0.6 | 1.0 |
| TOTAL PLASTICS | 7.7 | 11.5 | 19.5 |
| HDPE | 1.0 | 1.0 | 1.7 |
| PET | 0.3 | 0.6 | 1.0 |
| FILM | 0.5 | 0.5 | 0.8 |
| OTHER | 5.8 | 9.7 | 16.3 |
| TOTAL GLASS | 0.5 | 0.5 | 0.8 |
| REFILLABLE BEVERAGE | 0.0 | 0.0 | 0.0 |
| CAL REDEMPTION | 0.5 | 0.5 | 0.8 |
| OTHER RECYCLABLE | 0.0 | 0.0 | 0.0 |
| OTHER NON-RECYCL | 0.0 | 0.0 | 0.0 |
| TOTAL METALS | 9.3 | 10.2 | 17.2 |
| ALUMINUM CANS | 1.0 | 1.0 | 1.7 |
| BIMETAL | 0.0 | 0.0 | 0.0 |
| TIN F/B | 0.0 | 0.0 | 0.0 |
| NON-FE | 2.0 | 2.6 | 4.5 |
| WHITE GOODS | 0.0 | 0.0 | 0.0 |
| OTHER | 6.3 | 7.8 | 13.1 |
| YARD | 12.7 | 19.4 | 32.7 |
| OTHER ORGANICS | 63.7 | 19.9 | 33.5 |
| FOOD | 0.0 | 0.0 | 0.0 |
| TIRES/RUBBER | 1.0 | 1.7 | 2.9 |
| WOOD | 55.0 | 25.0 | 42.1 |
| AG. CROP RESIDUE | 0.0 | 0.0 | 0.0 |
| MANURE | 0.0 | 0.0 | 0.0 |
| TEXTILE/LEATHER | 5.3 | 8.4 | 14.1 |
| OTHR MISC ORG. | 2.3 | 2.5 | 4.2 |
| OTHER WASTES | 1.7 | 2.9 | 4.9 |
| INERTS | 1.7 | 2.9 | 4.9 |
| HHW | 0.0 | 0.0 | 0.0 |
| SPECIAL WASTES | 0.5 | 0.9 | 1.5 |
| Total | 100.0 | | |

Average may not sum to 100.0% due to rounding

Appendix E. Supplemental Processor Survey Contacts

| Name/City | Telephone | AL | GL | PET | HG | LG | NW | Mag | CB | Scrap Metals | Wood Pallets | Automotive Batteries | Oil | Other Materials |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Bay Area Recycling Center/Campbell | (408) 371-5834 | x | x | x | | x | x | | x | x | | | | |
| JDM Packing/Sunnyvale | (408) 739-2500 | | | | | | | | x | | | | | Film, plastic "peanut" packing material |
| Los Gatos Recycling Center/Los Gatos | (408) 354-6809 | x | x | x | x | | x | | x | x | | | x | |
| A & A Pallet (also AC Pallet)/Alviso | (408) 263-4864 | | | | | | | | | | x | | | |
| ABC Recycling Industries/Santa Clara | (408) 732-9253 | x | x | x | x | | x | | x | x | | x | | Precious metals |
| ESC Refining/Santa Clara | (408) 988-4386 | | | | x | | | | | | | | | Telephone equipment, solder dross |
| Mission Trail Waste System/Santa Clara | (408) 727-5365 | | x | | x | | | | x | | | | | HDPE, wood |
| Mobile Shredding/Santa Clara | (408) 748-0508 | | | | x | | | | | | | | | "Plastic paper" |
| Paul's Auto Center/Santa Clara | (408) 244-6995 | | | | | | | | | | | | | |
| Santa Clara Recycling Center/Santa Clara | (408) 727-7576 | | | | | | x | | | | | | | Glossy paper |
| University Union Service/Santa Clara | (408) 243-0512 | | | | | | | | | | | | | |
| Alco Iron & Metal Co./San Leandro | (415) 562-1107 | x | x | x | | | | | | | | | | Precious metals |
| American Ink Products Co./Oakland | (510) 268-0825 | | | | | | | | | | | | | Laser toner cartridges, plastics |
| East Bay Depot/Oakland | (510) 547-6470 | | | | | | | | | | | | | Art/educational supplies |
| KMC Paper/Oakland | (510) 835-3537 | | | | | | | | | | | | | |
| Mission Pallet Co./Oakland | (510) 261-0994 | | | | | | | | | | x | | | |
| National Recycling Corporation/Oakland | (510) 268-1022 | | | | | | | | | | | | | |
| American Transitech/Mountain View | (415) 968-4397 | | | | | | | | | | | | | Laser toner cartridges |
| Sears Automotive Center/San Jose | (408) 238-1122 | | | | | | | | | | | x | | |
| A-1 Recycling Circus/Gilroy | (408) 842-0288 | x | x | x | x | x | x | x | x | x | x | x | | |
| Bay Polymer Corporation/Fremont | (415) 490-1791 | | | | | | | | | | | | | Plastics |
| Weyerhauser Paper/San Jose | (408) 287-5441 | x | x | | x | x | x | x | x | | | | | |
| California Cartridge Co./Walnut Creek | (510) 939-1718 | | | | | | | | | | | | | Laser toner cartridges |
| Budget Battery/Milpitas | (408) 263-7666 | | | | | | | | | | | | | |
| Larson Pallet Co./Milpitas | (408) 946-4971 | | | | | | | | | | x | | | |

AL = aluminum cans; GL = glass; HG = high grade paper; LG = low grade paper; NW = newspaper; MG = glossy paper; CB = OCC and kraft paper

## Appendix E. Supplemental Processor Survey Contacts

| Name/City | Telephone | AL | GL | PET | HG | LG | NW | Mag | CB | Scrap Metals | Wood Pallets | Automotive Batteries | Oil | Other Materials |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Confer Metals & Refiners/Sunnyvale | (408) 243-8999 | | | | | | | | | | | | | |
| Sunnyvale Recycling Center/Sunnyvale | (408)730-7262 | | x | | | | x | x | x | | | x | x | |
| Cupertino Recycling Center/Cupertino | (408) 371-5834 | | | | | | | | | | | | | |
| Abe's Westgate Union/San Jose | (408) 379-1929 | | | | | | | | | | | x | x | Tires |
| All Recycling/San Jose | (408) 629-4061 | x | x | x | x | x | x | x | x | x | | x | | |
| Almaden Mobile/San Jose | (408) 265-7621 | | | | | | | | | | | | | |
| C & M Diversified/San Jose | (408) 294-5185 | | | | | | | | | | | | | Construction and demolition debris |
| C & M Service/San Jose | (408) 298-5385 | | | | | | | | | | | x | x | |
| Charron Metals/San Jose | (408) 298-8289 | x | | | | | | | | x | | | | |
| City Metals & Salvage/San Jose | (408) 452-0777 | | | | | | | | | | | | | All non- ferrous metals |
| Coastal Fibers/San Jose | (408) 453-1960 | x | x | x | x | x | x | | x | | | | | |
| Cogido Paper of S. J./San Jose | (408) 295-1664 | x | x | x | x | x | x | x | x | | | | | |
| Computer Paper Recycling/San Jose | (408)297-7177 | | | | | | | | | | | | | |
| Ecology Plus/San Jose | (408) 993-1369 | | | | | | | | | | | | | |
| G & L Shell/San Jose | (408) 257-0848 | | | | | | | | | | | x | x | Coolant |
| Independent Paper Stock/San Jose | (408)292-6552 | x | x | x | x | x | x | | x | | | | | |
| In-House Recycling/San Jose | (408) 292-4372 | x | | | x | | x | x | | | | | | |
| JDM Packing/San Jose | (408) 723-7400 | | | | | | | | x | | | | | Plastic "peanut" packing material |
| LMC Metals/San Jose | (408) 294-8443 | x | x | x | x | | x | | x | x | | x | | |
| Lou's Town & Country Exxon/San Jose | (408) 296-7503 | | | | | | | | | | | x | x | |
| Markovits & Fox/San Jose | (408) 453-7888 | | | | | | | | | | | | | |
| Montgomery Ward Auto Center/San Jose | (408) 272-6258 | | | | | | | | | | | | | |
| Quick Recycling Center/San Jose | (408) 452-8319 | x | x | x | | | x | | x | x | | x | | HDPE |
| Recycle America Waste Mngmnt/San Jose | (408) 243-1335 | x | x | x | | | x | | x | | | | | HDPE, tin cans |
| Recycling Specialists/San Jose | (408) 437-7553 | x | x | x | x | | x | | x | x | | x | | Other metals |
| Safety Kleen/San Jose | (408) 294-8778 | | | | | | | | | | | | x | Solvents, industrial fluids |

AL = aluminum cans; GL = glass; HG = high grade paper; LG = low grade paper; NW = newspaper; MG = glossy paper; CB = OCC and kraft paper

Appendix E. Supplemental Processor Survey Contacts

| Name/City | Telephone | AL | GL | PET | HG | LG | NW | Mag | CB | Scrap Metals | Wood Pallets | Automotive Batteries | Oil | Other Materials |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Salvation Army/San Jose | (408) 998-4400 | | | | | | | | x | x | | | | White goods, textiles, furniture |
| San Felipe Exxon/San Jose | (408) 274-3854 | | | | | | | | | | | | | |
| San Jose Battery/San Jose | (408) 947-1726 | | | | | | | | | | | x | | |
| San Jose Conservation Corps/San Jose | (408) 283-7171 | x | x | x | x | x | x | x | | | | | | |
| San Jose Metals/San Jose | (408) 293-4032 | | | | | | | | | x | | | | |
| San Jose Recycling and Transfer/San Jose | (408) 294-7007 | | | | | | | | x | x | | | | Wood |
| San Jose Recycling II/San Jose | (408) 294-1370 | | | | | | | | | | | | | Wood |
| San Jose Tallow Company/San Jose | (408) 452-8777 | | | | | | | | | | | | | |
| Sears Auto Center/San Jose | (408) 238-1122 | | | | | | | | | | | x | x | Antifreeze, tires |
| Silvia Service Texaco/San Jose | (408) 295-8968 | | | | | | | | | | | | | |
| Snell Chevron/San Jose | (408) 227-1560 | | | | | | | | | | | | x | |
| Spectrum Metals/San Jose | (408) 452-8121 | | | | | | | | | | | | | |
| Stanford Recycling Center/Palo Alto | (415) 723-0919 | x | x | x | x | x | x | x | | | | | | HDPE, tin cans |
| St. Anthony's Church/San Jose | (408) 997-4800 | | | | | | x | | | | | | | |
| Technalloy Inc./San Jose | (408) 437-1995 | | | | | | | | | x | | | | |
| U-Save Broken Pallet Repair/San Jose | (408) 295-4840 | | | | | | | | | | x | | | |
| Valley Recycling/San Jose | (408) 297-5352 | | | | | | | | | x | | | | Copper, brass |
| Yu Al Kai/San Jose | (408) 294-2505 | x | | | | | x | | | | | | | |
| BFI/Belmont | (415) 637-1411 | x | x | x | x | | x | | x | | | | | HDPE |
| Howard Jones Battery/Belmont | (415) 349-3820 | | | | | | | | | | | x | | |
| Berman Diversified/Los Altos | (415) 967-4063 | | | | | | | | | | | | | |
| Loyola Fire Station/Los Altos | (415) 948-1491 | | | | | | | | | | | | | |
| Sequoia Fire Station/Los Altos | (415) 948-1491 | | | | | | | | | | | | | |
| California Glass Recycling/Sacramento | (916) 483-8585 | | | | | | | | | | | | | |
| G & C Recycling/Berkeley | (510) 843-7025 | | | | | | | | | | | | | |

AL = aluminum cans; GL = glass; HG = high grade paper; LG = low grade paper; NW = newspaper; MG = glossy paper; CB = OCC and kraft paper

Appendix E. Supplemental Processor Survey Contacts

| Name/City | Telephone | AL | GL | PET | HG | LG | NW | Mag | CB | Scrap Metals | Wood Pallets | Automotive Batteries | Oil | Other Materials |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Tech Polymers/Berkeley | (510) 644-1180 | | | | | | | | | | | | | Post-consumer plastics |
| Heckman Metals Company/E. Palo Alto | (415) 324-9666 | x | x | x | | | | | | x | | | | Precious metals |
| Industrial Pallet Co./Union City | (415) 489-4050 | | | | | | | | | | | | | Pallets repaired |
| Secondary Fibre/Union City | (415) 487-4995 | | | | x | | | | x | | | | | A-septic packaging |
| K & R Paper Recycling/San Bruno | (415) 588-8092 | | | | x | | | | | | | | | |
| Laser-Life Technologies/Dublin | (415) 829-9215 | | | | | | | | | | | | | Laser toner cartridges |
| Palo Alto Recycling Center/Palo Alto | (415) 493-4894 | x | x | x | x | | x | | x | x | | | | Styrofoam, white goods, bi-metal & steel cans |
| Paper Plus Recycling/Minnesota | (612) 378-1374 | | | | | | | | | | | | | |
| Peninsula Conservation Center/Palo Alto | (415) 494-9301 | | | | | | | x | | | | | | |
| Porta Pulper/San Mateo | (415) 344-6336 | | | | x | x | | | | | | | | |
| Rehig Pacific/Menlo Park | (415) 369-3727 | | | | | | | | | | | | | HDPE (blow & injection mold) |
| United Way/San Francisco | (415) 872-6736 | | | | | | | | | | | | | |
| City of the Children | (800) 422-6772 | | | | | | | | | | | | | |
| Discovery Shop/San Jose | (408) 294-3982 | | | | | | | | | | | | | Clothing, dishes, furnishings, small appliances |
| Goodwill/San Jose | (408) 998-5774 | x | x | x | | | | | | x | | | | Clothing, dishes, furnishings, small appliances |
| PARCA/Burlingame | (800) 548-2617 | | | | | | | | | | | | | Clothing, dishes, furnishings, small appliances |
| Mr. Picky's Secondhand/San Jose | (408) 371-1863 | | | | | | | | x | | | | | Clothing, furniture |
| St. Vincent de Paul Society/San Jose | (408) 993-9500 | | | | | | | | | | | | | Clothing, dishes, furnishings, small appliances |
| Lucky (90 El Paseo)/San Jose | (408) 374-9030 | | | | | | | | | | | | | Film and kraft bags |
| Independent Renderers/Richmond | (800) 235-8886 | | | | | | | | | | | | | Used cooking oil |
| Clarence E. Pementel/San Jose | (415) 656-1151 | | | | | | | | | | | | | Dead animals |
| Salinas Tallow Company/San Jose | (408) 452-8777 | | | | | | | | | | | | | |
| Barringer Hauling and Stump/Los Gatos | (408) 354-4335 | | | | | | | | | | | | | Wood waste (stumps), misc. refuse (furniture) |
| Pacific Rim/Sacramento | (707) 746-6067 | | | | | | x | | | | | | | |

AL = aluminum cans; GL = glass; HG = high grade paper; LG = low grade paper; NW = newspaper; MG = glossy paper; CB = OCC and kraft paper

Appendix E (Continued). Generator Survey Contacts -- Monte Sereno

| Name/City | Telephone | AL | GL | PET | HG | LG | NW | Mag | CB | Scrap Metals | Wood Pallets | Automotive Batteries | Oil | Other Materials |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| City Hall/Monte Sereno | (408) 354-7635 | x | | | | x | x | x | | | | | | |
| Daves Avenue School/Monte Sereno | (408) 395-6311 | x | | | | | | | | | | | | |
| American Red Cross/Monte Sereno | (408) 354-6086 | | | | | | | | x | | | | | |
| First Baptist Church/Monte Sereno | (408) 395-6144 | x | | | | | | | | | | | | |
| Central Fire District/Monte Sereno | (408) 378-4010 | | | | | | | | | | | | | |



AL = aluminum cans; GL = glass; HG = high grade paper; LG = low grade paper; NW = newspaper; MG = glossy paper; CB = OCC and kraft paper

# METHODOLOGY FOR SOLID WASTE DIVERSION CHARACTERIZATION COUNTY OF SANTA CLARA

## Background

In January of 1991, the County of Santa Clara retained EMCON Associates (EMCON) to conduct a modified solid waste diversion study limited to data available from

- Local secondary materials market outlets
- Recycling collectors
- Materials brokers
- End users
- California certified redemption centers
- City recycling and composting programs
- Transfer station records
- Hauler records

The objective of the County-sponsored waste diversion study was to provide assistance to jurisdictions within the County in the preparation of waste generation studies as part of the AB 939 planning process. No businesses were surveyed as part of this study.

In accordance with Title 14, Chapter 9 of the California Code of Regulations (CCR), the diversion characterization identifies the composition and quantity of solid waste generated within a given jurisdiction that is diverted

for a continuous 12-month period after 1984 and prior to the jurisdiction's adoption of the Source Reduction and Recycling Element (SRRE). Diversion refers to the measured amount of waste (1) reduced in the jurisdiction, or (2) generated within a jurisdiction and recycled or composted at sites within or outside of that jurisdiction.

Section 18732 of Chapter 9 of the CCR identifies the following methods as being acceptable for determining diversion:

1. Quantitative field analysis, and/or
2. Materials flow with use of current written records from disposal facilities, and/or
3. Existing disposal data from comparable jurisdictions

In conducting the waste diversion characterization for the County, EMCON selected Method 2 (materials flow plus records). The time period selected for the diversion characterization was the 12-month period, January 1990 through December 1990.

The following surveys were undertaken to obtain waste diversion data:

- a mail survey of collectors and processors of recyclable materials, utilizing a material flow methodology;
- a mail survey of City residential and nonresidential diversion programs; and
- a telephone survey of transfer station and landfill operators

## Survey Methodology

**Recyclers' survey.** Initially EMCON developed a survey form for recyclers, brokers, and end users to determine quantities of waste diverted by material type in 1990. To promote participation in the survey, recyclers were informed that the information that they provided would be reported in

**Methodology for Solid Waste Diversion Characterization**
**County of Santa Clara**

**Background**

Revisions have been made to page 2 as a result of the CIWMB review of the Preliminary Draft SRRE and the following additional information provided by Emcon Associates.

Matt Southworth, Emcon Associates, advised that Emcon Associates' survey method most closely approximates the definition of jurisdiction-specific data (Section 18722.K(3)), except that the survey gathered published as well as unpublished data. (Telecon with Mike Perry, Santa Clara County Office of Toxics and Solid Waste Management, June 19, 1992.)

aggregate form only, to ensure confidentiality. The survey form identified the need for the following data:

- Business type (e.g., broker, collector, scrap metal dealer, buy-back center, etc.)
- Anticipated percentage increase (or decrease) in recycling tonnage in 1991
- Tonnage of materials collected by type for 1990
- Source of the waste (i.e., residents, commercial businesses, industry, other)
- Purchaser of recyclables (if not end user)

The survey form was reviewed by the County prior to its mailing. Copies of the survey form and the confidentiality agreement are provided in Attachment 1.

A mailing list of recyclers, brokers, and end users of secondary materials in the area 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

The mailing list for recyclers, collectors, brokers, and end users ("Bay Area Recyclers") is provided in Attachment 2.

An additional list of 13 recycling collectors and brokers was developed by referrals from other recycling firms. The names and addresses of these firms are included in Attachment 2.

**City programs survey.** Next, EMCON prepared a survey form for all the cities within Santa Clara County to obtain data on the quantities of wastes diverted from the residential waste stream (and a portion of the commercial waste stream.)

The survey of city programs requested data on the following residential diversion programs

- Curbside collection program
- Drop-off recycling center(s)
- Buy-back center(s)
- 20/20 center(s)
- Curbside/and waste collection
- Drop-off yard waste program

The survey form sent to cities also requested the following data for commercial-industrial diversion programs:

- Collection of recyclables from commercial businesses by privately owned recycling firms
- Drop-off center(s) for commercial-industrial wastes
- Restaurant-bar glass collection
- High-grade office paper collection
- Cardboard collection program for commercial and retail firms

The County reviewed the survey form prior to its mailing. A copy of the form used to obtain data on these programs is presented in Attachment 1.

The October 1990 mailing list of the Technical Advisory Committee for the Santa Clara County Office of Toxics and Solid Waste Management was the source of the names and addresses for the survey recipients in the

15 jurisdictions within the County. Survey forms were sent to the following:

**Campbell** - Barbara Lee, City Manager's Office

**Cupertino** - Bert Viskovich, Director of Public Works

**Gilroy** - Em Rojas, HCD Coordinator

**Los Altos** - Bruce Bane, Director of Public Works

**Los Altos Hills** - Bill Ekern, Director of Public Works

**Los Gatos** - Regina Falkner, Manager, Community Service Division

**Milpitas** - Cynthia Rosson, Assistant Planner

**Monte Sereno** - Rosemary Pierce, Chief Administrative Officer

**Morgan Hill** - Susan Tosh, Environmental Programs Division, Department of Public Works

**Mountain View** - Dianne Dryer, Recycling Coordinator

**Palo Alto** - Mike Miller, Department of Public Works

**San Jose** - Gary Liss, Solid Waste Manager

**Santa Clara** - Rick Mauck, Deputy Director/Public Works

**Saratoga** - Vera Dahle, Solid Waste Program Manager

**Sunnyvale** - Mark Bowers, Solid Waste Program Manager

**Transfer station phone survey .** The San Jose Recycling and Transfer Station and the San Martin Transfer Station were surveyed by phone to obtain data from jurisdictions within Santa Clara County that salvage and recycle. Waste types for which data were collected were:

- Metals, including aluminum, tin, and ferrous metals
- Corrugated cardboard
- Wood
- Yard waste

- Glass

**Landfill phone survey.** The City surveyed operations at the following landfills by phone to obtain estimates of waste quantities diverted from landfilling:

- All Purpose Landfill
- Guadalupe Landfill
- Pacheco Pass Landfill
- Zanker Road Landfill

Data were obtained from landfill operators on the following waste categories for jurisdictions in Santa Clara County:

- Glass, including CA Redemption Value, refillable beverage containers, and other recyclable glass
- Yard waste
- Metals, including aluminum, ferrous, and non-ferrous metals
- Plastics, including HDPE, PET, film, and other plastics
- Wood waste
- Inert solids, including concrete and asphalt

## Summary of Survey Results

**Survey recipients.** A total of 138 recyclers, brokers, collectors, end users, and operators of transfer stations and landfills were surveyed as part of the City's waste diversion characterization. A breakdown by category of those surveyed is as follows:

1. Bay Area Recyclers' List - 119 recyclers, collectors and brokers received surveys.

   *(A copy of this list is included in Attachment 2).*

2. Additional 13 recyclers and collectors (not on Bay Area Recyclers' list).

   *(A copy of this list is included in Attachment 2).*

3. Transfer stations and landfills (a total of 6 facilities).

   *(A copy of this list is included in Attachment 2).*

**Survey response.** Of the 138 recyclers and operators of transfer stations and landfills who responded to the mail survey and/or phone survey, 49 responded, for a response rate of 36 percent. A breakdown of the responses by category is as follows:

- 132 recyclers, brokers, collectors and end users were surveyed; 41 replied, for a response rate of 31 percent
- 6 operators of landfills and transfer stations were surveyed and all responded, for a response rate of 100 percent.

In addition, all of the jurisdictions within the County responded to the mail survey of recycling and composting programs.

## Data Reduction, Interpretation, and Assumptions

**Cross checking.** To avoid double counting the data provided by recyclers, collectors, and end users, the material flow was charted for each waste type for which information was provided. 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.

**Data reduction.** Waste diversion data were tallied on a spreadsheet form; survey results for recyclers were reported in the aggregate, in compliance with the confidentiality agreement between the consultant

conducting the study and the survey respondents (see Attachment 1). 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 data specific to each jurisdiction.

**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 3. 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) |

**Data apportioning and assumptions.** When data were available only in the aggregate, EMCON apportioned the data to specific jurisdictions based on the population ratio of those areas for which data were reported, based on ABAG's *Projections '90*.

In reviewing the data provided in the "Diversion Quantities" tables prepared for each jurisdiction, one should note the following assumptions:

1. A column entitled "transformation" was provided in each table to enable jurisdictions to use this table as a model to

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1 Lehrburger, Carl, *Diapers in the Waste Stream:* A Review of Waste Management and Public Policy Issues, December 1988.

**Methodology for Solid Waste Diversion Characterization**
**County of Santa Clara**

The following additional information has been provided by staff from Emcon Associates as a result of the CIWMB review of the Preliminary Draft SRRE:

Appendix F, page 8, Background

Following is the citation for the reference to the conversion factors from the National Recycling Coalition:

The National Recycling Coalition Measurement Standards and Reporting Guidelines, October 31, 1989, pages 37-39, (published by the National Recycling Coalition), Washington, D.C.

Appendix F, pages 8, 10: Method for Calculating Diversion Rate

Formula used to estimate quantity of diapers diverted:

number of children x 50 diapers per child per week x 52 weeks per year = number of diapers per year

$$\frac{\text{Diapers per year}}{\text{4,500 disposable diapers/ton}^1} = \text{tons per year diverted}$$

$$5 \times 50 \times 52 = \frac{13,000}{4,500} = 2.8 \text{ tons diverted}$$

WGS APPF.MS

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[1]Lehrburger, C. "Diapers in the Waste Stream", Beaudry Communications, Washington, D.C., December 1988.

record this information for future SRRE revisions. As specified in AB 939, after January 1, 1995, up to 10 percent of transformation (incineration, pyrolysis, and other processes) can count toward the 50 percent diversion target (by 2000), provided that the front-end removal of recyclable materials and other specified conditions are met.

2. 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.

3. Data for industrial wastes are included in the table with commercial waste data (except where specifically listed) because collectors do not distinguish by source in their records.

4. Apartment recycling is generally not reported separately from residential recycling. However, because of the different type of collection system, a column is provided in the diversion data table for each city 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.

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.

## Method for Calculating Diversion Rate

"Diversion Quantities" tables for residential and nonresidential wastes were prepared for each jurisdiction by tabulating the tons diverted by material type in 1990. These tables can be used by each jurisdiction to calculate percentage diversion rates by waste type after the total waste disposal quantities have been determined.

When combined, the results of the disposal and diversion characterization yield the total amount of solid waste generated, according to the equation defined by AB 939:

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.

The methodology for calculating the diversion rate (after the total quantity of waste disposed of by material type for 1990 has been determined by each jurisdiction) is as follows:

- tabulate the tons/year disposed of by waste type and waste generator (residential, commercial, etc.) (Each jurisdiction must determine its waste disposal quantities.)
- tally these disposal quantities by waste type
- in a separate column, sum the quantity of waste diverted for each waste type (data provided by the County as a result of the EMCON waste diversion survey)
- add up the quantities disposed of and diverted to determine the total quantity in tons/year generated by waste type (disposed of + diverted = total generated)
- divide the quantity source reduced, recycled, and composted by the total waste generated to determine the diversion rate [(source reduction + recycling + composting x 100)/total quantity of solid waste generated = diversion rate percent]

Attachment 4 provides an example of a table that illustrates the calculation of diversion rates.

## Supplementary Information

The following attachments provide supplementary information on the solid waste diversion characterization conducted for Santa Clara County:

| | |
|---|---|
| **Attachment 1** | Survey forms and confidentiality agreements |
| **Attachment 2** | Recyclers, collectors, end users, landfill and transfer station operators surveyed |

| | |
|---|---|
| **Attachment 3** | Conversion factors |
| **Attachment 4** | Model for calculating diversion rate |

# Attachment 1
# SURVEY FORMS AND CONFIDENTIALITY AGREEMENT

**County of Santa Clara**
Department of Planning and Development
Office of Toxics and Solid Waste Management

1735 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

# 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
_____Broker
_____Dealer/Packer
_____End market/Manufacturer
_____Convenience Zone Redemption Center
_____Scrap Metal Dealer
_____Buy-Back Center
_____Auto Wrecker
_____Donation Center
_____Asphalt/Concrete Recycler
_____Non-profit Organization
_____Demolition Debris Recycler
_____Commercial Composter
_____Wood Waste Chipper
_____News Bin Operator
_____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.

## Recycling Material 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) | | | |

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 | | | | | | | |
| newspaper | 1000 | | 20 | 200 | | | 1220 |
| high grade ledger paper | | | | | | | |
| mixed paper | | | | | | | |
| other paper | | | | | | | |
| **PLASTICS** | | | | | | | |
| HDPE containers | | | | | | | |
| PET containers | | 2 | | | | | 2 |
| film plastics | | | | | | | |
| other plastics | | | | | | | |
| **GLASS** | | | | | | | |
| refillable bev. containers | | | | | | | |
| CA Redemption Value | 300 | 50 | 10 | 100 | | | 460 |
| other recyclable glass | 300 | | | | | | 300 |
| other non-recyclable glass | | | | | | | |
| **METALS** | | | | | | | |
| aluminum cans | 50 | 10 | 2 | | | | 62 |
| bi-metal containers | | | | | | | |
| tin cans | 40 | | | | | | 40 |
| other ferrous | 100 | | | | | | 100 |
| other aluminum | | | | | | | |
| other non-ferrous | | | | | | | |
| white goods | | | | | | | |
| **YARD WASTE** | | | | | | | |
| leaves, grass | | | | | 800 | | 800 |
| brush, branches | | | | | 300 | | 300 |
| **OTHER ORGANICS** | | | | | | | |
| food waste | | | | | | 50 | 50 |
| 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 | | | | | | |

# CONFIDENTIALITY AGREEMENT REGARDING SOLID WASTE DIVERSION STUDY BY EMCON ASSOCIATES

WHEREAS, COUNTY OF SANTA CLARA, hereinafter "County," wishes to identify the amounts and types of waste being generated, recycled and reduced by various commercial and industrial businesses in the County of Santa Clara by conducting solid waste diversion surveys through its representative, EMCON Associates (EMCON), and

WHEREAS, the general purpose of such solid waste diversion surveys will be to determine what types and quantities of refuse and recyclables are generated or reduced by the business concerned, and whether it is economically feasible for that business to recycle the materials or reduce its waste, and

WHEREAS, _____, hereinafter referred to as "Company," has agreed to cooperate with County staff and furnish information and materials about its operations at its _____ facility(s) located at _____ to EMCON on the terms and conditions set forth below,

NOW, THEREFORE, the parties hereby agree as follows:

1. In consideration for the furnishing by Company of the opportunity to review, examine, and otherwise obtain information necessary to perform solid waste diversion surveys of Company's facility, including the right by EMCON to interview employees or representatives of the Company, EMCON agrees that all proprietary information or trade secrets

furnished to it in confidence by Company shall be used only for the purpose contemplated, and shall not be used for any other purpose or be disclosed to any third party without prior written permission of Company.

2. It is understood that EMCON shall have no obligation of confidentiality with respect to any information known by it, or generally known within the industry, prior to the date of this agreement, or which information becomes common knowledge within the industry thereafter.

3. Should any documents prepared by EMCON which contain proprietary or trade secrets information obtained pursuant to this agreement be the subject of a request for disclosure pursuant to the Public Records Act (Government Code Section 6250 et seq), EMCON shall give Company prompt notice of such request, and an opportunity to object to the production of such documents on that basis. Should the company declare its objection to such production, EMCON will defend against such production in any action brought to obtain such documents through the Public Records Act, and shall give notice and an opportunity for Company to join such action.

4. Should access to proprietary information or trade secrets obtained by EMCON through this agreement be sought by any other legal processs, EMCON shall give prompt notice to Company of such demand and EMCON shall provide Company an opportunity to join in such action.

5. Any and all costs, including, but not limited to, in-house and outside attorney's fees to respond in the manner outlined in paragraphs 3 and 4 shall be reimbursed by Company.

Dated: _____ EMCON Associates

By:_____

Dated: _____ "Company"

_____

By:_____

# Attachment 2
# RECYCLERS, COLLECTORS, END USERS, LANDFILL AND TRANSFER STATION OPERATORS SURVEYED

# Bay Area Recyclers [1]

## Surveyed as Part of the County of Santa Clara Waste Diversion Study

| Name/City | Address/Telephone | --- Paper --- AL | GL | PET | HG | LG | Mag | CB | Scrap Metals | Wood Pallets | - Automotive - Batteries | Oil | - Other - Materials | Hours |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 20/20 Recycle Centers<br>San Jose | Call for nearest location<br>(800) 327-9886 | b | b | b | | | | | | | | | | |
| ✓ A & A Pallet Recycle<br>Alviso | 800 Spreckles Avenue<br>(403) 263-4864 | | | | | | | | | f | | | | |
| ABC Recycling Industries<br>Santa Clara | 1015 Martin Avenue<br>(408) 732-9253 | b | b | b | b | b | | b | b | | b | | Newspaper | M-F 7-5, Sa 7-12 |
| Abe's WestGate Union<br>San Jose | Saratoga & Campbell Aves.<br>(408) 397-1929 | | | | | | | | | | | f | | |
| AC Pallet Service<br>Alviso | 1370 Taylor Street<br>(403) 263-4864 | | | | | | | | | f | | | | |
| P Action Recycling<br>Hayward | 727 Industrial Prkwy. West<br>(415) 843-7025 | b | b | | b,c | b,c | | | | | | | | M-F 8-4:30, Sa 8-2 |
| Alco Iron and Metal Co.<br>San Leandro | 2350 Davis Street<br>(415) 562-1107 | | | | | | | | b,c | | | | Electronic scrap | |
| All Recycling<br>San Jose | 175 Lewis Road, Bldg. 25<br>(408) 629-4061 | b | b | b | b | b | | | b | | | | Tin cans | T-Su 9-6 |
| Almaden Mobile<br>San Jose | Blossom Hill & Almaden Expwy.<br>(408) 265-7621 | | | | | | | | | | | f | | |
| American Ink Products Co. | 630 E. 10th Street | | | | | | | | | | | | Toner cartridge | |

AL: aluminum GL: glass PET: plastic CB: cardboard HG: high grade LG: low grade b: buy back c: collection d: drop-off f: drop-off fee

1. A check mark (✓) to the left of the company's name indicates that this firm replied in writing to the mailed survey.
   A "P" to the left indicates a phoned response.
   A line through the name of the company indicates that the mailed survey was returned by the post office.
2. A check mark (✓) to the right of the company's name indicates that the firm provided data only for Palo Alto.
   Two check marks (✓✓) to the right of the company's name indicates that the firm provided data only for Milpitas.

Bay Area Recyclers - Alphabetical

| Name/City | Address/Telephone | AL | GL | PET | --- Paper --- HG | LG | Mag | CB | Scrap Metals | Wood Pallets | - Automotive - Other Batteries | Oil | Materials | Hours |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Oakland | (415) 268-0825 | | | | | | | | | | | | | |
| [redacted] Walnut Creek | [redacted] (415) 937-8102 | | | | | | | | | | | | Toner cartridge | |
| American Transitech Mountain View | 1917 Old Middlefield, # 5 (415) 968-4397 | | | | | | | | | | | | Toner cartridge | M-F 8-5 |
| Appling and Son Recycling Oakland | 620 51st Street (415) 653-5460 | b | b | b | b | b | | b | b | | | | | M-Sa 10-4 |
| Arata Eastern Inc. San Jose | 388 E. Alma (408) 297-1022 | | | | b | b | | b | | | | | Newspaper | M-F 7-5, Sa 7-2:30 |
| A-1 Recycling Circus Gilroy | 150 Howson Street (408) 842-0288 | b | b | b | b | b | | b | b | | | | Newspaper | M-Sa 8:30-5:30 |
| Battery Exchange San Jose | 193 Bernardo Avenue (408) 286-8039 | | | | | | | | | | | d f | | |
| Bay Area Recycling Center Campbell | 710 McGlincey Lane (408) 371-5834 | b | b | b | b | | | | | | | | Newspaper | 8-5 M-Su |
| Bay Polymer Corporation Fremont | 44530 Grimmer Blvd. (415) 490-1791 | | | | | | | | | | | | Industrial plastic | |
| Bayland Battery Corp. San Jose | 800 Faulstich Court (408) 453-3522 | | | | | | | | | | | d | | |

AL: aluminum GL: glass PET: plastic CB: cardboard HG: high grade LG: low grade b: buy back c: collection d: drop-off f: drop-off fee

Bay Area Recyclers - Alphabetical

| Name/City | Address/Telephone | --- Paper --- AL | GL | PET | HG | LG | Mag | CB | Scrap Metals | Wood Pallets | - Automotive - Batteries | Oil | - Other Materials | Hours |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Berman Diversified<br>Los Altos | 349 1st Street<br>(415) 967-4063 | | | | | | | | b,c | | | | Electronic scrap | |
| Blake Enterprises ✓<br>Walnut Creek | 2154A N. Main Street<br>(415) 939-1718 | | | | | | | | | | | | Toner cartridge | |
| ~~Bonanza Wood Products~~<br>~~Brentwood~~ | ~~P.O. Box 677~~<br>~~(415) 634-2105~~ | | | | | | | | | f | | | | |
| Budget Battery<br>Milpitas | 1482 S. Main Street<br>(408) 263-7666 | | | | | | | | | | f | | | |
| ~~Buffalo Incorporated~~<br>Menlo Park | ~~535 Middlefield Road~~<br>~~(415) 326-3103~~ | | | | | | | | | | | | Toner cartridge | |
| C & M Diversified<br>San Jose | 330 Montgomery Road<br>(408) 294-5185 | | | | | | | | | f | | | | |
| C & M Service<br>San Jose | 1098 W. San Carlos<br>(408) 298-5385 | | | | | | | | | | | f | | |
| California Glass Recycling<br>Sacramento | 1225 Eighth, Suite 590<br>(916) 442-7002 | | b | | | | | | | | | | | |
| Charron Metals Corp.<br>San Jose | 395 E. Gish Road<br>(408) 463-8045 | | | | | | | | f,c | | | | Electronic scrap | |

AL: aluminum GL: glass PET: plastic CB: cardboard HG: high grade LG: low grade b: buy back c: collection d: drop-off f: drop-off fee

# Bay Area Recyclers - Alphabetical

| Name/City | Address/Telephone | AL | GL | PET | --- Paper --- HG | LG | Mag | CB | Scrap Metals | Wood Pallets | - Automotive - Batteries | Oil | - Other - Materials | Hours |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Circo Recyclers<br>Newark | 6565 Smith Avenue<br>(415) 791-6980 | b | c | | | | | c | | | | | | T-F 9-3, Sa 9-2 |
| City Metals and Salvage<br>San Jose | 11665 Berryessa Road<br>(408) 452-0777 | b | b | b | | | | | b | | b | | | M-F 8-4:45, Sa 8-11:30 |
| Coastal Fibers<br>San Jose | 1045 Commercial Court<br>(408) 453-1960 | b | b | b | b | b | d | b | | | | | Newspaper | M-F 6:30-4:30, Sa 12-3:3 |
| Cogido Paper of San Jose<br>San Jose | 302 East Taylor Street<br>(408) 275-6448 | b | b | b | b | b | d | b | | | | | Newspaper | M-Sa 8-6 |
| Computer Paper Recycling<br>San Jose | (408) 297-7177 | | | | c | c | | | | | | | | |
| Confer Metals and Refiners<br>Sunnyvale | 1164 Willow Avenue<br>(408) 243-8999 | | | | | | | | b,c | | | | Electronic scrap | |
| Container Corp. of America<br>Santa Clara | 2600 De La Cruz Blvd.<br>(408) 727-7576 | | | | | | b | | | | | | Newspaper | M-F 10-6:30, Sa 8-4:30 |
| [redacted]<br>San Jose | [redacted] | b | b | b | | | | | | | | | | T-F 11-4:30, Sa 8:30-4:3 |
| Cupertino Recycling Center<br>Cupertino | De Anza College, Lot D<br>(408) 371-5834 | d | d | d | d | d | | d | | | | d | Tin cans, newspaper | F-M 10-4 |
| DFF | 375 Quarry Road | b | b | b | b | d | | b | | | | | | M-Su 7:30-5 |

AL: aluminum GL: glass PET: plastic CB: cardboard HG: high grade LG: low grade b: buy back c: collection d: drop-off f: drop-off fee

## Bay Area Recyclers - Alphabetical

| Name/City | Address/Telephone | AL | GL | PET | Paper HG | Paper LG | Paper Mag | Paper CB | Scrap Metals | Wood Pallets | Automotive Batteries | Automotive Oil | Other Materials | Hours |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Belmont<br>Calif. Recyclers | (415) 637-1411<br>(408) 294-1305 | X | X | | X | X | | | | | | | | |
| ~~Denell Tire and Rubber~~<br>~~Huntington Park~~ | ~~4208 S. Alameda Co.~~<br>~~(213) 588-3155~~ | | | | | | | | | | | | Rubber | |
| ~~Dynamic Pallet Corporation~~<br>~~Antioch~~ | ~~P.O. Box 677~~<br>~~(415) 757-3524~~ | | | | | | | | | f | | | | |
| East Bay Depot<br>Oakland | 1027 60th Street<br>(415) 547-6470 | b | b | b | b,c | b,c | | b | b | | | | Industrial plastic | M-Su 10-6 |
| Ecology Plus<br>San Jose | 670 Commercial Street<br>(408) 993-1369 | b | | | b,c | | | c | b,c | | | | Electronic scrap | M-F 8-4 |
| ~~[illegible]~~<br>~~San Francisco~~ | ~~[illegible] # 220~~<br>~~(415) 861-8927~~ | b | | | | | | | | | | | | |
| ~~Elder's~~ MPI Inc.<br>San Jose | 1919 Lundy Avenue<br>(408) 432-8870 | | | | | | | | b,c | | | | Electronic scrap | |
| ESC Refining<br>Santa Clara | 705 Reed Street<br>(408) 988-4386 | | | | | | | | b,c | | | | Precious metal | |
| Foothill Disposal Company<br>Mountain View | 935 Terra Bella<br>(415) 967-0263 | b | b | b | | d | | d | | | | d | Newspaper | T-Sa 9-3 |
| G & C Recycling<br>Berkeley | 2425 6th Street<br>(415) 843-7025 | | | | b,c | b,c | | | | | | | | |

AL: aluminum GL: glass PET: plastic CB: cardboard HG: high grade LG: low grade b: buy back c: collection d: drop-off f: drop-off fee

Bay Area Recyclers - Alphabetical

| Name/City | Address/Telephone | AL | GL | PET | HG | LG | Mag | CB | Scrap Metals | Wood Pallets | Batteries | Oil | Automotive - Other Materials | Hours |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| G & J Shell<br>San Jose | Saratoga Ave. & Campbell<br>(408) 257-0848 | | | | | | | | | | | | d | |
| ~~Goodwill Industries~~<br>San Jose | 1080 N. 7th Street<br>(408) 998-5774 | b | b | b | | | | | | | | | Used Items | W-Su 9:30-5 |
| ~~[redacted]~~<br>~~[redacted]~~ | ~~[redacted]~~<br>~~[redacted]~~ | | | | | | | | | | | | f | M-Su 5:30-10 |
| ~~Hermanius Technologies~~<br>~~[redacted]~~ | ~~[redacted]~~<br>~~[redacted]~~ | | | | | | | | | | | | Lighting | |
| ~~Harris Recycling~~<br>Milpitas | 833 Ames Avenue<br>(408) 262-8090 | | | | | | | | | | | | f | |
| Howard Jones Batt 509 O'Neill Ave Belmont, CA (415) 349-3820 | | | | | | | | | | | | | | d |
| Heckman Metals Co.<br>E. Palo Alto | 220 Demeter<br>(415) 324-9666 | | | | | | | b,c | | | | | Electronic scrap | M-F 8-4:30, Sa 9-12 |
| Independent Paper Stock<br>San Jose | 201 Bassett Street<br>(408) 292-6552 | b | b | b | b,c | b,c | b | b | $50/ton | | | | Newspaper | M-F 7-3, Sa 7-12 |
| Industrial Pallet Co.<br>Union City | P.O. Box 161<br>(415) 489-4050 | | | | | | | | | | | | f | |
| ~~Intergalactic Recycling~~<br>~~[redacted]~~ | ~~[redacted]~~<br>~~[redacted]~~ | b | b | b | | | | | | b | | | | W-Su 8-5 |

AL: aluminum GL: glass PET: plastic CB: cardboard HG: high grade LG: low grade b: buy back c: collection d: drop-off f: drop-off fee

Bay Area Recyclers - Alphabetical

| Name/City | Address/Telephone | AL | GL | PET | Paper HG | Paper LG | Paper Mag | Paper CB | Scrap Metals | Wood Pallets | Automotive Batteries | Automotive Oil | Other Materials | Hours |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| In-House Recycling<br>San Jose | 5515 Lean Ave.<br>(408) ~~972-2947~~ 292-4372 | | | | b,c | b,c | | | | | | | | |
| JDH Packing<br>Campbell | 2541 S. Bascom<br>(408) 559-6201 | | | | | | | b | | | | | Packing material | |
| JDH Packing<br>San Jose | 5415 Camden Ave.<br>(408) 723-7400 | | | | | | | b | | | | | Packing material | |
| JDH Packing<br>San Jose | 1177 West San Carlos<br>(408) 287-2005 | | | | | | | BY THE BOX<br>b | | | | | Packing material | |
| JDH Packing<br>Sunnyvale | 176 E. Fremont<br>(408) 739-2500 | | | | | | | b | | | | | Packing material | |
| K & R Paper Recycling<br>San Bruno | 547 5th Avenue<br>(415) 588-8092 | | | | | b,c | | | | | | | | |
| ~~K & R Plastics~~<br>~~Castro Valley~~ | ~~17302 Ehle Street~~<br>~~(415) 276-4006~~ | | | | | | | | | | | | Plastic | |
| KMC Paper<br>Oakland | 2505 Poplar Street<br>(415) 853-3537 | c | c | c | | | | c | | | | | | |
| Larson Pallet Company<br>Milpitas | 1000 Yosemite Drive<br>(408) 946-4971 | | | | | | | | | f | | | | |
| ~~[illegible]~~ | ~~1481 Terminal Avenue~~ | | | | | | | | | | | | Toner cartridge | |

AL: aluminum GL: glass PET: plastic CB: cardboard HG: high grade LG: low grade b: buy back c: collection d: drop-off f: drop-off fee

Bay Area Recyclers - Alphabetical

| Name/City | Address/Telephone | AL | GL | PET | --- Paper --- HG | LG | Mag | CB | Scrap Metals | Wood Pallets | - Automotive - Batteries | Oil | - Other Materials | Hours |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ~~San Jose~~ | ~~(415) [illegible]~~ | | | | | | | | | | | | | |
| Laser-Life Technologies ✓<br>Dublin | 6711 Serria Ct., Ste. C<br>(415) 829-9215 | | | | | | | | | | | | Toner cartridge | |
| LMC Metals<br>San Jose | 1805 Monterey Highway<br>(408) 294-8443 | b | | | | | | | b | | d | | Auto bodies | M-F 8-4:15 |
| Los Gatos Recycling Center<br>Los Gatos | 41 Miles Avenue<br>(408) 354-6809 | d | d | d | d | d | | d | d | | | d | Newspaper | W 10-4, Sa & Su 9-3 |
| Lou's Town & Country Exxon<br>San Jose | S. Winchester Blvd.<br>(408) 296-7503 | | | | | | | | | | | f | | |
| Loyola Fire Station<br>Los Altos | 765 Fremont Ave.<br>(415) 948-1491 | | | | | | | d | | | | | | |
| Markovits & Fox<br>San Jose | 1633 Oakland Road<br>(408) 453-7888 | b | b | b | | | | | b | | | | HDPE plastic<br>Ltr Milk & Water Jugs<br>(Must be rinsed out) | M-F 8-5 |
| ~~Metals West~~<br>~~San Jose~~ | ~~1420 State~~<br>~~[illegible]~~ | | | | | | | | b,c | | | | Electronic scrap | |
| ~~Midway Scrap Metals~~<br>~~San Jose~~ | ~~1205 Mabaughlin Ave~~<br>~~(408) 263-7611~~ | | | | | | | | b,c | | | | | |
| Mission Pallet Company<br>Oakland | 2100 Dennison Street<br>(415) 790-1710 | | | | | | | | | f | | | | |

AL: aluminum GL: glass PET: plastic CB: cardboard HG: high grade LG: low grade b: buy back c: collection d: drop-off f: drop-off fee

Bay Area Recyclers - Alphabetical

| Name/City | Address/Telephone | AL | GL | PET | --- Paper --- HG | LG | Mag | CB | Scrap Metals | Wood Pallets | - Automotive - Batteries | Oil | - Other Materials | Hours |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Mission Trail Waste Syst.<br>Santa Clara | 735 Reed St.<br>(408) 727-5365 | b | b | | | | | | | | | | Newspaper | Sa 9-12 |
| Mobile Shredding<br>Santa Clara | 349 Laurelwood Road<br>(408) 748-0508 | | | | c | c | | | | | | | | |
| ~~Monterey Packaging~~<br>~~Monterey~~ | ~~P.O. Box 5565~~<br>~~[illegible]~~ | | | | | | | c | | | | | | |
| Montgomery Ward Auto Ctr.<br>San Jose | 444 N. Capital Ave.<br>(408) 272-6258 | | | | | | | | | | | d | | |
| Montgomery Ward Auto Ctr.<br>San Jose | 879 Blossom Hill Road<br>(408) 224-2357 | | | | | | | | | | | d | | |
| ~~Muehlstein H and Co. Inc.~~<br>~~Orange~~ | ~~[illegible]~~<br>~~(714) 385-1883~~ | | | | | | | | | | | | Industrial plastic | |
| National Recycling Corp.<br>Oakland | 1312 Kirkham Street<br>(415) 268-1022 | b | b | | b,c | | | c | | | | | | M-F 6-5:30, Sa 6:30-4 |
| Oakland Plastic Sales<br>Oakland | 1135 57th Avenue<br>(415) 533-5006 | | | | | | | | | | | | Industrial plastic | |
| ~~[illegible]~~<br>~~Pleasanton~~ | ~~[illegible]~~<br>~~[illegible]~~ | | b | | | | | | | | | | | |

AL: aluminum GL: glass PET: plastic CB: cardboard HG: high grade LG: low grade b: buy back c: collection d: drop-off f: drop-off fee

Bay Area Recyclers - Alphabetical

| Name/City | Address/Telephone | AL | GL | PET | Paper HG | Paper LG | Paper Mag | Paper CB | Scrap Metals | Wood Pallets | Automotive Batteries | Automotive Oil | Other Materials | Hours |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Oxford Tire Company<br>Union City | 33950 7th Street<br>(800) 992-3553 | | | | | | | | | | | | Tires (75-100 min.) | |
| Palo Alto Recycling Center<br>Palo Alto | 2380 Embarcadero Road<br>(415) 493-4894 | d | d | d | d | d | | d | d | | | d | Tin cans, newspaper | M 9-1, T-Sa 9-5 |
| Paper Plus Recycling<br>Palo Alto | 3541 Emerson St.<br>(415) 855-9368 | | | | c | c | | | | | | | | |
| Paper Recovery<br>Hayward | 25670 Nickel Place<br>(415) 785-7311 | | | | | b,c | | | | | | | | M-F 8-3 |
| Paul's Auto Center<br>Santa Clara | 3473 El Camino Real<br>(408) 244-6995 | | | | | | | | | | | f | | |
| Peninsula Conservation Center<br>Palo Alto | 2448 Watson Court<br>(415) 494-9301 | | | | | | d | | | | | | | |
| Porta Pulper<br>San Mateo | 800 S. Amphlett<br>(415) 344-6336 | | | | b,c | b,c | | c | | | | | | |
| Quick Recycling Center<br>San Jose | 2123 Bering Drive<br>(408) 452-8319 | b | b | b | b | b | | | b | | | | Newspr, HDPE plastic | M-Su 8-5 |
| Recycle America Waste Mgmt.<br>San Jose | 1140 Campbell Avenue<br>(408) 243-1335 | | b | | | | | | | | | | | |
| Recycling Specialists | 1720 Old Bayshore Hwy. | b | b | b | b | b | b | b | b | | | d | Newspaper | M-Sa 6-5:30, Su 10-3 |

AL: aluminum GL: glass PET: plastic CB: cardboard HG: high grade LG: low grade b: buy back c: collection d: drop-off f: drop-off fee

## 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 | | | 8,315 | |
| 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)** | 1,802 | | | 1,802 | |
| 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 |

## Bay Area Recyclers - Alphabetical

| Name/City | Address/Telephone | --- Paper --- AL | GL | PET | HG | LG | Mag | CB | Scrap Metals | Wood Pallets | - Automotive - Batteries | Oil | - Other Materials | Hours |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| San Jose | (408) 437-7553 | | | | | | | | | | | | | |
| Rehig Pacific<br>Menlo Park | 563 8th Ave.<br>(415) 369-3727 | b | | | | | | | | | | | | |
| Reynolds Aluminum<br>San Jose | 1303 Story Road<br>(408) 293-0760 | b | | | | | | | | | | | | 24-hr.machine |
| ~~Reynolds Recycling Trailer~~<br>~~Santa Clara~~ | ~~Kmart Shopping Center~~<br>~~(800) 280-2525~~ | b | b | b | | | | | | | | | | T-Sa 10-5 |
| Safety Kleen<br>San Jose | 1147 N. 10th Street<br>(408) 294-8778 | | | | | | | | | | | | Solvent, antifreeze | M-F 7-6:30 |
| Salvation Army<br>San Jose | 702 W. Taylor Street<br>(408) 298-4600 | | | | | | | | | | | | Used items | |
| San Felipe Exxon<br>San Jose | San Felipe & Aborn<br>(408) 274-3854 | | | | | | | | | | | f | | |
| San Jose Battery<br>San Jose | 670 Stockton Avenue<br>(408) 947-1726 | | | | | | | | | | d | | | |
| San Jose Conservation Corps<br>San Jose | 2650 Senter Road<br>(408) 998-5884 | c | c | c | c | c | | c | | | | | | |
| San Jose Metals<br>San Jose | 1032 N. 10th Street<br>(408) 293-4032 | b | | | | | | | b | | | | | M,Tu,Th 8-4; W,Sa 8-1 |

AL: aluminum GL: glass PET: plastic CB: cardboard HG: high grade LG: low grade b: buy back c: collection d: drop-off f: drop-off fee

Bay Area Recyclers - Alphabetical

| Name/City | Address/Telephone | --- Paper --- AL | GL | PET | HG | LG | Mag | CB | Scrap Metals | Wood Pallets | - Automotive - Batteries | Oil | - Other Materials | Hours |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S.J. Recycling & Transfer Stn.<br>San Jose | 291 Barnard Ave.<br>(408) 294-7007 | | | | | | | f | f | f | | | Yard Waste | |
| San Jose Recycling II<br>San Jose | 1675 Pomona Avenue<br>(408) 294-1370 | | | | | | | | | f | | | Yard Waste | M-F 6-6, Sa 6-12 |
| San Jose Tallow Company<br>San Jose | P.O. Box 610116<br>(408) 452-8777 | | | | | | | | | | | | Grease | |
| Santa Clara Recycling Center<br>Santa Clara | 5500 Lafayette<br>(408) 727-7576 | b | b | b | | | | | | | | | Tin cans, newspaper | M-Th 9-4, Sa 9-12 |
| Saratoga Recycling Center<br>Saratoga | 19700 Allendale<br>(408) 867-4005 | d | d | d | d | d | | d | | | | | | M-Su 9-4 |
| Sears Automotive Center<br>Cupertino | 10101 N. Wolfe Road<br>(408) 255-0222 | | | | | | | | | | d | | Tires | |
| Sears Automotive Center<br>Mountain View | 455 San Antonio Road<br>(415) 948-8511 | | | | | | | | | | d | | Tires | |
| Sears Automotive Center<br>San Jose | 2180 Tully Road<br>(408) 238-1122 | | | | | | | | | | d | | Tires | |
| Secondary Fiber<br>Union City | 33379 Railroad Avenue<br>(415) 487-4995 | | | | b,c | b,c | | | | | | | | |

AL: aluminum GL: glass PET: plastic CB: cardboard HG: high grade LG: low grade b: buy back c: collection d: drop-off f: drop-off fee

Bay Area Recyclers - Alphabetical

| Name/City | Address/Telephone | AL | GL | PET | Paper HG | Paper LG | Paper Mag | Paper CB | Scrap Metals | Wood Pallets | Automotive Batteries | Automotive Oil | Other Materials | Hours |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Security Shredding<br>San Jose | P.O. Box 3304<br>(408) 452-5996 | | | | f,c | f,c | | | | | | | | |
| Sequoia Fire Station<br>Los Altos | 10 Almond Ave.<br>(415) 948-1491 | | | | | | | d | | | | | | |
| Silva Service Texaco<br>San Jose | 4th St. & San Fernando St.<br>(408) 295-8968 | | | | | | | | | | | f | | |
| Smurfit<br>San Jose | 201 Bassett<br>(408) 292-6552 | b | b | b | b | b | d | b | | | | | | M-F 7-4, Sa 7-2 |
| Snell Chevron<br>San Jose | Blossom Hill Rd. & Snell Ave.<br>(408) 227-1560 | | | | | | | | | | | f | | M-F 9-6 |
| Spectrum Metals Recycling<br>1590 Berryessa | San Jose Flea Market<br>(408) 452-8121 | b | b | b | | | | | b | | | | | W-Su 8-5 |
| Stanford Recycling Center<br>On campus | Pampas Lane off Serra St.<br>(415) 723-0919 | d | d | d | d | d | d | d | | | | d | Tin cans, newspaper | M-Su 8-5 |
| St. Anthony's Church<br>San Jose | 20101 McKean Road<br>(408) 997-1144 | | | | | d | | | | | | | | 24 hours |
| St. Francis Cabrini Church<br>San Jose | 15333 Woodard Road<br>(408) 371-3090 | | | | c | c | | | | | | | | |
| Sunnyvale Recycling Ctr. | P.O. Box 3707 | d | d | d | d | d | | d | d | | | d | Tin cans, newspaper | 24 hours |

AL: aluminum GL: glass PET: plastic CB: cardboard HG: high grade LG: low grade b: buy back c: collection d: drop-off f: drop-off fee

# Bay Area Recyclers - Alphabetical

| Name/City | Address/Telephone | --- Paper --- AL | GL | PET | HG | LG | Mag | CB | Scrap Metals | Wood Pallets | - Automotive - Batteries | Oil | - Other - Materials | Hours |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Borreges & Carl | (408) 730-7262 | | | | | | | | | | | | | |
| Tech Polymers<br>Berkeley | P.O. Box 4429<br>(415) 644-1180 | | | | | | | | | | | | Industrial plastic | |
| Technalloy Incorporated<br>San Jose | 1997 Hartog Dr.<br>(408) 280-7722 | | | | | | | | b | | | | | |
| Tennie Martin Recyclers<br>Gilroy | 8565 1/2 Monterey Rd.<br>(408) 842-2565 | b | b | b | b | | | | | | b | | Non-ferrous metals | M-F 8-5, Sa 9-5 |
| United Way<br>San Francisco | 410 Bush Street<br>(415) 872-6736 | | | | | | | | | | | | Used items | |
| University Union Service<br>Santa Clara | 2665 The Alameda<br>(408) 243-0152 | | | | | | | | | | | f | | |
| U-Save Broker Pallet Repair<br>San Jose | 752 N. 10th Street<br>(408) 295-4840 | | | | | | | | | f | | | | |
| Valley Recycling<br>San Jose | 1850 S. 7th Street<br>(408) 297-5352 | | | | | | | | b | | b | | | M-Sa 7-5 |
| West Coast Metal Processing<br>Hayward | 1468 Zephyr Ave.<br>(415) 489-8141 | | | | | | | | b,c | | | | Electronic scrap | |
| Weyerhaeuser Paper Co.<br>Fremont | 42305 Albrae St.<br>(415) 490-5887 | | | | b,c | b,c | | | | | | | | M-F 8-5 |

AL: aluminum GL: glass PET: plastic CB: cardboard HG: high grade LG: low grade b: buy back c: collection d: drop-off f: drop-off fee

## Bay Area Recyclers - Alphabetical

| Name/City | Address/Telephone | AL | GL | PET | Paper HG | Paper LG | Paper Mag | Paper CB | Scrap Metals | Wood Pallets | Automotive Batteries | Automotive Oil | Other Materials | Hours |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ~~Weyerhaeuser Paper Co.~~<br>~~San Jose~~ | ~~4647 Almaden Expressway~~<br>~~(408) 297-5441~~ | | | | b,c | b,c | | | | | | | | M-F 8-5 |
| Youth Enterprises Recycling<br>Menlo Park | 3641 Haven Ave.<br>(415) 364-3333 | b | b | b | b,c | b,c | b | b | | | | | Newspaper | M-F 8-5, Sa 8-4 |
| Yu Ai Kai<br>San Jose | 565 N. 5th St.<br>(408) 294-2505 | d | | | d | d | | d | | | | | | M-F 8:30-5 |
| Zanker Resource Mgmt.<br>San Jose | 7015 Los Esteros Road<br>(408) 437-7553 | | | | | | | | f | f | | | Yard waste | |

# ADDITIONAL RECYCLING COLLECTORS AND BROKERS THAT RESPONDED TO THE COUNTY OF SANTA CLARA RECYCLING SURVEY[1]

1. Battery Center
(Buy-Back and Donation Center)
1552 Old Bayshore Highway
San Jose, California 95112
(408) 453-5438

2. Clardella Garden Supply, Inc.
(Garden Materials Recycler)
2027 E. Bayshore
Palo Alto, California
(415) 321-5913

3. Contain-A-Way
(Buy-Back Center)
20/20 Recycle Centers
1731 Pomona Avenue
Corona, California 91720
(714) 279-2200

4. Diversified Recycling Services
(Wood Chipper)
1675 Pomona Avenue
San Jose, California 95110
(408) 294-1370

5. EMS
(Broker)
231 Fallon Street
Oakland, California 94607
(415) 763-0101
Redwood City, California

6. Encore
(End Market/Manufacturer)
860 S. 19th Street
Richmond, California 94804
(415) 234-5670

7. Free Flow Packaging Corp.
(Buy-Back Center)
1093 Charter Street
Redwood City, California
(415) 364-1145

8. L & K Debris Box Service
(Commercial Hauler/
Wood Waste Chipper)
1313 Armstrong Street
San Francisco, California 94124
(415) 824-4322

9. Raisch Products
(Asphalt/Concrete Recycler)
P.O. Box 543
San Jose, California 95106
(408) 227-9222

10. South Valley Refuse Disposal
(Hauler)
P.O. Box 515
Gilroy, California 94021-0515
(408) 842-3358

11. Town of Los Gatos
(Donation Center)
P.O. Box 949
Los Gatos, California 95030
(408) 354-6809

12. Waste Fibre Recovery
(Demolition Debris Recycler)
1900 W. Winton Avenue
Hayward, California 94545
(415) 732-wood

13. Western Recycling
(Scrap Metal Dealer)
91 E. 4th Street
Morgan Hill, California
(408) 779-1781

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[1] This list was developed based on referrals from recycling firms on the "Bay Area Recyclers" list (provided in this attachment). The type of business is indicated in parentheses, when available.

# LANDFILLS AND TRANSFER STATIONS SURVEYED FOR THE COUNTY OF SANTA CLARA RECYCLING SURVEY[1]

1. All Purpose Landfill
2. Guadalupe Landfill
3. Pacheco Pass Landfill
4. Zanker Road Landfill
5. San Jose Recycling and Transfer Station
6. San Martin Transfer Station

[1] All were surveyed by phone and all responded.

# Attachment 3
# 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" | 500 |
| PET soda bottles, granulated | gaylord* | 700 - 750 |
| PET soda bottles, granulated | semi-load | 30,000 |
| Film, baled | 30" x 42" x 48" | 1,100 |
| Film, baled | semi-load | 44,000 |
| HPDE (dairy only), whole, loose | one cubic yard | 24 |
| HPDE (dairy only), baled | 30" x 48 x 60" | 500-800 |
| HPDE (mixed), baled | 30" x 48 x 60" | 600-900 |
| HPDE (mixed), granulated | gaylord | 800 - 1,000 |
| HPDE (mixed), granulated | semi-load | 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"

# 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

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 4
# MODEL FOR CALCULATING DIVERSION RATE

# SECTION 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. For this reason, the most effective source reduction steps must be taken at the national level. Technical options for communities considering source reduction include product reuse, reduced material volume, reduced toxicity, increased product lifetime, and decreased consumption.

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 of approaches to integrated waste management. California State Assembly Bill 939 reflects this perspective 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 preventive 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, as well as reducing land, air, and water impacts.

Source reduction encompasses several broad categories, including:

- reduced waste generation through decreased consumption;
- reduced material weight and volume;
- material reuse; and
- increased product durability.

Table 3.1 on the following page lists typical examples of decreased consumption and material reuse.

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.

Available data on the municipal waste stream for the City indicate that the proportion of the residential, commercial, and industrial waste streams that is most amenable to source reduction (paper, plastic, and yard waste) can be as high as 18 per cent for paper, 7 per cent for plastics, and 29 per cent for yard waste, depending on the source of waste.

This component (1) describes existing conditions and presents source reduction 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 source reduction.

**TABLE 3.1**

**TYPICAL EXAMPLES OF SOURCE REDUCTION**

| DECREASED CONSUMPTION | MATERIAL REUSE |
|---|---|
| **Reduce Material Volume** | |
| o Make two-sided copies | o Use cloth towels, retreaded tires, refillable pens, reusable air filters, returnable bottles |
| o Use routing slips | o Reuse packaging or packing material |
| o Use electronic mail | o Provide/use returnable packaging containers |
| o Buy in bulk | o Donate used equipment |
| o Offer waste reduction incentives to employees | o Use ceramic coffee mugs |
| o Implement business regulations for peddlers and solicitors to reduce unwanted advertising material | o Reuse blank sides of paper scratch |
| **Reduce Material Toxicity** | |
| o Use product substitutes | o Use silverware and dishes in cafeteria |
| | o Compost, mulch, or chip on site |
| **Increase Product Durability** | o Rent equipment rather than buying |
| o Purchase durable goods | o Use a waste exchange program |
| o Design durable products | o Design for reuse or recyclability |
| o Provide/use maintenance contracts to extend the life of equipment | |

## 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 have been identified for implementation in the short-term planning period (1991-1995) and continued during the medium-term planning period (1996-2000). Surveys will be conducted annually to assist in quantifying a source reduction diversion rate to meet the following objectives:

- reduce the use of non-recyclable materials;
- replace disposable materials and products with reusable materials and products;
- encourage reduced packaging and the purchase of products with reduced packaging;
- encourage purchase of repaired or repairable products;
- encourage reduction in the generation of yard waste and promote backyard or on-site composting.
- encourage product substitution toward less toxic materials;
- encourage purchase of recycled content products;
- encourage purchase of durable products; and
- encourage increased efficiency of materials (through re-use, decreased use of non-recyclable materials, or reducing the level of inputs in the production of materials).

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

- packaging materials, including plastics and paper products;
- construction materials, including concrete, asphalt, lumber, metals, and other inert solids;

- o paper, including office paper and mixed waste paper such as paper napkins, disposable bags, and non-recyclable junk mail;
- o yard waste;
- o single-use products, including disposable diapers, cups, utensils, office supplies, and personal care products; and
- o repairable products, including appliances and electronics.

Source reduction alternatives targeting the above waste types are evaluated in Section 3.4 Evaluation of Alternatives, according to their effectiveness in meeting the source reduction objectives outlined above.

## 3.3 Existing Conditions Description

This section describes existing source reduction activities and programs in the City. The only source reduction activity documented in 1991 for diversion was the use of cloth diapers instead of disposable ones. This activity has been credited for diversion in the "Other Miscellaneous Organics" waste type, in the "Other Organics" waste category in Section 2, Table 8. Projected Waste Disposed, Diverted and Generated at Current Conditions and Table 9. Project Waste Disposed, Diverted and Generated, Based on City's Diversion Goals. Although the existing source reduction diversion rate is quite small (0.07 per cent), other source reduction activities will be documented in the future via surveys, as indicated in Section 3.6.1. A description of the survey method used to identify and quantify the source reduction activities is presented in Section 2 Waste Generation Study.

### 3.3.1 Local Government Activities

The City currently engages in the following source reduction activities:

- o application of a variable can rate for about one-half of all the residents living in the flatlands, while all households located in the hill areas are already assessed the variable fee. City staff anticipates implementing a variable can rate for all remaining households in fiscal year 1993-94. Currently, commercial rates provide clear incentives for source reduction and the assessed rates will continue to do so;

- adoption of a Source Reduction and Recycling Procurement Plan as Council policy, effective October 1991;
- use of double-sided copier;
- use of non-disposable cups and utensils by employees;
- use of blank sides of scrap paper as scratch paper; and
- reuse of file folders.

### 3.3.2 Residential Activities

Accurately estimating most current source reduction activities is difficult since it requires accounting for quantities of materials no longer in the waste stream. An example of such a source reduction activity is backyard composting of yard waste by residents who then use the finished compost rather than disposing of the yard waste. In order to account for the yard waste which has been source reduced, diversion rates will need to be documented by querying residents and by sampling the setouts of homes reporting this activity and comparing the waste composition results with the average residential composition. Quantities reported as diverted will vary depending on lot size, type and extent of vegetation, and annual precipitation. For these reasons, the description of existing conditions for most source reduction activities is qualitative.

Although not specifically documented in most instances, informal residential source reduction activities in the City may include:

- using reusable diapers (diversion credit documented in Section 3.3);
- returning plastic tote bags to participating supermarkets for reuse;
- using canvas or paper bags when shopping in lieu of new paper or plastic bags;
- donating used articles to charitable organizations;
- composting yard wastes;
- purchasing in bulk;
- purchasing products with reduced or minimal packaging;
- purchasing longer-lasting products;

- participation in junk mail reduction programs; and
- purchasing products with limited or reduced amounts of environmental toxins;

Of the source reduction activities and programs identified above, the City does not anticipate that any activities will be phased out or discontinued in the future.

### 3.3.3 Commercial Activities

Using the definition from the California Integrated Waste Management Board for commercial solid waste, in 1991 there were five such accounts in the City, including four institutions (City office, U.S. Post Office (operated by City staff), a school and a church) and a non-profit group. There is no retail sector. In addition, there are about 75 people employed by those accounts.

No commercial diversion rates will be identified as a result of source reduction activities for two reasons. First, no commercial waste was identified during the waste sort because discrete commercial loads were not available for sampling. And, second, data provided by the contracted hauler indicates that in 1990 the City's commercial waste represented about 1.4 per cent (43 tons) of its total disposed waste. If changes in the commercial waste stream become evident, then the waste characterization studies to be conducted at the end of the short-term planning period (1994-95) may measure changes in waste types and quantities generated (see Section 3.6.1 Program Implementation).

### 3.3.4 National Source Reduction Efforts

Many of the source reduction activities affecting the waste generated by the City are actually being conducted on a national scale. National efforts affecting the products purchased in stores and used by residences and businesses within the City are described below.

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

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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-O-424, Washington, D.C.: U.S. Government Printing Office, October 1989.

- 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.

- Over the past ten 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 was 50 per cent less then preceding design.

  - Detergent with bleach eliminates need for separate purchase of bleach.

  - Half-gallon ice cream cartons have been reduced in weight by 30 per cent over the last five years by changing the container's 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.

- A heat-set technology makes it possible to use PETe containers for liquids that must be hot-filled. The new technology allowed a juice company to switch from glass to plastic bottles, resulting in a 25 percent reduction in weight and long-term cost savings in bottling and shipping.

- 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.

- A large video rental and sales chain, trains its sales people to reuse the distinctive plastic bags that tapes are

carried in and to ask customers to return tapes in the bags. This results in a savings of about $1 million and over 25 million bags annually.

At this time, no source reduction credit as a result of national efforts has been assumed. In subsequent years, however, trends in manufacturing and packaging at the national level will be monitored to identify potential areas for credit.

## 3.4 Evaluation of Alternatives

This section presents alternatives for implementing successful source reduction programs that meet the objectives outlined in Section 3.2. 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 those 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. Program costs are approximate and details should be considered preliminary. Cost and program details will be refined during development of specific programs.

Table 3.2 summarizes the evaluation of each of the alternatives according to criteria which has been specified by AB 939, and has been included at the end of this section. See also Appendix A Evaluation Approach for an explanation of the ranking system used for each of the prescribed evaluation criteria.

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

(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 consumer organizations, backyard composting workshops, educational efforts, public recognition activities, and municipal source reduction 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.

Many of these alternatives complement one 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 in the recycling or composting components. For example, quantity-based user fees for garbage collection can serve as an incentive to residents to practice home composting, since residents can reduce their refuse costs for disposing of less yard waste. Also, the extent of backyard composting activities depends on public education efforts which could be sponsored by the City with technical assistance by a consumer group, for instance. 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.

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.

### 3.4.1 Alternative 1 - Rate Structure Modifications

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

**Disposal Fees**

Three types of disposal fees are identified, each possessing different impacts on diversion. First, disposal fees for non-recyclable or non-reusable wastes could be increased to create an incentive for purchasers of products to consider the costs of the products' eventual disposal in their purchasing decision. Second, a tiered franchise fee system could be structured to differentiate more readily recyclable loads from non-recyclable materials. Third, fees could be assessed which would divert certain types of materials (egs: yard waste or corrugated cardboard) from being landfilled and, consequently, significantly reducing their disposal. Ultimately, targeted materials could also be prohibited from disposal.

**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 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; 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.

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 have a scale and some type of recordkeeping system to track the weight of the wastes by customer.

Jurisdictions implementing quantity-based user fees or variable rate structures 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 to deter these activities, since the variable rates and the recycling programs will tend to provide incentives for both dumping and scavenging.

Rate structure modifications are evaluated below to determine whether this alternative is appropriate for the City of Monte Sereno as well as to compare it to other alternatives.

**Waste Diversion Potential**. Rate structure modifications can be very effective in encouraging source reduction, since the cost of disposal or collection of disposables 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 purchasing decisions, backyard composting, product reuse, and other source reduction activities. In addition, variable rate structures provide an incentive for increased participation in recycling and community composting programs.

Although no corroborating data for the City is available, 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 per cent. However, the weight of the waste 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, the impact of variable rate structures would be less significant.

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 an upper limit to the variable rate structure beyond which illegal dumping will begin to occur. For these reasons, a "high" rating was assigned.

**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 may necessitate the installation of locking dumpster mechanisms for commercial containers. Illegal dumping could result in environmental and public health hazards. In addition, there is a moderate potential for increased burning of trash, with negative consequences for air quality. A "high" rating was given.

**Ability to Accommodate Change.** Modifications to rate structures, in general, are easily adapted to changing conditions. Rate structures can also be further changed and modified as circumstances warrant. Over the medium- and long-term, this alternative is quite flexible. Most jurisdictions may find that their disposal and collection fees are not as flexible in the immediate time frame because of outstanding contracts with haulers and landfill operators. In addition, once volume-based rates are established, subsequent rate changes require the approval of the jurisdiction's governing body. A "medium" rating was assigned.

**Consequences to 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. Some shifting 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 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. Consequently, a "high" rating was given.

**Ease of Implementation.** Implementation of this alternative could occur within a year and is within the short-term planning period. However, potential opposition from the community and local government agencies could preclude implementation in the short-term planning period. A "high" rating was assigned.

**Facility Requirements.** No additional facilities are needed to implement rate structure modifications. A "high" rating was assigned.

**Consistency with Local Plans and Policies.** Application of quantity-based user fees is consistent with the plans, policies, and ordinances of the City. Modifying landfill disposal fees is subject to contract negotiations. For these reasons, a "high" rating was assigned.

**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 and/or disposal facilities are included in the implementation and rate-setting process. For these reasons, a "high" rating was assigned.

**Estimated Cost**. Implementing rate structure modifications would require at least six major steps:

- a rate study to determine appropriate rate structures for achieving the desired level of participation in source reduction programs;
- a determination of how the proposed rate structure would impact the fixed and variable costs of collection and disposal;
- review and approval by the City (including a public hearing);
- generation of informational and educational materials;
- procurement of either containers or approved stickers for collection bags; and
- modification of existing billing operations.

Costs for implementing the rate structure modifications in the City are estimated to range from $750 to $1,000, so that a "high" rating was assigned. Modifying the method of calculating landfill disposal fees is subject to contract negotiations and cannot be estimated at this time.

**End Uses**. Not applicable.

### 3.4.2 Alternative 2 - Economic Incentives and Disincentives

Source reduction activities can be encouraged through economic incentives and disincentives. These include tax credits and exemptions, grants, loans, loan guarantees, penalties, and fines. At the 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 in Section 3.2 Objectives.

Economic incentives and disincentives can foster source reduction in three ways: (1) direct economic benefits provided to

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.

**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. Some examples include tax credits and/or exemptions given to businesses that implement formal source reduction activities for manufacturing or procurement. Other examples include loans, grants, and loan guarantees for direct economic assistance to businesses to purchase copy machines that produce double-sided copies and source reduction and recycling education materials for staff of these businesses. Another example is reduced business license fees granted to businesses that implement source reduction activities.

Of the examples cited, the City could:

- encourage commercial sector source reduction by initiating or supporting tax credits, rebates and subsidies at the state or national level.

- promote voluntary corporate source reduction initiatives by informing businesses of the City's source reduction activities, providing technical assistance, and helping to publicize source reduction efforts by businesses.

**Economic Incentives**

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 activities that contribute to the education and technical assistance efforts of the community's source reduction campaign. For example, loans, loan guarantees, or grants to non-profit groups or associations could promote source reduction or otherwise foster waste reduction. Program(s) 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.

Of the examples cited, the City could:

- provide loans, loan guarantees or grants to the local chapter of an environmental group or public service organization to develop and implement workshops on composting and the value of using native plants or plants requiring very little irrigation. These workshops could be timed to coincide with the beginning of other activities and alternatives, such as variable disposal rates and backyard composting programs.

- provide funding and meetings rooms for workshops given by local chapters of conservation groups on source reduction techniques for managers of commercial procurement programs.

- lend its support in exploring and developing other funding sources such as grants, 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 utilize the expertise and resources of volunteer interest groups in the community.

**Economic Disincentives**

Economic disincentives include penalties and/or fines imposed by the City on businesses that do not develop and implement source reduction activities and practices. Alternatively, such disincentives could include fines 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 an activity to purchase a 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 City and its usefulness.

To reduce enforcement costs, the requirements of this type of program could be restricted by the City to commercial or institutional generators that employ more than 250 employees at a single site in the City. This requirement would serve to highlight the importance of community waste reduction efforts to businesses, and 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 activities. Moreover, this type of activity 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 activities 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.

**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 CIWMB and is under consideration[2]. 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 tires, 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 (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-

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2 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.

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, recyclable products.

This alternative is evaluated below to determine whether is appropriate for the City, as well as to compare it to other alternatives.

**Waste Diversion Potential.** The imposition of penalties and/or fines by the City on existing commercial accounts that do not develop and implement source reduction programs and practices would not be cost effective based on the results of the Solid Waste Generation Study (see Section 2) and the small number of eligible accounts referred to in Section 3.3 Existing Conditions.

Advanced disposal fees 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 residential and non-residential sectors for those incentives applied through education and technical assistance programs. Additionally, advanced disposal fees would target residential and non-residential generators, as well as retail vendors whose products are generally consumed and disposed of by residential generators. For these reasons, a "low" rating was assigned.

**Hazard.** Since there are no environmental hazards created by the economic incentives and disincentives presented in this alternative, a "high" rating was given.

**Ability to Accommodate Change.** Economic incentives can be modified to accommodate changes in consumption patterns, availability of materials, and the economy. As the City of Monte Sereno, 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. Consequently, a "medium" rating was assigned.

**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) consumer purchasing awareness programs, and (3) commercial procurement 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. For these reasons, a "high" rating was given.

**Ease of Implementation.** Economic incentives must be approved by the City Council. The amount of time required for the approval process and implementation of the program can range from a few months to several years. Modifications to any economic incentive programs would undergo a similar approval process. In addition, the implementation period for advanced disposal fees would depend on the types of fees and products involved. For these reasons, a "low" rating was assigned.

**Facility Requirements.** Since no facilities are needed to implement economic incentives in jurisdictions in the City, a "high" rating was given.

**Consistency with Local Plans and Policies.** The implementation of additional programs such as advanced disposal fees will be reviewed on a case-by-case basis and will be consistent with local policies. A "low" rating was assigned.

**Institutional Barriers.** The incentives proposed under this alternative would in many cases need to be funded 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. However, the rate process for setting and approving of advanced disposal fees may require changes to current institutional relationships between local agencies responsible for administering the waste management program and those responsible for setting and approving rates. A "medium" rating was assigned.

**Estimated Cost.** The costs of this alternative would include the use of the City's staff resources to develop and administer the incentive program. 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. A "low" rating was assigned.

Costs for the City are presented in Table 3.4.

**End Uses.** Not applicable.

### 3.4.3 Alternative 3 - Technical Assistance, Education, and Promotion

The programs presented in this alternative address all source reduction objectives identified in Section 3.2 Objectives. These activities include waste evaluations, technical assistance, educational efforts, promotional programs (i.e., public recognition and awards), and municipal source reduction programs.

**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 could be implemented by the City. For example, the City could assist 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. The primary purpose of the waste evaluation alternative is to increase commercial awareness of the need for, and benefits of, waste reduction activities and to assist businesses to design and implement activities reducing waste generation.

Waste evaluations could be restricted to certain categories of commercial generators according to Standard Industrial Classification (SIC) codes 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. Restricting the scope of this program ensures greater effectiveness by focusing on larger generators that contribute significantly to the waste stream. The City could exempt businesses in the service sector, such as professional services and retailers, as well as provide for special programs for institutional generators, such as hospitals, convalescent homes, and government facilities.

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

(1) assessing proper waste disposal fees;

(2) controlling the disposal of banned wastes (if any) into the waste stream (e.g., corrugated cardboard, organic wastes, and household hazardous or special wastes); and

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

These evaluations could be required 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.

It would not be cost effective to conduct individual waste evaluations to identify significant waste types generated by existing commercial accounts, due to the small volume of waste generated by the accounts identified (see Section 3.3 Existing Conditions). However, source reduction and recycling plans will be required by businesses with more than 250 employees and may require waste evaluations to be conducted by those businesses with assistance from City staff, if necessary. For additional information on the required plans, refer to Section 4.2.

**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 recycling of materials; (3) procurement practices with preferences for reduced packaging; (4) increased durability, and increased recycled materials content; and (5) 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 by the community.

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

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.

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; and
- 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 Recognition and Awards**

Public recognition can be used by the City to award community groups or individuals who 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 private groups and individuals who actively engage in source reduction efforts and support the community's source reduction programs. These programs complement other source reduction programs such as public education, technical assistance, and grant programs. Approaches developed for this alternative include local pride campaigns emphasizing waste reduction and environmental awareness and reporting in the local newspaper examples of exemplary source reduction programs.

**Municipal 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; and
- making fewer drafts of reports.

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 and public entities in the area.

The following evaluation of technical assistance, education, and promotion activities for source reduction includes: technical assistance; composting programs; educational efforts; public recognition and awards; and municipal source reduction programs.

This alternative is evaluated below to determine whether it is appropriate for the City, as well as to compare it to other alternatives.

**Waste Diversion Potential.** An effective technical assistance program combined with education and promotion can result in significant reductions in quantities of solid waste disposed. Actual quantities of waste 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 residential and non-residential waste generation. 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 utilizing 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. For these reasons, a "high" rating was assigned.

**Hazard.** There are no hazards associated with the programs presented by this alternative. The City will seek to ensure that proper composting techniques are used so that no public health or fire hazards are created. A "high" rating was assigned.

**Ability to Accommodate Change.** This alternative is easily adaptable to change as new methods and programs are developed. This alternative also readily accommodates to change in the waste stream, as well as to changes in consumer purchasing behavior and

available products and alternatives. Indeed, once the public is sensitized to the City's 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, 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. Consequently, a "high" rating was given.

**Consequences to the Waste Stream.** Technical assistance, education, and promotional activities would be designed to (1) reduce waste at the source, and (2) avoid substitution of a product or material that results in an equivalent or greater amount of waste being generated. Direct community and business involvement with, and participation in, carefully implemented programs will reduce the amount 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 and consumer-purchasing awareness programs. The waste stream materials affected by these types of programs are:

- yard wastes and wood cuttings;
- paper and plastic packaging;
- corrugated cardboard; and
- other packaging products.

A "high" rating was, therefore, assigned.

**Ease of Implementation.** 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. A "high" rating was assigned.

**Facility Requirements.** No additional municipal facilities in the City would be required. Since existing educational facilities could serve as locations for seminars and educational workshops, a "high" rating was given.

**Consistency with Local Plans and Policies.** Technical assistance, education, and promotional activities for waste management are consistent with current policies in the City and are considered superior to regulatory controls. A "high" rating was, therefore, assigned.

**Institutional Barriers.** As there are no institutional barriers to implementing technical assistance, education, and promotional activities for source reduction, a "high" rating was given.

**Estimated Cost.** The costs for technical assistance, education, and promotion will vary depending on a jurisdiction's commitment to funding a broad spectrum of programs. Generally, the cost of any of these programs 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 of 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 associated with a municipal 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 nominal costs include preparing and disseminating informational materials to staff, perhaps as pamphlets or flyers posted at appropriate places. A "medium" rating was assigned.

Total costs for the City are presented in Table 3.4.

**End Uses.** Not applicable.

### 3.4.4 Alternative 4 - Regulatory Programs

Some regulatory program alternatives are available to the City that address the source reduction objectives outlined in Section 3.2 Objectives. These programs include:

- local procurement ordinances;
- local product bans;
- local land-use planning requirements; and
- implement business regulations for peddlers and solicitors to reduce unwanted advertising material.

Regulatory programs require continuous enforcement efforts.

**Local Procurement Ordinances**

These ordinances involve adopting a procurement policy for the City specifying that several criteria be considered in the procurement selection of products and packaging, including: durability, recyclability, reusability, and recycled material content. As indicated in Section 3.3.1 Local Government Activities, the City has adopted a Source Reduction and Recycling Procurement Policy which became effective October 1991. The policy specifies, among other things, that any business or organization holding a contract with the City will be required to provide products or materials according to the above criteria. There are also provisions for price preferences and set-asides for recycled products or reusable products.

**Waste Reduction Plans**

These plans involve establishing waste reduction planning and reporting requirements for large, commercial or institutional waste generators with more than 250 employees at one site in the City. 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 activity 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) similar to those 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 similar to those of AB 939. These institutions and commercial businesses could report their progress on a regular basis, for example when they apply for business license renewal or when they pay their taxes.

**Product Bans**

These are bans on targeted products and packaging techniques that result 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.

**Land Use Requirements**

Land use and development requirements involve establishing incentives and disincentives to 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 to be added to the waste stream, and (2) what programs to be implemented to encourage source reduction on the developed area.

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.

**Waste Diversion Potential.** 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 of Monte Sereno administrative offices and other operations;

- residential and commercial consumers of banned products;
- real estate developers; and
- larger commercial and institutional generators.

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; and (8) yard and wood wastes. For these reasons, a "low" rating was assigned.

**Hazard.** Since there are no environmental hazards associated with the regulatory programs described in Section 3.4.4 Alternative 4 - Regulatory Programs, a "high" rating was given.

**Ability to Accommodate Change.** The regulatory measures outlined in this alternative vary in their flexibility to changing social and economic conditions. Procurement policies and land development requirements are all fairly flexible and can readily accommodate to new circumstances in source reduction techniques and processes, as well as to 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. A "low" rating was assigned.

**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 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 could 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. Consequently, a "medium" rating was assigned.

**Ease of Implementation.** Procurement programs 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. A "low" rating was, therefore, given.

**Facility Needs.** Since there are no facility requirements for this alternative, a "high" rating was given.

**Consistency with Local Plans and Policies.** The City could work with state or federal organizations and governments to influence regulations on what products and packaging may enter the market. Barring any conflicts with current plans, policies and ordinances, regulatory approaches may not pose any conflict for the City. A "low" rating was assigned.

**Institutional Barriers.** 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. A "low" rating was assigned.

**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 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. Moreover, suitable products that meet source reduction requirements (and 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. Total costs for the City are presented in Table 3.4. A "low" rating was assigned.

**End Uses.** Not applicable

## 3.5 Selection of 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 applicable to the City. Also, each of the alternatives and programs has aspects that are already in place that 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 use of diaper services has been quantified in the Solid Waste Generation Study, and presented in Section 2.

To accomplish the evaluation, the City has assessed whether or not each alternative is appropriate to the City's needs and assigned each alternative a ranking in order to select among the various alternatives. In selecting among alternatives and programs, the City considered the following critical factors: (1) the degree to which each alternative and program is appropriate to the conditions of the jurisdiction (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.

Alternatives were assigned ratings of high, medium, and low (see Appendix 1 for evaluation approach) according to the assessment of their evaluation criteria. The results of these ratings are presented in Table 3.2.

Based on the results of the evaluation and assessment of the alternatives and programs, the programs and alternatives selected to meet the goals and objectives of this component in the short-term and medium-term planning periods are presented below.

### 3.5.1 Short-Term Planning Period

As described in Section 3.7.1, surveys will be conducted annually to assist in quantifying a source reduction diversion rate to meet the objectives in Section 3.2.

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.

The City has selected the following programs and alternatives based on their synergy with recycling, composting, and household hazardous waste programs, community acceptance, relative low cost and ease of implementation.

**Alternative 1 - Rate Structure Modifications**

- Implement a variable rate structure for the entire residential sector.
- Continue the variable rate structure for commercial services.

**Alternative 3 - Technical Assistance, Education and Promotion**

- Review and expand upon current multi-jurisdictional approaches to source reduction, such as cooperatively funding the publication of informational literature for use by the public, including, for example, consumer purchasing guides and school reference materials.
- Develop a program to provide technical assistance to consumers/homeowners and businesses through workshops and seminars on source reduction techniques and activities.
- Develop a program to provide public recognition and awards to individuals or organizations who implement source reduction activities.

**Alternative 4 - Regulatory Programs**

- In fiscal year 1992-93, the City proposes to seek adoption of a water efficient landscape ordinance in accordance with AB 325 and based on the Proposed Model Water Efficient Landscape Ordinance prepared by the California Department of Water Resources and issued in May 1991. The diversion potential of this objective cannot be estimated at this time, but supports the goals identified.
- Continue non-procurement programs aimed at source reduction throughout City offices and operations.
- Continue the City procurement program and policy to encourage source reduction through purchasing decisions.

### 3.5.2 Medium-Term Planning Period

Surveys will be conducted annually to assist in quantifying a source reduction diversion rate to meet the goals and objectives of this component. All programs and alternatives selected in the short-term planning period will be continued in the medium-term. In addition, the City has selected the following programs and alternatives based on their synergy with recycling, composting, and household hazardous waste programs, community acceptance and relative low cost and ease of implementation.

- Review a program to establish land-use requirements that promote source reduction planning.

- Monitor national source reduction efforts and trends in manufacturing and packaging to identify any potential areas for source reduction credit.

- Monitor efforts at the state level to encourage source reduction, including advance disposal fees, public education efforts, and other programs.

No new public facilities are anticipated to be required. Some source reduction will occur through on-site handling, such as home composting. Some will occur at the actual source of generation resulting in a lower quantity of materials needing off-site handling, whether by the reuse/recycling network or by the disposal system. These programs and policies will be updated and improved upon as data are collected and analyzed and as source reduction strategies are further defined and improved upon in the future.

## 3.6 Program Implementation

This section identifies and describes the specific government agencies responsible for implementing the selected alternatives and programs; the specific tasks necessary to achieve full implementation of the selected alternatives and programs; and an implementation schedule. The City's Solid Waste Program staff are responsible for implementation of all programs. The balance of the information specified is presented in Table 3-2. The costs, revenues, and revenue sources necessary for implementation of the selected programs are presented in Table 3.3.

## 3.7. Monitoring and Evaluation

To ensure that the selected source reduction 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.

### 3.7.1 Monitoring Methods

The methods for quantifying and monitoring the achievement of the component objectives are presented below in three groups: Objectives 1 and 2; Objectives 3, 4, 5, 6 and 7; and Objectives 8 and 9.

**Objective 1:** **Reduce the use of non-recyclable materials**

**Objective 2:** **Replace disposable materials and products with reusable materials and products**

**Monitoring Method:** 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.

**Objective 3:** **Encourage reduced packaging and the purchase of products with reduced packaging**

**Objective 4:** **Encourage purchase of repaired or repairable products**

**Objective 5:** **Encourage reduction in the generation of yard waste and promote backyard or on-site composting**

**Objective 6:** **Encourage product substitution toward less toxic materials**

**Objective 7:** **Encourage purchase of recycled content products**

**Monitoring Method:** An annual residential survey will be conducted to ascertain the degree to which households are reducing purchases with packaging, purchasing repaired or repairable products, and participating in backyard composting programs. The methodology for gathering and analyzing the data will be developed with guidance from the California Integrated Waste Management Board.

**Objective 8: Encourage purchase of durable products**

**Objective 9: Increase the efficiency of materials used**

### 3.7.2 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 source reduction programs by reporting on whether (1) the source reduction objectives are being achieved; (2) the selected programs and activities were implemented on schedule; and (3) residents increasingly participate in and have a greater understanding of source reduction.

### 3.7.3 Responsibility For Monitoring

The monitoring and evaluation activities described in this section will be implemented by the City's Solid Waste Program staff.

### 3.7.4 Funding Requirements

Funding for the monitoring and evaluation program described in this section will be provided by the City through the General Fund. 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.

The total estimated costs for each alternative selected during the short-term (1992-95) can be found in Table 3.4. The anticipated funds required to plan, implement, operate and monitor each of the selected alternatives can be found in Table 9.1 of the Funding Component.

### 3.7.5 Contingency Measures

If the programs described above fail to meet the goals and objectives of this component, the following tasks can be implemented:

- 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 and staff.
- Select additional alternatives.
- Consider other regulatory programs or mandatory programs.

**Table 3.2 Summary of Source Reduction Alternatives Evaluation**

A. Evaluation Criteria

| Program Alternatives | Waste Diversion Objectives | Absence of Hazard | Ability to Accommodate Change | Consequences to the Waste Stream | Ease of Implementation | Facility Needs |
|---|---|---|---|---|---|---|
| Alt. 1: Rate Structure Modifications | high | medium | medium | high | high | high |
| Alt. 2: Economic Incentives | low | high | medium | high | low | high |
| Alt. 3: Tech.Assist. and Educations | high | high | high | high | high | high |
| Alt. 4: Regulatory Programs | low | high | low | medium | low | high |

B. Additional Considerations

| Program Alternatives | Consistency with Local Policies | Absence of Institutional Barriers | Estimated Cost | End Uses |
|---|---|---|---|---|
| Alt. 1: Rate Structure Modifications | medium | medium | high | N/A |
| Alt. 2: Economic Incentives | low | medium | low | N/A |
| Alt. 3: Tech.Assist. and Education | high | high | medium | N/A |
| Alt. 4: Regulatory Programs | low | low | low | N/A |

**TABLE 3.3**

**Source Reduction Implementation Plan**

| Task | Implementation Date |
|---|---|
| **Short-Term** | |
| Continue variable rate structure for commercial sector | On-going |
| Conduct periodic surveys | Jan-Mar 1993 |
| Review/expand current multi-jurisdictional approaches, such as public education and technical assistance | July-Sep 1993 |
| Provide technical assistance to homeowners and businesses | July-Sep 1993 |
| Continue City procurement procedure policy | On-going |
| Continue City non-procurement program | On-going |
| Adopt Model Water Efficient Landscape Ordinance | Apr-June 1993 |
| Implement variable rate structure for flatland-area residents | Apr-June 1994 |
| Develop/participate in recognition and awards program | Apr-June 1995 |
| **Medium-Term** (in addition to those listed in the Short-Term category) | |
| Implement land-use requirements | FY 96-2000 |
| Monitor national source reduction efforts | FY 96-2000 |
| Monitor state-level efforts to encourage source reduction | FY 96-2000 |

**TABLE 3.4**

**Source Reduction Implementation Costs**

| Selected Programs and Alternatives | Annual Costs | Revenues | Revenue Sources |
|---|---|---|---|
| **Short-Term** | | | |
| Conduct Field surveys/ polls | $ 1,215-1,250 | $ 1,215-1,250 | General Fund |
| Multi-jurisdictional Education | $ 20 | $ 20 | General Fund |
| Technical Assistance | $ 210 | $ 210 | General Fund |
| Public Recog./Awards | $ 50 | $ 50 | General Fund |
| Rate structure modifications * | $ 460-$ 2,555 | $ 460-2,555 | General Fund |
| City procurement policy | $ 45 | $ 45 | General Fund |
| City non-procurement source reduction policies | $45-240 | $45-240 | General Fund |
| **Medium-Term** (in addition to those listed in the Short-Term category) | | | |
| Implement land-use requirements | $ 400 | $ 400 | General Fund |
| Monitor national reduction efforts | $ 100 | $ 100 | General Fund |
| Monitor state-level efforts to encourage source reduction | $ 100 | $ 100 | General Fund |

* Estimated costs reflect City Solid Waste Program staff time necessary to implement and monitor program. Program operating costs will be included in the refuse collection rates.

## SECTION 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 constraints that place a premium on the diversion of materials from the waste stream. In addition to conserving landfill 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 recycling process to be complete. Accordingly, recycling plans must include market development as well as program development.

The City recognizes the value of recycling and seeks to support appropriate programs and services 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 the selected recycling programs. Throughout this component, waste streams are described as "residential" and "non-residential," with the latter signifying both commercial and industrial[1] waste streams.

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[1]By definition, industrial waste includes solid waste generated by industries as well as any material placed into debris boxes, regardless of the source. Since there are no manufacturing facilities, refineries or other types of industry in the City of Monte Sereno, industrial waste will only refer to material placed in debris boxes by residential and commercial accounts.

## 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 Monte Sereno. These objectives are to be implemented in the short-term planning period (1991-1995) and continued during the medium-term planning period (1996-2000).

### 4.2.1 Short-Term Objectives (1991-95)

The City can expect to divert 17.18 per cent of the total waste stream by 1995 by implementing the following objectives:

- Increase participation in the residential curbside recycling program, and reduce contamination and scavenging;
- Implement rate structure modifications for the entire residential sector;
- Continue City-sponsored programs aimed at recycling throughout City offices.
- Evaluate a program of regulatory approaches such as zoning, building code, and land-use requirements to promote recycling activities.
- Develop a market development program through the local procurement policy for products with recycled material content.
- Continue and expand multi-jurisdictional approaches to recycling such as public education, disposal fees, and market development.

### 4.2.2 Medium-Term Objectives (1996-2000)

The City can expect to divert 19.9 per cent of the total waste stream by 2000 by implementing the following objectives:

- Monitor efforts at the State level to encourage recycling, including financial and economic incentives, public education efforts and other programs.
- 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 described above; (2) the volume and weight of the material; (3) the hazard created by the material; (4) the per cent content of non-renewable resources; and (5) the recyclability of the material. These target waste types are as follows:

- corrugated cardboard
- newspaper
- telephone books
- wood wastes
- PETe
- glass
- aluminum cans
- tin cans
- other scrap metal
- white goods (eg., household appliances)
- inert solids (asphalt, concrete, construction and demolition debris)

Recycling alternatives targeting the above waste types are evaluated in Section 4.4 Evaluation of Alternatives according to their effectiveness in meeting the recycling objectives outlined above.

## 4.3 Existing Conditions Description

This section describes existing recycling activities and programs in the City. The jurisdiction has reviewed and documented current recycling efforts, including all the City's programs. The City's consultants have also used a survey to identify recycling efforts conducted by refuse collection companies, solid waste facility operators, disposal sites, secondary materials buyers and processors, non-profit recyclers, local chapters of environmental interest groups, local public service groups, trade associations, private businesses and industry, and groups associated with universities and local educational institutions.

These groups may provide recycling collection services to the City, since the 20-year (1983-2003) franchise agreement with Green Valley Disposal Company (GVDC) pertains only to those wastes transported to the Guadalupe Landfill. GVDC does not have an exclusive contract with the City to collect or process recyclables.

The quantities of wastes diverted by the City's recycling activities, by waste category and waste type, are presented in Table 4.1 which can be found at the end of this section. A description of the survey method used to identify and quantify the recycling activities is presented in Section 2 Waste

description of the survey method used to identify and quantify the recycling activities is presented in Section 2 Waste Generation Study. The existing recycling diversion rate is estimated to be 24.8 per cent of the current total waste stream.

Of the recycling activities and programs identified in Section 4.3.1, the City does not anticipate that any will be phased out or discontinued in the future.

### 4.3.1 Local Government Activities

The City currently engages in the following recycling activities:

- Separate weekly collection of the following waste types from the City office: newspaper, corrugated cardboard and office paper. The company providing the service is also contracted to provide residential curbside collection service for recyclables. The quantities collected are small, and therefore were not calculated.

- Adoption of a Source Reduction and Recycling Procurement Plan as Council policy, effective October 1991.

- Programs to provide education and information to employees and the general public on recycling.

There are presently no local market development activities in the form of economic development activities or consumer incentives for recycled products.

### 4.3.2 Residential Activities

Residential recycling activities in the City include:

- weekly curbside collection of recyclables from single-family dwellings with services provided under contract to the City. Materials collected include aluminum cans, tin cans, PETe, glass, newspaper, magazines and glossy-paged catalogs, corrugated cardboard, used motor oil, scrap metal, and telephone directories. All recyclables must be source separated, except aluminum and tin cans and PETe which are commingled. Current estimated diversion rate: 7.4 per cent.

- buy-back and drop-off centers that are patronized by the City's residents, are located in adjacent cities, and whose tonnages have been allocated among the immediately adjacent jurisdictions according to population. The quantities

diverted have been compiled via surveys which were conducted and are described in Section 2, Waste Generation Study. Current estimated diversion rate: 5.6 per cent.

### 4.3.3 Industrial Activities

Industrial activities in the City include diversion of several waste types from debris boxes, as reported by surveys which were conducted and are described in Section 2 Waste Generation Study. These waste types include, for example, corrugated cardboard, newspaper, high-grade paper, glass, and other metals. The current estimated diversion rate is 0.5 per cent.

**Self-Hauled Wastes**

- diversion of white goods, tin ferrous/bi-metal and other ferrous from loads hauled to the landfill site by residents and some businesses. Current estimated diversion rate: 1.2 per cent.

### 4.3.4 Landfill Salvaging and Recycling

The landfill operator, which is under contract through February 2003 to accept all franchised waste from the City, has engaged an independent contractor whose staff primarily salvage the contents of self-haul and debris boxes from commercial and industrial accounts. Examples of materials which are salvaged include metals, white goods, glass, plastic, and mattresses. All loads are subject to salvaging, generally at the point of being off-loaded. The parameters of the salvaging operation are independent of the disposal contract and are determined by the landfill operator.

## 4.4 Evaluation of Alternatives

The City has evaluated the following recycling alternatives that could be implemented to meet its diversion goals. For ease of evaluation, these have been divided into alternatives that apply to the residential sector, the non-residential sector, and those that apply to both sectors. Each of the alternatives is evaluated according to a set of criteria specified in the regulations implementing AB 939 (c. 1095 of 1989). Program costs are approximate and program details should be considered preliminary. Cost and program details will be refined during development of the specific programs.

Many of these alternatives complement one another and depend significantly on the implementation of other alternatives, programs, or components presented elsewhere in the Source Reduction and Recycling Element, such as in the Source Reduction, Composting, and Education and Public Information Components. 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 that are independent of one another.

Table 4.2 summarizes the evaluation of each of the alternatives according to criteria which has been specified by AB 939, and has been included at the end of this section. See also Appendix A Evaluation Approach for an explanation of the ranking system used for each of the prescribed evaluation criteria.

Separation of recyclable materials from the waste stream is clearly the key to diverting materials from transformation or land disposal. The effectiveness of any recycling diversion program in meeting the goals of AB 939 is therefore extremely dependent upon the different methods that the jurisdiction uses to extract recyclables from the waste stream. The effectiveness of the various separation methods involves two primary factors:

(1) the degree to which materials can be separated at the source of generation, which affects the sale price, recovery rate, and quality of materials; and

(2) the level of convenience to generators, which affects participation in the separation and collection programs.

These factors tend to differentiate the approaches presented below. Each of the recycling alternatives is described below and then evaluated according to a set of criteria specified by the regulations governing AB 939.

### 4.4.1 Residential Alternatives

#### Alternative 1 - Curbside Collection

This alternative addresses the objective of collecting recyclables from single-family homes. Curbside collection is the most effective method of achieving high rates of residential participation in recycling programs. Generally, curbside collection programs are most successful when the level of service and convenience to the homeowner is the highest. For example,

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 and recovery rates. These programs will also generate materials with higher market quality due to lower levels of contaminants.

Residential curbside collection programs can involve collection of either separated or mixed recyclables. For example, wet/dry collection at the curb is similar to systems which are used in Europe. However, since few, if any, such programs currently exist for the residential sector in the U.S., the logistics and considerations for such a program are not known at this time. One type of wet/dry collection system that has been used in Europe involves three cans. The first can contains all the commingled recyclable materials that will go to a processing facility. The second can contains all food scraps and other designated organic wastes, and would likely be composted. The third can contains all other material that cannot be separated for recovery, and would require disposal.

The City has a five-year (1990-94) contract with Green Valley Disposal Company (GVDC) to collect and process the recyclables collected in the residential curbside recycling service. This program requires that residents source separate newspaper, glass, magazines, and corrugated cardboard; aluminum and tin cans, scrap metal and PETe are commingled. The program's drivers color separate glass at the curb. When a truck is full, the drivers return to GVDC's corporation yard, which is located at 2380 Lafayette Street, Santa Clara, California. Staff at the processing facility manually separate the PETe, while the metals are magnetically separated and crushed. Other final processing includes storage of each waste type in large capacity containers until sufficient quantities are accumulated and then delivered to local markets. The contractor is responsible for acquiring markets for the recyclables and retains the revenue from the sales of the recyclables for re-investment into the program.

Although the City has implemented weekly residential curbside collection services, this alternative is evaluated for reference purposes.

**Waste Diversion Potential.** This alternative has been effective in enhancing the participation and capture rates for residential generators and in reducing the amount of targeted recyclable material(s) disposed of in landfills. The estimated diversion rate in 1991 was about 7.4 per cent of the total waste stream. A "high" rating was assigned since it is expected that diversion rates will increase with the program's longevity.

**Hazard.** As this alternative presents no major hazards, a "high" rating was assigned.

**Ability to Accommodate Change.** This alternative is readily adaptable to changing conditions, especially to changes in material types, processing and handling techniques, and to changes in the waste management system and regulatory programs. Therefore, a "high" rating was given.

**Consequences to the Waste Stream.** Since this alternative has no known impact on shifts in waste-type generation, a "high" rating was assigned.

**Implementation Period.** The program was implemented in February 1990, so a "high" rating was given.

**Facility Requirements.** A facility has been developed to process and market the collected recyclables; a "high" rating was given.

**Consistency with Local Plans and Policies.** As this alternative is consistent with local plans and policies, a "high" rating was given.

**Institutional Barriers.** There are no known institutional barriers to implementing this alternative. The contractor has retained buyers for each of the waste types collected. A "high" rating was assigned.

**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 jurisdiction. Estimated costs yield a "medium" rating.

**End Uses**. See Section 4.4.4 Market Conditions. A "high" rating was given.

**Public vs. Private Operation.** The programs outlined under this alternative could be operated by either a public or private entity.

## Alternative 2 - Mobile Collection

A mobile collection system, by definition, is one which moves and can service more than one area. Under AB 939, the City is required to evaluate this alternative. These centers can be established using large collection trailers (approximately 40 cubic yard capacity) in neighborhoods for short, scheduled periods of time. When full or when appropriate to be moved to the next neighborhood, trailers may be emptied at a centralized

or pre-processing aggregation site. 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. Jurisdictions with fairly high population densities and/or with many recycling collection programs in place may be better and more efficiently served by promoting and expanding curbside recycling programs.

This alternative is evaluated below to determine whether it is appropriate for the City, as well as to compare it to other alternatives.

**Waste Diversion Potential.** Mobile drop-off centers offer some advantages over curbside collection, including:

1) lower total cost, since the materials must be delivered by the householder, thereby avoiding costs for collection from each household;

2) a relatively short implementation time for planning purposes, once secure site(s) have been selected; and

3) materials preparation procedures (eg., newspapers need not be bagged or bundled) are less stringent.

Disadvantages of mobile drop-off centers include:

1) generally low participation and diversion rates since fewer people use the service, because it is not as convenient as curbside collection; and

2) a strong reliance on the community's willingness to schedule their activities to coincide with the service.

In addition, although mobile centers can be effective in diverting recyclables from the waste stream, the City provides residential recycling services for all who wish to participate. Consequently, the efficiency of a mobile center would be minimal.

For these reasons, this alternative received a "low" rating in terms of its waste diversion potential (less than 3 per cent), as reported in Table 5.1.

**Hazard.** Potential hazards associated with this alternative are generally known and controllable so that a "medium" rating was assigned. Some preventive measures to avert hazards include safety equipment which should be available at each site, and include a first aid kit, fire extinguisher and two-way radio. The site(s) must be staffed when the center is open to the public, and equipment (eg., large capacity bins for various

types of recyclables and refuse) must be secured when the site is closed. A fence around the perimeter of the site may also be desirable. Also, a certain amount of additional refuse delivered during non-operating hours should be expected to accumulate near the site, which may be a consideration if the site(s) are located in or near residential areas. For these reasons, a "medium" rating was assigned.

**Ability to Accommodate Change**. This criterion measures the alternative's ability to respond to changing economic, technological and social conditions. Some examples of changing conditions would be if locations or operating hours of the centers changed and residents were not aware, even though they may have been provided literature advising them of the changes. In such instances, additional refuse may accumulate near the site, or participation may decrease. For these reasons, a "medium" rating was assigned.

**Consequences to the Waste Stream**. Implementation of this alternative would result in the creation of little non-recyclable, unmarketable, or uncountable (under AB 939) wastes. A "medium" rating was, therefore, assigned.

**Ease of Implementation**. This alternative could not be evaluated until the medium term planning period. A "low" rating was, therefore, assigned.

**Facility Needs**. Facilities would need to be developed in order to implement this alternative. A "low" rating was assigned since the alternative could not be completed until after 2000.

**Consistency with Local Policies**. This option is consistent with local policies and does not affect existing plans or ordinances. The jurisdiction's recycling programs and the household hazardous waste events are already promoted by the jurisdiction. For these reasons, a "high" rating was given this alternative.

**Institutional Barriers**. Institutional barriers are anticipated to have little or no impact on this alternative. Therefore, this alternative received a "high" rating in terms of its absence of barriers.

**Estimated Cost**. The costs of this alternative would include the use of the City's staff resources to develop and administer the program, as well as the capital and operating expenses. Estimated annual costs would depend on the scope of the program developed which could range from $50,000-200,000. A "medium" rating was assigned.

**End Uses**. End uses are discussed in Section 4.4.4 and received a

"high" rating for this alternative.

**Public vs. Private Operation.** A mobile collection program could be operated by either a public or private entity.

**Alternative 3 - Buy-back Center**

Under AB 939, the City is required to evaluate a buy-back center alternative. A buy-back center is essentially a drop-off center to which participants bring materials and for which they are paid. These materials typically include aluminum cans, newspaper, glass, tin and bi-metal cans, plastic (PETe and HDPE), corrugated cardboard, and high-grade papers. Because of the nature of the programs, buy-back 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, including, for example, balers to densify some recyclables.

This alternative is evaluated below to determine whether it is appropriate for the City, as well as to compare it to other alternatives.

**Waste Diversion Potential.** Buy-back centers in communities with established recycling programs can be less effective because wastes are simply transferred from other recycling programs, such as curbside, where the generator is not paid for the materials recovered. For these reasons, a "medium" rating was assigned.

**Hazard.** This alternative presents no major hazards; a "medium" rating was given.

**Ability to Accommodate Change.** This alternative is readily adaptable to changing conditions, especially to changes in material types, processing and handling techniques, and to changes in the waste management system and regulatory programs. Therefore, a "high" rating was given.

**Consequences to the Waste Stream.** This alternative would result in the creation of little unmarketable, or uncountable (under AB 939) wastes, so that a "medium" rating was given.

**Ease of Implementation.** As this alternative could not be evaluated until the medium-term planning period (2000), a "low" rating was assigned.

**Facility Requirements.** New facilities would be required. A site, facility, and processing equipment (e.g., scales, cash register, safe, calculators, hand carts) would be needed.

Therefore, a "low" rating was given.

**Consistency with Local Plans and Policies.** The City has generally preferred to defer to private sector enterprises for recycling services when the markets can demonstrate support for such services; therefore, no score was assigned.

**Institutional Barriers.** Some institutional barriers exist for this alternative. A relatively convenient location would have to be selected and any necessary permits obtained. In addition, the center would have to be certified by the State Department of Conservation (DOC) as a buy-back center for California Redemption Value beverage containers under AB 2020. According to the DOC, this would require filing an application to become a certified recycling center. For these reasons, a "medium" rating was assigned.

**Estimated Cost.** Estimated costs for the City would depend on the scope of the program implemented. Capital costs will vary depending on the site selected (e.g., whether new construction is required) and the type and size of the facility (e.g., if processing is done, more sophisticated equipment may be needed). Labor costs would vary depending on the size of the facility. A "low" rating was given.

**End Uses.** See Section 4.4.4 Market Conditions. A "high" rating was assigned.

**Public vs. Private Operation.** A buy-back center would probably be privately operated.

### Alternative 4 - Source-separated Recycling Program: Multi-family Dwellings

Since the City has no multi-unit dwellings and, none are anticipated, no evaluation of this alternative is needed.

## 4.4.2 Non-Residential Alternatives

### Alternative 5 - Commercial/Industrial Recycling Program

Using the definition from the California Integrated Waste Management Board for commercial solid waste, there were five such accounts in the City in 1991, including four institutions (City office, U.S. Post Office, a school and a church) and a non-profit group. There is no retail sector. In addition, there are about 15 people employed by those businesses.

No commercial diversion rates will be identified as a result of source reduction activities for two reasons First, no commercial waste was identified during the waste sort because discrete commercial loads were not available for sampling. And, second, data provided by the contracted hauler indicates that in 1990 the City's commercial waste represented about 1.4 per cent (43 tons) of its total disposed waste. If changes in the commercial waste stream become evident, then the waste characterization studies to be conducted at the end of the short-term planning period (1994-95) should measure changes in waste types and quantities generated (see Section 3.6.1 Program Implementation).

This alternative addresses the objective of increasing the number of material types collected from the industrial sector, since about 35 per cent of the City's waste stream is generated by that sector. This alternative is evaluated below to determine whether it is appropriate for the City and to compare it to other alternatives.

**Waste Diversion Potential.** This alternative would not be very effective in reducing the amount of targeted recyclable materials in the industrial waste stream for two reasons. First, the organic fraction comprises more than two-thirds (999 tons) of the total quantity generated (1,454 tons). And second, the remaining quantity generated is dispersed primarily between "Textile/ Leather", "Other Plastics" and "Other Metals", whose waste types are difficult to market at this time (egs: PVC piping and rebar). For these reasons, a "low" rating (less than 3 per cent diversion) was assigned.

**Hazard.** As this alternative presents no major hazards, a "high" rating was assigned.

**Ability to Accommodate Change.** Diversion programs for the industrial sector can be implemented at the source of generation or at the disposal site. The effectiveness of the programs depends on the quantities diverted, market specifications, on-site storage, the sale price and proximity to a market. In general, such programs are adaptable to changing conditions, such as the addition of a material type. A "high" rating was, therefore, given.

**Consequences to the Waste Stream.** Since this alternative has no known impact on shifts in waste-type generation, a "high" rating was given.

**Ease of Implementation.** The implementation schedule is dependent on the number of materials targeted for diversion. Due to marketing difficulties cited earlier, implementation may be slated after 1995, so that a "medium" rating was assigned.

**Facility Requirements.** Since the alternative can be integrated into existing facilities, a "high" rating was given.

**Consistency with Local Plans and Policies.** This alternative is consistent with local plans and policies. A "high" rating was given.

**Institutional Barriers.** One of the major problems associated with industrial recycling programs is the need for markets for the quantities of materials collected. For this reason, a "medium" rating was assigned.

**Estimated Cost.** The cost of an industrial recycling programs is dependent on the number of recyclable materials collected and the service area. Estimated costs for the City result in a "high" rating (less than $50,000).

**End Uses.** Please see Section 4.4.4 Market Conditions. A "high" rating was assigned.

**Public vs. Private Operation.** This type of program can be operated by either a public or private entity.

## Alternative 6 - Manual Material Recovery Operation/Mechanized Material Recovery Operation

Under AB 939, the City is required to evaluate manual and mechanized material recovery operations. The industry terms for these facilities are intermediate processing facilities (IPFs) and materials recovery facilities (MRFs). These terms will be used in this evaluation in lieu of the more general terms specified by 939.

An IPF serves as a transfer and processing point for source separated recyclable materials. Commingled recyclables may be sorted by hand, on conveyors, or in sophisticated process sequences. IPFs may be as simple as a recycling drop-off yard where some sorting, crushing, or baling takes place, or as complicated as a full scale factory for mechanical separation of mixed recyclables. The sorting required at this facility is dependent on the collection program which delivers materials. The contracted hauler has developed an IPF to process all recyclables collected for each of the City-sponsored programs identified in Section 4.

A MRF, on the other hand, serves as a transfer and processing point for mixed wastes which contain recyclable materials. Materials of value are recovered from the waste stream rather than processed after source separation. MRFs typically are more

complex mechanically than IPFs, although this is not always true. MRFs can often perform intermediate processing of source separated recyclables as well as recovery of valuable materials from the waste stream so that a MRF may also be an IPF.

The distinction between an IPF and a MRF is critical from a permitting perspective. IPFs do not require a CIWMB facilities permit since they do not produce a residual requiring landfilling. MRFs require a facilities permit since they always have a residual waste stream.

Processing facilities are an evolving technology, and many improvements in their processing capabilities are likely to be achieved in the next decade. The number of new IPFs and MRFs across the country is expected to double in the next two years alone, with the average size getting 82 per cent larger (MRF Handbook, 1990). The rush to build capital-intensive facilities which may allow little flexibility in future planning and system modifications does not take into account the many developments and improvements that will occur in the coming years. Industrial secondary material users are concerned about absorbing ever-increasing quantities of recycled materials from companies that might not understand the need for high quality materials.

MRFs are highly variable in their size, design, and function, but they share certain qualities: they are expensive to build and operate, with total capital costs per daily input ton of $10,000 to $40,000. The average capital cost per ton of daily capacity for current and planned MRFs is approximately $21,000 (Glenn, Biocycle, May 1990, p. 29). The economies of scale typically assumed for larger facilities are not present in existing MRFs. Facilities designed for 100 tons per day have a capital cost of approximately $18,000 per ton of daily capacity, while the costs of 100+ ton per day facilities are approximately $22,000 (Ibid). Operating costs, before revenues from sale of materials, and without considering capital costs, are on the order of $20 to $60 per ton (Chertow, 1989).

The potential liabilities of increasing the size and mechanization of facilities include:

- Lack of flexibility to explore non-MRF waste handling options.
- Possible escalation of costs of existing service due to extensive capital investments in sophisticated technology.
- Elimination of involvement of both waste generators and some non-profit or small business parties currently involved in the waste management system.

- Maximizing the value of recyclable materials by separating and preparing them to enter a manufacturing process, known as "high-grading", is rarely a priority in MRF design.

- MRFs are responsive to the public policy goals of recycling, but bear little relationship to the more complex question of decreasing waste generation.

- The financing of MRFs is based on a model of guaranteed flow of materials from local governments. A reduction in the amount of material throughput results in costly slack time for the facility, and increases the cost per diverted ton.

- As landfill fees and garbage collection costs go up, there will be increasing pressures on waste generators to find alternative haulers of materials who will not charge for the service. This pressure means that the saleable materials going into MRFs will be of diminished quality and value, which will in turn be reflected in depressed operating income from the sale of material. This may either increase the cost of MRF services, or increase the need for flow control.

- Flow control effectively prevents future recycling opportunities for community groups and businesses.

This alternative, the continued use of an IPF, is evaluated below to determine whether it is appropriate for the City, and to compare it to other alternatives.

**Waste Diversion Potential.** As this alternative would be effective in retaining the amount of targeted recyclable material(s) in the solid waste stream, a "high" rating was assigned.

**Hazard.** This alternative presents moderate hazards. These include the possibility of fire and explosion from any shredder operations and the possibility of explosion from compacting the residual load. Because some of the materials collected are combustible, there is a minor fire hazard associated with their storage. Health risks associated with manual sorting of refuse include exposure to potentially hazardous materials in the waste stream and working around equipment such as loaders, dozers, and compactors. For these reasons, a "medium" rating was given.

**Ability to Accommodate Change.** Since both manual and mechanized facilities are adaptable to changing conditions, a "high" rating was assigned.

**Consequences to the Waste Stream**. This alternative has no known impact on shifts in waste-type generation. A "high" rating was, therefore, given.

**Ease of Implementation**. Simple manual recovery operations (i.e., dump-and-pick) could be expanded in the short- to medium-term planning period. If begun shortly, facilities employing either manual or mechanical recovery could be implemented in the short-term planning period; however, sophisticated mechanized recovery operations would require design and development efforts more suited to a long-term planning period. A "low" rating was assigned since an expanded processing facility would not be needed until after 2000.

**Facility Requirements**. This alternative requires significant resources for a facility large enough to handle the delivery, processing, and short-term storage of both recyclable and non-recyclable components of the waste stream. Existing facilities can accommodate implementation of this alternative; a "high" rating was assigned.

**Consistency with Local Plans and Policies**. Since this alternative would require some changes to existing local plans and ordinances for implementation, a "medium" rating was assigned.

**Institutional Barriers**. MRFs require State and local permits to operate; IPFs require only local permits for operating. As this alternative is impacted by existing institutional barriers over which the jurisdiction maintains some control, a "medium" rating was assigned.

**Estimated Cost**. The costs associated with this alternative depend on the type of facility and processing operation selected. Existing facilities and sites to be used for this alternative will also affect the cost. Total estimated costs for the City are estimated to be in excess of $200,000. A "low" rating was assigned.

**End Uses**. See Section 4.4.4 Market Conditions. A "high" rating was given.

**Public vs. Private Operation**. These types of facilities can be operated by either a public or private entity.

### Alternative 7 - Salvage at Solid Waste Facility

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. This type of activity is very similar to a manual material recovery operation, although generally under more open conditions. Salvaging also often differs from material recovery facilities with respect to the waste types separated. For example, 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 self-haul loads and from uncompacted commercial debris boxes. This program, sometimes referred to as a "dump-and-pick" operation, is currently being conducted by the landfill operator, as described in Section 4.3.4 Landfill Salvaging and Recycling. Any revisions to the current activities would be subject to contract negotiations. Since a salvaging operation is currently being conducted and its continuation is anticipated, an evaluation is not needed.

**Alternative 8 - Divert Inert Solids Generated from City Public Works and Private Construction/Demolition Projects to a Materials Processor**

This alternative addresses the objective of increasing recovery of recyclable construction materials and inert solids (i.e., asphalt and concrete). All projects are with private construction firms who have contracted with residents; there are no City public works crews. The City is aware that inert solids are recyclable and may be used as road base and other construction material. Under this alternative, any contractors working for residents in the City would be responsible for taking the used materials to an established processor. Small quantities (e.g., 4 tons or less) could be exempt from this requirement.

It should also be noted that Green Valley Disposal Company does not have an exclusive contract with the City to collect or process recyclables, such as inerts.

This alternative is evaluated below to determine whether it is appropriate for the City, as well as to compare it to other alternatives.

**Waste Diversion Potential**. This alternative would not be effective in reducing the amount of targeted recyclable material(s) in the waste stream since inert solids from the industrial sector comprise about 1.1 per cent of the total waste stream. Therefore, a "low" rating was assigned.

**Hazard**. Since concrete and asphalt processing operations are extremely noisy (requiring ear protection) and produce a substantial amount of dust, a "medium" rating was assigned.

**Ability to Accommodate Change**. This alternative can readily adapt to changing conditions, due to the fact that the local market for asphalt and concrete is stable. Therefore, a "high" rating was given.

**Consequences to the Waste Stream**. As this alternative will have no impact on shifts in waste-type generation, a "high" rating was assigned.

**Ease of Implementation**. Since this alternative could be completed in the short-term planning period (1995), a "high" rating was given.

**Facility Requirements**. No new facilities are required as this alternative is intended to be integrated into existing processing facilities. Therefore, a "high" rating was assigned.

**Consistency with Local Plans and Policies**. As this alternative would require some changes to existing local plans and policies, a "medium" rating was given.

**Institutional Barriers**. The City could include provisions in the contractors's bid requirements for delivery of inerts to a processor. Some City staff time may also be needed to monitor compliance and assess penalties for non-compliance. A "high" rating was assigned.

**Estimated Cost**. Operating costs would include transportation and tipping fees. Tipping fees for asphalt and concrete vary depending on the load. Asphalt and concrete can vary between $4.75 per cubic yard to $6.50 per cubic yard, depending on whether the load contains wire mesh or rebar. On a per ton basis, disposal costs range from approximately $2.00 per ton for asphalt to $5.00 per ton for concrete. Staff costs to implement and monitor the policies and procedures for a diversion program have been estimated to be about $50,000. A "high" rating was given based on these assumed costs.

**End Uses**. Primarily road base, aggregate and bedding. A "high" rating was assigned.

**Public vs. Private Operation**. Operation of the processing facility would be private.

### 4.4.3 Residential and Non-Residential Alternatives

#### Alternative 9 - Drop-off Recycling Center

Drop-off recycling centers range in size, from "igloo" style

domes, to large centers. They require that the generator source separate recyclable materials and take them to the drop-off site. Drop-off recycling centers tend to target recyclables from residential sources and tend to be located in areas where they are readily accessible to homeowners and multi-unit dwellers. However, they may also be located in more commercial, urban areas and serve smaller businesses and downtown areas. They may be located at solid waste transfer and disposal facilities as well. Drop-off sites are sometimes unstaffed, but staffing provides control over the types of materials left at the facility, contamination levels, and the appearance of the facility. Small-scale drop-off recycling centers are generally located in parking lots of grocery stores, shopping centers, churches, or schools. Drop-off recycling centers can make recycling more convenient for persons who do not have curbside service and also provide a back-up for those who do have this service.

Drop-off 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 both high-grade and mixed paper.

This alternative is evaluated below to determine whether it is appropriate for the City, as well as to compare it to other alternatives.

**Waste Diversion Potential**. Although drop-off recycling centers can be effective in diverting recyclables from the waste stream, the City provides weekly recycling services for all residents, so that the efficacy of a drop-off recycling center appears to be minimal. Therefore, a "low" rating was assigned.

**Hazard**. Drop-off recycling centers present moderate hazards in that they can become "dump sites" since they are often unstaffed. As a result, potential hazards include broken glass or other debris around the drop-off containers, wind-blown litter, and disposal of hazardous waste. In addition, for the safety of the users, sites need to be well-lit and have adjacent parking. Consequently, a "medium" rating was assigned.

**Ability to Accommodate Change**. Drop-off recycling centers are moderately flexible, in that material types can be added quickly, as new markets develop. However, discontinuing material types is difficult to enforce, with the result that the materials may be disposed of at the drop-off site or, if possible, returned to the patron. Increased contamination of materials would render drop-off sites less flexible. Therefore, a "medium" rating was assigned.

**Consequences to the Waste Stream.** Adding drop-off recycling centers would have a limited impact on the waste stream. Moreover, the potential for contamination of materials could render these materials less marketable, so that a "medium" rating was given.

**Ease of Implementation.** As this alternative could not be considered for implementation in the short-term planning period (1995), a "medium" rating was assigned.

**Facility Requirements.** Drop-off centers would need to be built or set up in designated sites. Considerations include a central, accessible site; protection from weather (to keep high-grade paper dry); plenty of storage area for materials; good vehicle access (for both collection trucks and the public); and security (i.e., locked containers). For these reasons, a "low" rating was assigned.

**Consistency with Local Plans and Policies.** Drop-off recycling centers are consistent with City plans and policies when located within properly zoned areas; a "medium" rating was given.

**Institutional Barriers.** Frequently, businesses and property owners oppose the idea of a drop-off bin in their parking lot, primarily due to the litter accumulation that can result if these drop-off areas become dump sites. For this reason, the drop-off program could not operate in those locations without the businesses' and property owners' approval and cooperation. Therefore, a "medium" rating was assigned.

**Estimated Cost.** Costs depend on the type of drop-off center selected; costs include those for site acquisition, preparation, capital, and operating expenses. Total costs have been estimated to be greater than $200,000 so that a "low" rating was assigned.

**End Uses.** Please see Section 4.4.4 Market Conditions. A "high" rating was assigned.

**Public vs. Private Operation.** Drop-off recycling centers can be owned and operated by either public agencies, or by private non-profit or for-profit entities.

### Alternative 10 - Changes to Zoning and Code Practices

The City may evaluate a number of options to promote recycling activities through regulatory approaches such as zoning, land-use, and building code requirements. Revisions to zoning and building code requirements include a zoning ordinance that would require all new land development projects to plan and provide for

recycling needs in building and site design, with the possible exception of single-family homes. Land use and development requirements could involve establishing incentives and disincentives to land use and development that promote recycling. These could include requirements that an entity 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. 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.

This alternative is evaluated below to determine whether it is appropriate for the City as well as to compare it to other alternatives.

**Waste Diversion Potential.** The effectiveness of these 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. Since the diversion potential is expected to be less than 3 per cent, a "low" rating was assigned.

**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. Therefore, a "high" rating was given.

**Ability to Accommodate Change.** The regulatory measures outlined in this alternative are all fairly flexible and can readily accommodate to new circumstances in recycling techniques and recovery processes as well as to changes in local recycling programs and regulations. These programs can adapt to new types of materials and products as well as to changes in the waste stream due to generator behavior. One aspect that is 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. A "high" rating was assigned.

**Consequences to the Waste Stream.** As this alternative has no known impact on shifts in waste-type generation, a "high" rating was given.

**Ease of Implementation.** Regulatory programs, such as zoning, building code, and land-use requirements can all be implemented in the short-term planning period. However, communities usually

allow 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 this alternative in conjunction with neighboring jurisdictions. Each of the regulatory programs outlined in this alternative would have to undergo an approval process as well as anticipated resistance by generators to any further regulation by the City. The complexity of, and opposition to, these programs may preclude their implementation in the short-, and perhaps medium-term, time frame. A "high" rating was assigned since an evaluation to implement regulatory programs is anticipated by 1995.

**Facility Needs**. Since there are no facility requirements for this alternative, this criterion does not apply.

**Consistency with Local Plans and Policies**. Since minor changes to existing plans and policies would be required, a "medium" rating was assigned.

**Institutional Barriers**. Institutional barriers to this alternative involve potential conflicts within the jurisdiction between City agencies responsible for implementing effective waste management programs designed to meet the requirements of AB 939 and City agencies responsible for regulating building construction and site 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 are absent in neighboring jurisdictions. For these reasons, a "medium" rating was given.

**Estimated Cost**. Costs for regulatory programs depend primarily on the level of regulatory programs that the City chooses to pursue. Each of the programs outlined in this alternative would require resources from 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.

Total estimated costs to the City for evaluating regulatory approaches have been included in Table 4.4, which can be found at the end of this section. A "high" rating was assigned.

The costs to the private sector of the regulatory programs outlined in this alternative are unknown.

**End Uses**. See Section 4.4.4 Market Conditions. A "high" rating was assigned.

**Public vs. Private Operation**. Not applicable.

## Alternative 11 - 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, and may be applied to both residential and non-residential generators.

### Disposal Fees

Three types of disposal fees are identified, each possessing different impacts on diversion. First, disposal fees for non-recyclable or non-reusable wastes could be increased to create an incentive for purchasers of products to consider the costs of the products' eventual disposal in their purchasing decision. Second, a tiered franchise fee system could be structured to differentiate more readily recyclable loads from non-recyclable materials. Third, fees could be assessed which would divert certain types of materials (eg., corrugated cardboard) from being landfilled and, consequently, significantly reducing their disposal. Ultimately, targeted materials could also be prohibited from disposal.

### 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 proportional to actual disposal costs; consequently, residents have the opportunity to reduce costs by generating and disposing of 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; 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.

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 have a scale and some type of recordkeeping system to track the weight of the wastes by customer.

Jurisdictions implementing quantity-based user fees or variable rate structures have generally 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, a requirement for universal service, and 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 to deter these activities, since the variable rates and the recycling programs will tend to provide incentives for both dumping and scavenging.

Alternative 11 - Rate Structure Modifications is evaluated below according to the established criteria to determine whether this alternative is appropriate for the City and to allow a comparison of its relative effectiveness to other alternatives.

**Waste Diversion Potential.** 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 for more recyclable products due to their lower disposal cost through the recycling program. Also, variable rate structures provide an incentive for increased participation in source reduction and community composting programs. However, a caveat of the user-fee approach is its regressive rate structure, since lower income residents would allocate a relatively higher per cent of their income for such a service.

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 tends to increase due to compaction. This assumes that no recycling services are in effect. For communities where collection services for recyclables are already in place, the impact of variable rate structures would be less significant.

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 recycling 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 an upper limit to the variable rate structure beyond which illegal dumping will begin to occur. For these reasons, a "high" rating was assigned.

**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 may necessitate the installation of locking dumpster mechanisms for commercial containers. Illegal dumping could result in environmental and public health hazards. In addition, there is a moderate potential for increased burning of trash, with negative consequences for air quality. A "high" rating was given.

**Ability to Accommodate Change.** Modifications to rate structures, in general, are easily adapted to changing conditions. Rate structures can also be further changed and modified as circumstances warrant. Over the medium- and long-term, this alternative is quite flexible. Most jurisdictions may find that their disposal and collection fees are not as flexible in the immediate time frame because of outstanding contracts with haulers and landfill operators. In addition, once volume-based

rates are established, subsequent rate changes require the approval of the jurisdiction's governing body. A "medium" rating was assigned.

**Consequences to 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. Some shifting 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 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. Consequently, a "high" rating was assigned.

**Ease of Implementation.** Implementation of this alternative could occur within a year and is within the short-term planning period. However, potential opposition from the community and local government agencies could preclude implementation in the short-term planning period. A "high" rating was given.

**Facility Requirements.** Since no additional facilities are needed to implement rate structure modifications, a "high" rating was assigned.

**Consistency with Local Plans and Policies.** Application of quantity-based user fees would require changes to the plans, policies and ordinances of the City of Monte Sereno. Modifying the method of calculating landfill disposal fees is subject to contract negotiations with the landfill owner. For these reasons, a "high" rating was given.

**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 and/or disposal facilities are included in the implementation and rate-setting process. A "medium" rating was assigned.

**Estimated Cost.** Implementing rate structure modifications would require at least six major steps:

- a rate study to determine appropriate rate structures for achieving the desired level of participation in source reduction programs;

- a determination of how the proposed rate structure would impact the fixed and variable costs of collection and disposal;
- review and approval by the City (including a public hearing);
- generation of informational and educational materials;
- selection of standardized disposal containers or approved stickers for collection bags, or allowing residents to use non-standard containers purchased by them; and
- modification of existing billing operations.

The estimated cost for City staff time to implement this alternative is listed in Table 4.4 which can be found at the end of this section. A "high" rating was assigned.

**End Uses**. Not applicable.

**Public vs. Private Operation**. This alternative is compatible with either public or private refuse collection.

**Alternative 12 - Market Development**

Several options for market development for recycled materials are available to the City that address the objectives in Section 4.2. These options include participation in state-wide efforts sponsored by the California Integrated Waste Management Board, use of public education and information programs to promote the use of products using recycled materials, and local procurement ordinances. This alternative will focus on local procurement ordinances. Public education efforts by the City will need to be aggressive and extensive to ensure successful source reduction, recycling, and composting efforts, and are therefore covered in a separate component.

Local procurement ordinances involve adopting a procurement policy for the City specifying that one or more of the following criteria be considered in purchasing decisions: durability, recyclability, reusability, and recycled material content. As indicated in Section 4.3.1 Local Government Activities, the City has adopted a Source Reduction and Recycling Procurement Policy which became effective October 1991. The policy specifies, among other things, that any business or organization holding a contract with the City will be required to provide products or

materials according to the above criteria. There are also provisions for price preferences and set-asides for recycled products or reusable products.

This alternative is evaluated below to determine whether it is appropriate for the City, as well as to compare it to other alternatives.

**Waste Diversion Potential.** The effectiveness of a procurement program would depend on the materials targeted and the impact of the jurisdiction's purchasing power on the regional markets for those materials. A "medium" rating was assigned.

**Hazard.** As this alternative presents no major hazards, a "high" rating was given.

**Ability to Accommodate Change.** Procurement policies are fairly flexible and can readily accommodate new circumstances in recycling techniques and processes as well as to changes in local recycling markets, programs, and regulations. Procurement programs can easily adapt to new products and markets for recycled materials. One aspect of this alternative is the degree of inflexibility associated with the need to submit any regulatory program to the formal approval process required by the City. A "high" rating was assigned.

**Consequences to the Waste Stream.** Changes in the waste stream composition will depend on the effectiveness of the procurement program. However, 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. A "high" rating was given.

**Ease of Implementation.** Procurement programs can be implemented in the short-term time period. However, the City may wish to allow a period of time for governmental consumers, producers, and suppliers of products to adjust to the effects of the procurement program. In addition, implementing a procurement program over a longer timeframe may allow for the opportunity to pursue this alternative in conjunction with neighboring jurisdictions. However, this program would have to undergo a complex approval process. The complexity of these programs may preclude implementation in the short-, and perhaps medium-term, time frame. A "high" rating was given.

**Facility Needs.** As there are no facility requirements for this alternative, this criterion does not apply to this alternative.

**Consistency with Local Plans and Policies.** Since this alternative will require minor changes to current plans, policies, and ordinances for the City regarding low-bid purchasing, a "medium" rating was assigned.

**Institutional Barriers.** Purchasing and procurement programs across public agencies will need to be coordinated in order to achieve a City-wide impact from a procurement program. While purchasing and procurement itself is often centralized within the 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 normal specifications. For these reasons, a "medium" rating was given.

**Estimated Cost.** Costs for a procurement program include resources from the City for developing, implementing, administering, 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 procurement program are unknown. Additionally, there are potentially unknown costs connected with a procurement program in that suitable products meeting source reduction requirements (and 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.

The estimated total cost for staff time for the City to implement a procurement policy has been presented in Table 4.4. A "high" rating was assigned.

**End Uses.** See Section 4.4.4 Market Conditions. A "high" rating was given.

**Public vs. Private Operation.** Not applicable.

## Alternative 13 - Materials Handling Methods

This section addresses the advantages and disadvantages of the extent of source separation required of waste generators. Program costs and flexibility in future years are affected strongly by the particular program approach chosen. The discussion progresses from maximum source separation (complex collection, minimal processing) to minimal source separation (simple collection, complex processing).

Maximizing source separation has the following advantages:

- Effectively lowers contamination levels in the collected materials.
- Saves sorting and processing costs.
- Involves the resident more fully in the recycling program.
- Achieves a high level of marketability for materials.

The disadvantages of the source separation approach are:

- Limits number of materials that can be collected.
- May discourage participation by residents unwilling to provide the effort and space needed for segregation.
- Requires that several household separation containers be provided by program sponsors or householders. The number of set-out containers, however, may be significantly less than the number of "sorts" required. For example, bundled newspaper or cardboard may be set out in the same container as loose mixed waste paper.
- Slow collection efficiency because operators must pick up multiple containers.

Advantages of commingling materials to simplify collection include:

- Increases participant convenience.
- Increases program flexibility by accommodating changes to the mix of materials.
- Requires fewer household containers, which may reduce program costs.
- Increases collection efficiency.
- Discourages scavenging.

Disadvantages include:

- Requires various levels of intermediate processing capability, depending on the degree of commingling on the truck and the number of materials collected.

- Results in higher levels of unrecyclable material at the processing facility, since less sorting occurs in the household and at the truck.

In any commingled program, contamination is a problem, and needs to be considered. Source separated recycling programs have a purer and more marketable final product than commingled programs. Processing facilities that color sort glass on-site currently find that 15 to 30 per cent of the collected glass containers end up as a mixed-color fraction, primarily due to breakage. Finding markets for mixed-color cullet is a significant problem, since cullet is either disposed of as residue or is sold as an aggregate to the asphalt industry for less than $10 per ton (a fourth of the price paid by container plants for color-separated glass). Furthermore, glasphalt is a final use of the material, precluding future recycling.

When aluminum cans are mixed with other containers, the potential for contamination increases. Broken glass chips often stick to cans or end up inside them. Light plastic containers may remain with the cans during an air separation process. Bi-metal beverage cans can sneak through magnetic separation devices.

Contamination also causes serious safety, production, and quality problems, such as the following:

- Plastics in an aluminum can delacquering furnace upset the delicate thermal balance needed to remove the paint from the cans.

- Lead contained in aluminum cans shipments causes problems with forming the can sheet into cans.

- Aluminum cans processed at MRFs and shipped to smelters are often contaminated with glass, plastic, and dirt. Glass and dirt mixed in with cans do not melt, and are incorporated into the final product, often raising the silicon content above specification.

- Ceramics in loads of glass can not be removed mechanically. Often pieces of broken ceramics are contained in loads of glass, making detection impossible at the glass plant until the contaminated material has gone into the furnace.

Few programs in North America collect totally commingled recyclables. The Rabanco program in Southern Seattle, a pilot program in Los Angeles, and the Cupertino "ungarbage can" program are examples of this approach.

The advantages of this approach include:

- Maximizes recyclable collection efficiency (no separation at the truck).
- Allows use of existing packer trucks.
- Nearly eliminates sorting requirements at the household level.

Disadvantages of the fully commingling recyclables approach include:

- Requires extensive sorting capability at a processing center.
- Increases contamination levels substantially, lowering marketability.
- Severely reduces the involvement of the generator and "education factor" related to waste management and the overall need to reduce waste.

These modes of collection each necessitate a different set of practices on the part of generators to prepare materials, a different set of processes to convert materials into commodities, and different program economics. These modes represent a continuum, rather than a static set of practices. In general, the more highly separated materials are at the point of generation, the less costly their processing. It should be noted that the true cost of providing service to the residential sector is difficult to determine with accuracy, since most service providers do not distinguish clearly between the costs of the different programs that they provide. Some programs may be subsidized by commercial sector collection, for example. When these "hidden" costs are fully accounted for, the source separated model is in general a less expensive option.

In 1990, for example, the City of Sacramento opted for a three-bin system instead of an automated curbside system for its residential curbside program. The costs of the source separated program were estimated at $1.19 per household per month, versus $2.17 per household per month for the commingled approach. These calculations included collection and processing costs as well as material revenues. Other curbside recycling program costs (for either existing or proposed programs) in cities throughout the Bay Area reflect similar cost differentials between source separated and commingled approaches: a range of $0.75 to $1.75

per household per month for source separated (with the majority of programs costing less than $1.00), and a range of $1.50 to $4.00 per household per month for commingled.

This alternative, the source separation of recyclable materials, is evaluated below to determine whether it is appropriate for the City, as well as to compare it to other alternatives.

**Waste Diversion Potential.** As described above, maximizing source separation programs improves the quality of recovered materials offered to secondary markets. In addition, such separation programs help to optimize the revenue which can be anticipated from the sale of the recyclables. For these reasons, a "high" rating was assigned to this criterion for this alternative.

**Hazard.** As this alternative presents no major hazards, a "high" rating was given.

**Ability to Accommodate Change.** Source separation programs ensure a higher level of marketability for the processed waste types than commingled collection. In general, source separation programs can more easily transition to commingled collection programs than vice versa, due to the initial material separation required by the generator. Materials handling programs can adapt to new products and markets for recycled materials. A "high" rating was assigned.

**Consequences to the Waste Stream.** Source separated recyclables is not expected to have any significant impact on shifts in waste-type generation. Recycled materials would be clean and their physical integrity would be maintained. A "high" rating was, therefore, assigned.

**Implementation Period.** As described earlier, the residential curbside recycling program requires almost all of the materials to be source separated and those provisions are expected to continue. Recycling services for multi-unit dwellings specify partial commingling with additional processing conducted at the facility, and these arrangements are also expected to continue.

**Facility Needs.** Since there are no additional facilities needed for this alternative, a "high" rating was given.

**Consistency with Local Plans and Policies.** As this alternative does not pose any conflict with current plans, policies, and ordinances for the City, a "high" rating was assigned.

**Institutional Barriers.** This alternative presents no institutional barriers; a "high" rating was given.

**Estimated Cost**. Costs for this alternative include costs for development, implementation, and monitoring of programs. Total costs are estimated to be between $50,000-200,000. A "medium" rating was assigned.

**End Uses**. See Section 4.4.4 Market Conditions. A "high" rating was given.

**Public vs. Private Operation**. The programs contemplated under this alternative could be implemented by either public or private entities.

### 4.4.4 Materials Markets

Recycling requires more than the separation and collection materials; viable markets must exist for the recovered materials. This section addresses the existing market conditions relevant to the City as well as 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. In addition, the City is aware of the Recycling Market Development Zones established under SB 1322 and will consider this option in conjunction with other local jurisdictions. Many resources exist which identify local markets for different materials; most of these are in the form of lists compiled by entities such as the California Department of Conservation (DOC) and the California Integrated Waste Management Board (CIWMB). For this reason, only highlights are addressed in this section. In addition, the DOC is in the process of preparing a statewide database called *Market Watch* which will be fully operational in approximately 9-12 months, and will include information on markets in California.

**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 the South Bay. 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 de-ink this raw material before it can be recycled for certain uses. The primary reason for excess ONP is the shortage of newsprint facilities that can de-ink the newspaper or reuse it.

The de-inking 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 $40 per ton. 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.

Some local haulers have contracts with Weyerhaeuser Paper Company (Weyerhaeuser) for newspaper.

**Old Magazines (OMG)**. A new market is emerging for OMG; many newspaper recycling mills plan to use OMG in the production of newsprint. This will result in a lower demand--until more newspaper recycling opportunities emerge in the next couple of years--for ONP. OMG is now being used in newspaper recycling mills due to their conversion from a simple wash process to a flotation process of de-inking. The Smurfit Companies have converted to flotation de-inking and can utilize supplies of OMG. The current price paid is $20 per ton; a higher price can be negotiated, based on volume. The main requirement for preparation of the magazines is that they be loose--not bagged or tied with string.

**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.

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 fall with the price of pulp. The market prices for different paper grades vary independently. However, the market price for higher grades are generally more stable than that 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, facial tissues, and paper towels. Some local haulers have contracts with Weyerhaeuser for high-grade waste paper.

**Paperboard**. The Newark Group is a national producer of recycled paperboard made from a variety of paper and paperboard grades. The company produces uncoated boxboard, specialty paperboard, tube stock, coated boxboard, gypsum liner, corrugated medium, and other paperboard. The company has locations throughout the United States, including mills located in Newark, San Jose, San Leandro and Santa Clara.

**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 and the value of the U.S. dollar overseas greatly affect the demand for wastepaper. A strong dollar overseas means 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. Potential buyers for wastepaper in the Bay Area include: Weyerhaeuser in San Jose and DAI El Papers USA Corporation in Burlingame, but other markets need to be identified in order for recycling of mixed paper to be feasible in the City.

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 $40 to $65 per ton. Potential buyers for OCC collected in the City are Jefferson Smurfit and Weyerhauser in San Jose and DAI EI Papers USA Corporation in Burlingame. Some local haulers have contracts with Weyerhaeuser for OCC.

**Aluminum Cans.** 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, aluminum cans command the greatest price per pound. Aluminum cans that have been separated can be used by the primary producers and are remelted and made directly into can stock. Aluminum scrap is used primarily by secondary aluminum 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 Beverages 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(2) and is worth approximately $3 to $4 per pound. Even this small amount of tin can cause contamination in steelmaking. For this reason, detinning is used to both reclaim valuable tin and improve the quality of the steel scrap, although sometimes the post-consumer steel cans and scrap are used directly as a raw material(3). Steel can recycling is expanding, due in part to increased participation by steel mills and detinning mills in collecting and purchasing used steel cans(4). This is despite aggressive efforts by the aluminum can industry to enter the steel-dominated food can market(5).

The major detinning companies have opened new facilities around the U.S. to accommodate the influx of steel cans and the demand from the steel industry. This has helped decrease transportation distances for recyclers(6).

**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, so its market price remains fairly constant. 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 produces multi-colored shards of glass. 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.

Effective February 3, 1992, glass cullet has been purchased by Golden State Glass Recycling in Newark (at the CIRCO Glass Company facility) and California CRINC (at the former NoCal Glass

Benificiation, Inc. facility) in San Leandro. 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 $0.05 per pound sometimes with a stipulation that the glass be color-sorted. The addition to the AB 2020 redemption values raises the total market price.

**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 (PETe) which is the most recycled of all plastics. Over 160 million pounds of PETe bottles were recycled in 1988. Post-consumer PETe 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 PETe is fiberfill, which is used in pillows, sleeping bags, and ski jacket insulation, among other things. The most desirable market for recycled PETe is compounded, extruded, and molded plastic makers.

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, because of sanitary restrictions, these items are not recycled back into food packaging. Major potential markets for recycled HDPE are soft drink basecups, plastics lumber, containers, drums, pails, and various types of pipes. One major West Coast processor of HDPE is Partek in Vancouver, Washington, which is adjacent to Portland, Oregon. Partek processes only HDPE Grade 2, and uses it to manufacture new containers. HDPE Grade 2 is used in its natural color for milk, water, and juice jugs and is colored for use in laundry detergent containers, shampoo and conditioner bottles, and antifreeze containers.

Low-density polyethylene (LDPE) is used primarily in the manufacture of various types of film, such as food wrapping. More than 1,310 million pounds of it is made into trash bags. It is also used to make piping and to coat wires and cables(7), and in the manufacture of rigid items, such as food storage containers and flexible lids(8). LDPE is used in plastic grocery bags, which is one of the fastest growing segments of recycling. Four manufacturers provide most of the grocery sacks in North America and are committed to separating plastic grocery sacks from the waste stream to make them into new products(9). Some local markets for LDPE are Bay Polymers in Fremont, RPX Resins in Scotts Valley, and Tech Polymers in Berkeley. Also, Dow Chemical

Company and Sealed Air Company have formed a joint venture to recycle LDPE; one of its local plants is in Hayward. At this time, the program is available to Dow and Sealed Air customers only, but expansion of the program is being considered(10).

**Polystyrene.** There are various forms of polystyrene, the most familiar being the foamed or expanded polystyrene foam (EPS) commonly referred to as styrofoam. The uses for 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. The local market for polystyrene products includes Free-Flow Packaging Corporation in Redwood City and Bay Polymer Corporation in Fremont. Recovered polystyrene can be used in the manufacture of toys, office equipment, insulation, and cassette casings.

**Telephone Books.** The current primary market for telephone books is overseas, as over 90% of the phone books collected in 1991 recycling drives were sold overseas.

Louisiana Pacific Company in Oroville expects to use a steady supply of telephone books for its particle board manufacture once it has its equipment for that part of the operation in place. The company uses phone books to make up approximately 10 percent of the content of its particle board. The company is presently in the early stages of acquiring the additional equipment necessary to expand its capacity.

**Inert Solids.** Asphalt and concrete from construction demolition gets landfilled in many areas, although it is often recyclable. Local recyclers are Raisch Products in San Jose, Zanker Road Resource Management in San Jose, and Stevens Creek Quarry, Inc. in Cupertino.

**Overseas Markets.** Strong markets exist abroad (e.g., Mexico, Saudi Arabia, Pacific Rim nations) for many materials, especially mixed waste paper and newspaper. Numerous brokers on the West Coast represent these markets and are listed in various references.

## 4.5 Selection of Program

In Section 4.4, a number of alternatives were qualitatively evaluated according to a range of criteria mandated by the regulations governing AB 939. In this section, the City has identified the alternatives selected based on the qualitative evaluation of these alternatives. In selecting among alternatives, the City considered the following critical factors:

- the degree to which each alternative is appropriate to the conditions of the jurisdiction (i.e., goals, objectives, policy environment, waste stream, and solid waste management system), and

- the degree to which the alternatives complement one another and form a coherent, comprehensive, and cost-effective package. It should be noted that if markets are not available or economic, the City may be forced to advise the California Integrated Waste Management Board that meeting the goals of AB 939 are not feasible, unless the State provides strong leadership in market development.

In addition, the programs selected and described below:

- avoid major capital expenditures or flow control commitments during the short term;

- probably provide higher revenues per ton than fully commingled or "as is" collection alternatives;

- minimize the possibility that collected materials might be downgraded, rejected or landfilled due to contamination; and

- offers the greatest flexibility to adapt to changing conditions.

Based on the results of the above evaluation, the alternatives selected to meet the goals and objectives of this component in the short-term and medium-term planning periods are presented below.

### 4.5.1 Short-Term Planning Period

In order to meet the goals and objectives outlined in this component, the City of Monte Sereno anticipates diverting approximately 17.18 per cent of the total waste stream by 1995. The City has selected the following programs and alternatives based on impact, effectiveness, market conditions and ease of implementation.

**Residential Alternatives**

- Objectives for the curbside recycling program are to increase participation and recovery rates, to reduce contamination in setouts and to reduce scavenging. The anticipated diversion rate is 9 per cent.

- Implement a variable rate structure for the entire residential sector. Any reduction in the volume of refuse

generated as a result of the implementation of this alternative will be in addition to the diversion rates reported for the short- and medium-term planning periods. This alternative was also selected in the source reduction component. Implementation and costs for this alternative are described in the source reduction component.

- There are several public and privately operated buy-back and drop-off centers which are located in adjacent cities which may be patronized by residents. The anticipated diversion rate as a result of this activity is 6 per cent.

**Residential and Non-Residential Alternatives**

- Continue City-sponsored programs aimed at recycling throughout the City office and operations. The anticipated diversion rate is small, and therefore was not calculated.

- Diversion of several waste types at the contracted landfill site; materials recycled include white goods, ferrous, tin, bi-metal and glass. The anticipated diversion rate is 2.18 per cent.

- Evaluate a program of regulatory approaches such as zoning, building code, and land-use requirements to promote recycling activities.

- Develop a market development program through the local procurement policy for products with recycled material content. This alternative was also selected in the source reduction component. Implementation and costs for this alternative are outlined in the source reduction component.

- Continue and expand multi-jurisdictional approaches to recycling such as public education, disposal fees, and market development. This alternative was also selected in the source reduction component. Implementation and costs for this alternative are outlined in the source reduction component.

### 4.5.2 Medium-Term Planning Period

In order to meet the goals and objectives outlined in this component, the City anticipates diverting approximately 19.93 per cent of the total waste stream in the medium-term planning period. All programs and alternatives selected in the short-term

planning period will be continued in the medium-term. The programs listed below only include those with an estimated diversion rate.

**Residential Alternatives**

- Objectives for the curbside recycling program are to increase participation and recovery rates, to reduce contamination in setouts and to reduce scavenging. The anticipated diversion rate is 9.5 per cent.

- The anticipated diversion rate as a result of the patronage by the City's residents of the public and privately operated buy-back and drop-off centers located in adjacent cities is 6 per cent.

**Residential and Non-Residential Alternatives**

- Continue City-sponsored programs aimed at recycling throughout the City office and operations. The anticipated diversion rate is small, and therefore was not calculated.

- Diversion of several waste types at the contracted landfill site; materials recycled include white goods, ferrous, tin, bi-metal and glass. The anticipated diversion rate is 4.43 per cent.

In addition, the City has selected the following new programs and alternatives.

**Residential and Non-Residential Alternatives**

- Monitor efforts at the State level to encourage recycling, including financial and economic incentives, public education efforts, and other programs.

No additional facilities are necessary to implement the selected alternatives in the short- or medium-term planning periods.

## 4.6 Program Implementation

This section identifies and describes the specific tasks necessary to achieve full implementation of the selected alternatives and includes an implementation schedule. This information is presented in Table 4.3. The costs, revenues, and revenue sources necessary for implementation of the selected alternatives are presented in Table 4.4. The City's Solid Waste Program staff are responsible for implementing the selected alternatives.

The City of Monte Sereno has adopted an anti-scavenging ordinance to deter the unauthorized removal of recyclables from recycling collection programs.

## 4.6.1. Monitoring and Evaluation

To ensure that the selected recycling alternatives 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 the short- and medium-term planning periods, the City's monitoring and evaluation program will continue, as needed, during both planning periods.

**Monitoring Methods**. The methods for quantifying and monitoring the achievement of the component objectives are presented below in two groups: Objectives 1, 2 3, 4 and 5; Objectives 6 and 7.

**Objective 1: Increase participation in the residential recycling program.**

**Objective 2: Implement a variable can rate for the entire residential sector.**

**Objective 3: Continue City-sponsored programs aimed at recycling throughout City offices.**

**Objective 4: Evaluate a program of regulatory approaches, such as zoning, building code, and land use requirements to promote recycling activities.**

**Objective 5: Continue and expand multi-jurisdictional approaches to recycling such as public education, disposal fees, and market development. This alternative was also selected in the source reduction component.**

**Monitoring Method:** Periodic surveys of residences will be conducted to ascertain the participation rates for recycling programs, the general level of awareness regarding recycling issues, and the level of satisfaction with the community's programs.

In addition, further waste characterization studies will be conducted at the end of the short-term planning period to measure changes in both waste type and waste quantities. These studies will be combined with more informal "spot check" assessments of waste composition to monitor changes in material types recycled, as well as program effectiveness. This will be aided by improved

recordkeeping on the quantity, waste type, and generators of recovered materials.

**Objective 6: Develop a market development program through the local procurement policy for products with recycled material content. This alternative was also selected in the source reduction component.**

**Objective 7: Monitor efforts at the State level to encourage recycling, including financial and economic incentives, public education efforts and other programs.**

**Monitoring Method:** Periodic surveys of the City government will be conducted 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. In addition, the City will continually monitor national trends in recycling with respect to new technologies, processes, and market development.

### 4.6.2 Written Criteria

The City will prepare annual reports summarizing the findings of the monitoring activities described above. The report will provide written criteria evaluating the effectiveness of the recycling programs by reporting on whether (1) the recycling objectives are being achieved; (2) the selected programs and activities were implemented on schedule; (3) the City's procurement practices have changed; and (4) residents increasingly participate in and have a greater understanding of recycling.

### 4.6.3 Responsibility For Monitoring

The monitoring and evaluation activities described in this section will be implemented by Monte Sereno Solid Waste Program staff.

### 4.6.4 Funding Requirements

Funding for the monitoring and evaluation program described in this section will be provided by the City through the General Fund. 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.

The total estimated costs for each alternative selected during the short-term (1992-95) can be found in Table 4.4. The anticipated funds required to plan, implement, operate and monitor each of the selected alternatives can be found in Table 9.1 of the Funding Component.

### 4.6.5 Contingency Measures

If the programs described above fail to meet the goals and objectives of this component, the following tasks can be implemented:

- Analyze existing programs and alternatives for obstacles to successful implementation.
- Modify selected alternatives, including degree, scope, or extent or recycling activity and implementation schedule.
- Seek additional funding and staff.
- Consider pooling resources with other cities or counties in order to market materials cooperatively.
- Investigate the existing collection and processing activities to be sure that materials are being prepared properly to meet buyer's specifications.
- Evaluate public education efforts to determine whether these need to be increased to broaden awareness of, and participation in, recycling programs.
- Evaluate alternative markets for recovered materials.
- Provide incentives to the commercial/industrial sector for recycling.
- Address issues resulting from surveys that could potentially affect diversion goals.
- Consider regulatory programs or mandatory programs such as:

  - City ordinance making recycling mandatory
  - A rate structure modification
  - More aggressive procurement ordinances
  - Select additional alternatives

**Table 4.1**

**Quantities Diverted By Existing Programs, 1990-91**

| Existing Program and Waste Types Collected | Tons Diverted |
|---|---|
| Residential Curbside Collection | |
| Newspaper | 190.29 |
| Corrugated Cardboard | 9.48 |
| Magazines | 6.14 |
| Glass jars/bottles | 90.99 |
| Aluminum cans | 3.51 |
| Tin cans/scrap metal | 6.97 |
| PETe | 1.05 |
| Total | 308.43 |

**Table 4.2 Summary of Recycling Alternatives Evaluation (Page 1 of 2)**

A. Evaluation Criteria

| Program Alternatives | Waste Diversion Objectives | Absence of Hazard | Ability to Accommodate Change | Consequences to the Waste Stream | Ease of Implementation | Facility Needs |
|---|---|---|---|---|---|---|
| Alternative 1: Curbside Collection | 3 high | 3 high | 3 high | 3 high | 3 Already Implemented | 3 high |
| Alternative 2: Mobile Collection | 1 low | 2 medium | 2 medium | 2 medium | 1 low | 1 low |
| Alternative 3: Buy-back Center | 2 medium | 2 medium | 3 high | 2 medium | 1 low | 1 low |
| Alternative 5: Industrial Diversion | 1 low | 3 high | 3 high | 3 high | 2 medium | 3 high |
| Alternative 6: Manual/Mechanized MRF | 3 high | 2 medium | 3 high | 3 high | 1 low | 3 high |
| Alternative 8: Divert Inert Solids | 1 low | 2 medium | 3 high | 3 high | 2 medium | 3 high |
| Alternative 9: Drop-off Centers | 1 low | 2 medium | 2 medium | 2 medium | 2 medium | 1 low |
| Alternative 10: Zoning/Code Revisions | 1 low | 3 high | 3 high | 3 high | 3 high | Not Applicable |
| Alternative 11: Rate Structure Modifications | 3 high | 3 high | 2 medium | 3 high | 3 high | 3 high |
| Alternative 12: Market Development | 2 medium | 3 high | 3 high | 3 high | 3 high | Not Applicable |
| Alternative 13: Materials Handling Methods | 3 high | 3 high | 3 high | 3 high | 3 Already Implemented | 3 high |

**Table 4.2 Summary of Recycling Alternatives Evaluation (Page 2 of 2)**

B. Additional Considerations

| Program Alternatives | Consistency with Local Policies | Absence of Institutional Barriers | Estimated Cost | End Uses | Public vs. Private Operation | Total Point Score |
|---|---|---|---|---|---|---|
| Alternative 1: Curbside Collection | 3 high | 3 high | 2 medium | 3 high | Public or Private | 29 |
| Alternative 2: Mobile Collection | 3 high | 3 high | 2 medium | 3 high | Public or Private | 20 |
| Alternative 3: Buy-back Center | Inconsistent; no score | 2 medium | 1 low | 3 high | Private | No score |
| Alternative 5: Industrial Diversion | 3 high | 2 medium | 3 high | 3 high | Public or Private | 26 |
| Alternative 6: Manual/Mechanized MRF | 2 medium | 2 medium | 1 low | 3 high | Public or Private | 26 |
| Alternative 8: Divert Inert Solids | 2 medium | 3 high | 3 high | 3 high | Private | 25 |
| Alternative 9: Drop-off Centers | 2 medium | 2 medium | 1 low | 3 high | Public or Private | 18 |
| Alternative 10: Zoning/Code Revisions | 2 medium | 2 medium | 3 high | 3 high | Not Applicable | 24 |
| Alternative 11: Rate Structure Modifications | 3 high | 2 medium | 3 high | Not Applicable | Public or Private | 25 |
| Alternative 12: Market Development | 2 medium | 2 medium | 3 high | 3 high | Not Applicable | 24 |
| Alternative 13: Materials Handling Methods | 3 high | 3 high | 2 medium | 3 high | Public or Private | 29 |

**Table 4.3**

**Recycling Implementation Plan**

| Task | Implementation Date |
|---|---|
| **Short-Term** | |
| Continue City office recycling program | On-going |
| Continue City procurement policy | On-going |
| Increase participation in residential curbside recycling | Oct-Dec 1992 |
| Review/expand multi-jurisdictional approaches, such as public education and market development | Oct-Dec 1992 |
| Evaluate a program of regulatory approaches, such as zoning and building codes | July-Sep 1993 |
| Implement rate structure modifications for residential sector | Apr-June 1994 |
| **Medium-Term** (in addition to those listed in the Short Term) | |
| Monitor State level recycling efforts | FY 96-97 |

**Table 4.4**

**Recycling Implementation Costs**

| Selected Programs and Alternatives | Costs | Revenues | Revenues Sources |
|---|---|---|---|
| **Short-Term** | | | |
| Increase participation in curbside recycling | $180-500 | $180-500 | General Fund |
| Implement rate structure modifications | See Source Reduction Component | | |
| Continue City office recycling program | $45-225 | $45-225 | General Fund |
| Evaluate a program of regulatory approaches, such as zoning, building codes | $90 | $90 | General Fund |
| Continue City procurement policy | See Source Reduction Component | | |
| Continue/expand multi-jurisdictional approaches, such as public education and market development | See Source Reduction Component | | |
| **Medium-Term** (in addition to those listed in the Short Term) | | | |
| Monitor State level recycling efforts | 0-$50,000 | 0-50,000 | General Fund |

## Recycling Collectors and Brokers that Responded to The County of Santa Clara Recycling Survey[1] (January/February 1991)

1. Circo Recyclers
(Commercial Recycler)
6565 Smith Avenue
Newark, California 94560
(415) 791-6980

2. Elder's MPI, Inc.
(Reclaimers of Precious metals)
1919 Lundy Avenue
San Jose, California 95131
(408) 432-8870

3. Foothill Disposal Company
(Collector/Hauler, Buy-Back Center)
935 Terra Bella
Mountain View, California 94043
(415) 967-3034

4. Harris Recycling, Inc.
(Collector/Wood Waste Chipper)
787 "E" North King Road
San Jose, California
(408) 259-2290

5. Oakland Plastic Sales
9733 San Leandro Street
Oakland, California 94603
(415) 562-6033

6. Reynolds Aluminum
(Buy-Back Center)
1303 Story Road
San Jose, California
(408) 651-6808

7. Sears Automotive Center
(Commercial Recycling)
10101 N. Wolfe Road
Cupertino, California 95014
(408) 255-0222

8. Security Shredding Co., Inc.
1045 Commercial Court
San Jose, California
(408) 452-5996

9. St. Francis Cabrini Church
15333 Woodard Road
San Jose, California 95124
(408) 371-3090

10. Trinie Martin Recyclers
(Buy-Back Center)
8565 1/2 Monterey Road
Gilroy, California 95020
(408) 842-2565

11. West Coast Metal Processing, Inc.
(Broker/Scrap Metal Dealer)
1483 Salmon Way
Hayward, California 94544
(415) 489-8141

12. Free Flow Packaging Corp.
(Buy-Back Center)
1093 Charter Street
Redwood City, California
(415) 364-1145

13. Raisch Products
(Asphalt/Concrete Recycler)
P.O. Box 543
San Jose, California 95106
(408) 227-9222

14. Ciardella Garden Supply, Inc.
(Garden Materials Recycler)
2027 E. Bayshore
Palo Alto, California
(415) 321-5913

15. Waste Fibre Recovery
(Demolition Debris Recycler)
1900 W. Winton Avenue
Hayward, California 94545
(415) 732-wood

16. Contain-A-Way
(Buy-Back Center)
20/20 Recycle Centers
1731 Pomona Avenue
Corona, California 91720
(714) 279-2200

17. Encore
(End Market/Manufacturer)
860 S. 19th Street
Richmond, California 94804
(415) 234-5670

18. Oxford Tire Recycling
(Tire Recyclers)
33950 7th Street
Union City, California 94587
1-800-992-3553

19. Goodwill Industries of Santa Clara Co.
(Buy-Back Donation Center)
1080 North Seventh Street
San Jose, California 95112
(408) 998-5774

20. Western Recycling
(Scrap Metal Dealer)
91 E. 4th Street
Morgan Hill, California
(408) 779-1781

21. L & K Debris Box Service
(Commercial Hauler/Wood Waste Chipper)
1313 Armstrong Street
San Francisco, California 94124
(415) 824-4322

22. EMS
(Broker)
231 Fallon Street
Oakland, California 94607
(415) 763-0101

23. Battery Center
(Buy-Back and Donation Center)
1552 Old Bayshore Highway
San Jose, California 95112
(408) 453-5438

24. Town of Los Gatos
(Donation Center)
P.O. Box 949
Los Gatos, California 95030
(408) 354-6809

## END NOTES

1. "A Force in Detinning", by Tom Watson, Resource Recovery, January/February 1989, p. 18.

2. Ibid.

3. "The Steel Can's Push for Recycling Respect", by Michael Misner, Waste Age, February 1991, p. 69.

4. Ibid.

5. Recyclable Steel Cans: An Integral Part of Your Curbside Recycling Program, Steel Can Recycling Institute, Summer 1990, p. 14.

6. "Progress in Plastics Recycling", by Jim Glenn, BioCycle, December 1990, p. 53.

7. "All Plastics Are Not Created Equal", by Jerry Powell, Resource Recycling, May 1990, p. 41.

8. "Plastic Grocery Sack Recycling", by Arthur Amidon, Resource Recycling, November 1990, p. 24.

9. "Dow and Sealed Air Join to Recycle LDPE Scrap", by Susan Combs, Recycling Times, January 29, 1991, p. 9.

10. Ibid.

## SECTION 5

## COMPOSTING COMPONENT

### 5.1 Introduction

Composting is the controlled biological decomposition of solid organic materials. Such materials include leaves, grass clippings, food waste, and other organic materials commonly found in the municipal waste stream. The end product of composting is a stable humus or soil-like material that can be used as soil conditioner, mulch, or fertilizer, depending on its physical properties. Although biological decomposition occurs naturally, several physical and chemical parameters must be controlled to maximize the rate of microbial activity and to minimize environmental impacts. These parameters include temperature, oxygen, nutrient availability, moisture, and pH. With proper controls, composting can occur rapidly, yield a quality product, and reduce the original volume of the organic material by 50 per cent or more.

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's goals of 25 per cent source reduction and recycling by 1995, and 50 per cent by 2000. The results of the waste disposal characterization analysis indicate that approximately 52 per cent of the City's residential and industrial[1] 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. The economic benefits of composting may include one or more of the following:

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

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[1]By definition, industrial waste includes solid waste generated by industries as well as any material placed into debris boxes, regardless of the source. Since there are no manufacturing facilities, refineries or other types of industry in the City of Monte Sereno, industrial waste will only refer to material placed in debris boxes by residential and commercial accounts.

Potential environmental benefits could include any or all of the following:

- 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.

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 will 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 which are listed at the end of this section.

## 5.2 OBJECTIVES

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

### 5.2.1 Short-Term Objectives

- Divert 14.45 per cent through composting of the total waste stream generated.
- Work with other area jurisdictions to identify particular sub-groups of potential end users and their anticipated product quality and quantity demands.

- Encourage municipal departments to use compost products generated by the program, and inform residents of their availability.

- Encourage, via the source reduction component, residential backyard composting.

### 5.2.2 Medium-Term Objectives

Objectives for the medium-term planning period include:

- Divert 34.22 per cent by weight of the total generated waste stream.

- Develop the collection and processing infrastructure to manage the City's source separated yard and wood wastes.

- Inform and educate residents about how to participate in the yard waste collection program.

- Monitor food and food processing waste collection and composting.

- Monitor programs which co-compost yard waste with other organic residues.

- Implement a program to encourage use of compost by parks and highway departments and other public entities.

## 5.3 Existing Conditions Description

The results of the disposed waste analysis indicate that for 1991, disposed yard waste amounted to 891 tons; wood waste, 799 tons, and food waste, 35 tons.

The following is a brief description of each of the waste types cited and the per cent each waste type comprises of the residential, industrial or self-haul waste streams.

- Yard waste is the largest waste type and is comprised of stumps and large branches, brush, leaves, grass, and garden wastes. It is relatively easy to compost, and is the material most commonly targeted for diversion. Yard waste comprises about 31 per cent of the residential waste stream, 12 per cent of the industrial waste stream, and 74 per cent of the self-haul waste stream.

- Wood waste includes pallets, scrap lumber, fencing, wooden furniture, crates, bowls, toys and miscellaneous construction materials. Wood waste comprises about 57 per cent of the industrial waste stream, and 7 per cent of the self-haul waste stream.

- Food wastes can vary widely depending on the food product and have low levels of contaminants which make them desirable materials for composting. Food wastes comprise about 1.6 per cent of the residential waste stream.

The total amount of compostable materials generated by each of the sectors in 1991 was as follows: residential, 787 tons; industrial, 999 tons; and self-haul 358 tons.

Pursuant to 939 regulations, backyard composting by homeowners is classified as a form of source reduction and is addressed in Section 3.

Compostable waste materials from the residential, commercial, and industrial sectors are collected in cans and bins along with other mixed wastes. Except for the diversion programs that are described below, the yard and wood wastes collected from the residential, commercial, and industrial sources are landfilled.

The diversion of compostable wastes in 1991 from residential, industrial, and self-haul waste sources is estimated to be 10 per cent (419 tons annually). The material categories comprising the estimated diversion rates are: yard waste (7.2 per cent, 299 tons annually) and wood waste (2.9 per cent, 120 tons annually).

The following programs contribute to the diversion figures cited. It is anticipated that each of the programs will continue with no decrease in scope or anticipated diversion goals. Each of the waste types referred to in the activities delineated in items #1-3 below are processed by the operator at the contracted disposal site and then sold as boiler fuel or wood fines.

- Diversion of clean self-hauled loads of yard and wood waste, as well as debris boxes containing a predominant amount of yard and wood wastes. The estimated diversion rate in 1991 is 7.48 per cent.

- Separate curbside collection by the contracted hauler of Christmas trees for all households in the flatland areas of the City and siting debris boxes at designated locations for hill area residents. The estimated diversion rate is 0.07 per cent.

- Diversion of wood waste from the residential and industrial sectors, as reported by surveys which were conducted and are described in Section 2 Waste Generation Study. The estimated diversion rate is 2.55 per cent.

There are presently no local market development activities in the form of economic development activities, or consumer incentives for compost products.

At the state level, two bills affecting markets for organic wastes were signed into law in 1989. Senate Bill 1322 establishes a comprehensive set of state programs designed to encourage source reduction of waste and market development for recycled materials. A compost market program will require the Department of Transportation (Caltrans) to purchase compost products for their highway landscaping program. In addition, the Departments of General Services, Forestry and Fire Protection, and Parks and Recreation are directed to identify and evaluate other uses for compost, including erosion control, public land restoration, landscaping, park and recreational maintenance projects, and highway noise barriers. The CIWMB is currently drafting specifications for compost products that will be purchased by state agencies.

Assembly Bill 4, the State Assistance for Recycling Markets Act of 1989, (STAR) requires state and local public agencies to give purchase preferences to compost products, and authorizes local agencies to determine the amount of the preference. It also requires contractors to certify percentages of recycled content in products either sold to the state or bought for the state. The CIWMB will coordinate a testing program for compost and co-compost products based on the final use of the material and applicable state standards and regulations.

## 5.4 Evaluation of Program Alternatives

This section presents alternatives for implementing successful composting programs that meet the objectives outlined in Section 5.2. Each alternative consists of several approaches or "programs" that could be used to implement the alternative. Each of the alternatives is evaluated according to a set of criteria specified in the regulations implementing AB 939. Costs are approximate and details should be considered preliminary. Program costs and details will be refined during development of the specific program.

Table 5.1 summarizes the evaluation of each of the alternatives described in Section 5.4, and has been included at the end of this component. See also Appendix A Evaluation Approach for an explanation of the ranking system used for each of the prescribed evaluation criteria.

The nine compost program alternatives that are addressed in this section have been categorized as a collection or processing alternative and are listed as follows:

1) Collection Alternatives

   Residential Collection
   Commercial/Industrial Collection Program
   Permanent Drop-off Centers
   Mobile Drop-off Centers
   Residential On-Site Composting

2) Compost Processing Alternatives

   Turned Windrow Method
   Aerated Static Pile
   In-Vessel Composting
   Brush/Wood Waste Chipping

Other issues for consideration, though not alternatives, that are subsequently addressed in Section 5.4 include:

- City Procurement
- Siting considerations
- Market development and product distribution
- Public information and education
- Requirements of the California Environmental Quality Act (CEQA)

### 5.4.1 Collection Alternatives

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. A description of source reduction programs is presented in Section 3.

**Alternative #1: Residential Collection**

Important considerations in 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 1991 waste composition survey indicated that most of the yard waste consisted of grass clippings, tree trimmings, and shrubs, with a small amount of leaves present. The collection system must be capable of handling these materials regularly and efficiently.

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

- o bagged yard waste, which may require debagging, depending on the quality of compost desired;
- o loose yard waste raked into the street or to the curb which is typically collected by a pincer bucket attached to an articulated loader and dedicated packer truck;
- o designated rigid containers (typically cans or carts), collected by a dedicated packer truck.

Advantages of containerized as opposed to 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. By contrast, collection of loose yard waste: 1) does not require residents to containerize bulky waste; 2) requires no debagging; and 3) avoids collection crew strain from lifting heavy objects. However, collection of loose materials may be more labor-intensive and more costly depending on the collection equipment used, may require parking regulations, and may result in a small amount of residue left on the street. Provisions for collection of loose yard debris which has been left in the street for collection are usually made in conjunction with a scheduled street sweeping service.

Routed collection can be scheduled as regular curbside collection (e.g., weekly) or seasonal or special routes, such as neighborhood clean-ups or Christmas tree collection. The

frequency of collection which is selected must take into consideration customer convenience, the available supply of material and program costs.

Seasonal or special routes involve the provision of collection services in peak yard waste generation seasons, or following special events that generate yard waste (e.g., the Christmas holiday). The success of this approach relies on strong promotion and incentives, and a willingness by the community to schedule their activities to coincide with the collection services.

The inclusion of more highly putrescible types of compostable materials (e.g., food wastes) in the residential curbside collection program necessitates the use of a containerized collection system and a collection frequency of no less than once per week. The quantities and characteristics of the feedstock are important considerations in determining the type of container.

Mixed municipal solid waste (MSW) is being processed at several facilities in the U.S. 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.

**Waste Diversion Potential.** Residential curbside collection of yard wastes or other compostables offers several advantages over drop-off programs, including 1) convenience for residents; 2) high community profile and awareness; 3) high participation and recovery rates; and 4) linkage with mixed waste collection.

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.

Since residential yard waste comprises a significant portion of the overall waste stream, this alternative received a "high" rating in terms of its waste diversion potential, as reported in Table 5.1.

**Hazard.** There are few potential hazards or unmitigated impacts associated with this option so that a "high" rating was assigned.

**Ability to Accommodate Change.** Since an education program advising proper preparation of the waste types would be on-going, this alternative is able to accommodate changing economic, technological and social conditions. A "high" rating was, therefore, assigned.

**Consequences to the Waste Stream.** This alternative will shift waste production to the generation of compostable wastes and possibly new markets. For these reasons, a "high" rating was given this alternative.

**Ease of Implementation.** This alternative is anticipated to be completed by 2000. A "medium" rating was, therefore, assigned.

**Facility Needs.** This alternative can be integrated into existing facilities, resulting in a "high" rating given.

**Consistency with Local Policies.** This option is consistent with local policies and does not affect existing plans or ordinances. The City's recycling programs and the household hazardous waste events are already promoted by the City. For these reasons, a "high" rating was given this alternative.

**Institutional Barriers.** Institutional barriers are anticipated to have little or no impact on this alternative. Therefore, this alternative received a "high" rating in terms of its absence of barriers.

**Estimated Cost.** The costs of this alternative would include the use of the City's staff resources to develop and administer the program, as well as the capital and operating expenses. Estimated annual costs are included in Table 5.3, which can be found at the end of this section. A "medium" rating was assigned.

**End Uses.** End uses are discussed in Section 5.4.4, and received a "high" rating for this alternative.

**Alternative #2: Commercial/Industrial Collection Program**

The City's industrial waste stream consists entirely of materials which have been placed in debris boxes by residential accounts, since there are no manufacturing facilities, refineries or other types of industry in the City. Table 7 in Section 2 indicates that wood wastes comprise about 22 per cent of the total waste stream and that about 3 per cent of the wood waste was diverted

from the total waste stream in 1991. Since all debris boxes are delivered to the landfill operator, the City should encourage the operator to increase its diversion of wood wastes.

Since food wastes comprise a relatively small portion of the overall waste stream, the feasibility of a diversion program may be evaluated in the medium-term (1995-2000) planning period. 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 will result in a high-quality compost.

For programs using manure as a composting feedstock, proper attention must be given to limiting the manure quantities, minimizing the storage time of the food wastes, and maintaining aerobic decomposition to minimize vector attraction and odor. In certain instances, manure may also contain chemicals which are included in feed supplements. Manure should be tested for undesirable chemical compounds.

Co-composting of yard wastes with sewage sludge is practiced in several operations in the U.S. 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.

**Waste Diversion Potential.** Diversion activities for the industrial waste stream will focus on wood wastes for the short-term and yard and wood wastes for the medium-term planning period since these waste types comprise a significant portion of the industrial waste stream.

This alternative received a "high" rating in terms of its waste diversion potential (more than 7 per cent) since yard and wood wastes from the industrial waste stream comprise about 51 per cent of the total waste stream.

**Hazard.** Potential hazards related to yard waste collection are known and controllable; a "medium" rating was therefore assigned.

**Ability to Accommodate Change.** Diversion of yard and wood wastes generated at construction and demolition sites would be able to accommodate changing economic, technological and social conditions. A "high" rating was therefore assigned.

**Consequences to the Waste Stream.** Since this alternative does not shift solid waste generation from one type of solid waste to another, a "high" rating was given.

**Ease of Implementation.** Since this alternative is anticipated to be completed by 1995, a "high" rating was assigned.

**Facility Needs.** This option could work with existing collection vehicles, although additional bins and program monitoring would be required. For these reasons, a "high" rating was given.

**Consistency with Local Policies.** As there are no existing local plans, policies, or ordinances that would impede the implementation of the alternative, a "high" rating was assigned.

**Institutional Barriers.** This alternative is impacted by existing institutional barriers, and received a "medium" rating.

**Estimated Cost.** The anticipated annual cost for this alternative has been included in Table 5.3. A "medium" rating was assigned.

**End Uses.** End uses are discussed in Section 5.4.4, and received a "high" rating.

**Alternative #3: 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 more easily located at a landfill, transfer station, or at a materials recovery facility (MRF).

- Sites can be 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 biodegradable 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.
- The tipping fee for yard and wood wastes from commercial haulers and residential self-haul should be less than the tipping fees charged for disposal.
- Provisions could be made for residents to use the finished compost or wood chips (e.g., a voucher system).
- Staff should monitor the site during hours of public access for quality control and organization.

For a reduced tipping fee, the operator of the contracted disposal site accepts clean self-hauled loads of yard waste, as well as debris boxes containing a predominant amount of yard and wood wastes. The yard and wood wastes are then processed and sold as boiler fuel or wood fines. Quantities diverted as wood fines are reported in Section 5.3.

Since a diversion program for self-hauled yard wastes is in effect and its continuation is anticipated, no evaluation of this alternative is required. The landfill operator will be encouraged to continue the diversion program for self-haul generators and debris boxes.

**Alternative #4: Mobile Drop-Off Centers**

These centers can be established using large collection trailers (approximately 40 cubic yard 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.

Such services can be used following special events that generate yard waste (e.g., the Christmas holiday season). The success of this approach relies on strong promotion and incentives, and a willingness by the community to schedule their activities to coincide with the collection service.

As noted in Section 5.3, designated drop-off sites are used for the convenience of hill area residents who wish to recycle their Christmas trees. Although participation is less than that of a curbside program, the program is cost-effective and will remain in effect until provisions for residential yard waste collection services are made, at which time Christmas trees will be incorporated into that service. Since this program is in effect and its continuation is anticipated, no evaluation is required.

**Alternative #5: Residential On-site Composting**

Onsite composting can be defined as the process of managed decomposition of organic materials on one's own premises that results in the creation of 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.

Source reduction through home composting can be encouraged by the implementation of a variable fee structure for trash 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 considered a source reduction activity, not composting.

Backyard composting can be an inexpensive yard waste management alternative. It eliminates 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.

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.

Backyard or onsite composting is further described and evaluated in Section 3, Source Reduction of this Element since AB 939 regulations specify that it is a form of source reduction.

### 5.4.2 Compost Processing Alternatives

Three stages of processing can be utilized at composting operations: pre-processing, composting, and post-processing. For source separated compostable materials, pre-processing generally involves shredding and/or screening of the incoming materials to result in a compost feedstock of a particle size that would compost 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 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.

#### Alternative #6: Turned Windrow Method

The turned windrow method of composting features stacking wastes into elongated piles known as windrows. The dimensions of the windrows can be adapted to the particular conditions and available equipment, but in general, 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 feet wide, and 5 to 10 feet 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 complete most of the decomposition process.

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.

**Waste Diversion Potential.** This criterion is not applicable, since waste diversion potential is almost entirely dependent on the collection method used.

**Absence of Hazard.** 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, generally can be controlled effectively with simple steps. Therefore, this alternative received a "high" rating since there are few unmitigated impacts.

**Ability to Accommodate Change.** Since this method of composting can accommodate changing economic, technological, and social conditions rapidly and effectively, a "high" rating was assigned.

**Consequences to the Waste Stream.** This alternative may shift waste production to the generation of compostable wastes and perhaps new markets for the finished compost. A "high" rating was therefore assigned.

**Ease of Implementation.** The City does not own or intend to construct a processing facility, and there are no plans to do so with neighboring jurisdictions.

This alternative is anticipated to be completed by 2000 since site improvements should be minor and new facilities need not be constructed. For these reasons, a "medium" rating was assigned.

**Facility Needs.** Since this alternative can be easily implemented into existing facilities, a "high" rating was assigned.

**Consistency with Local Policies.** This alternative supports local source reduction and recycling activities, and can be effectively developed by existing local institutions. Turned windrow composting is preferred over other methods for composting yard wastes. A "high" rating was therefore assigned.

**Institutional Barriers.** The City will need to enter into an agreement to process the compostables collected. A "medium" rating was therefore assigned.

**Estimated Cost.** 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. The anticipated annual cost for this alternative has been included in Table 5.3, which can be found at the end of this component. A "medium" rating was assigned.

**End Uses.** End uses are discussed in Section 5.4.4, and received a "high" rating.

## Alternative #7: Aerated Static Pile

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.

**Waste Diversion Potential.** This criterion is not applicable, since waste diversion potential is almost entirely dependent on the collection method used.

**Absence of Hazard.** 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. Therefore, this alternative received a "medium" rating since there are few unmitigated impacts.

**Ability to Accommodate Change.** 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. For these reasons, a "high" rating was assigned.

**Consequences to the Waste Stream.** A "high" rating was assigned since this alternative may shift waste production to the generation of compostable wastes or new markets for those compostables. However, it should also be noted that given the same feedstock, static and turned windrows produce identical products if both operations are managed correctly.

**Ease of Implementation.** It is anticipated that this alternative could be completed after 2000, when the feasibility of the alternative has been evaluated; a "low" rating was assigned.

**Facility Needs.** Existing facilities must be expanded to accommodate implementation of this alternative; a "medium" rating was assigned.

**Consistency with Local Policies.** Since this alternative would require some changes to existing local plans and ordinances for implementation, a "medium" rating was assigned.

**Institutional Barriers.** This alternative is impacted by existing institutional barriers over which the jurisdiction maintains some control. Therefore, a "medium" rating was assigned.

**Estimated Cost.** 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.

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

Capital and operating costs over the lifetime of the alternative are estimated to be in excess of $200,000, so that this alternative received a "low" rating in terms of this criterion.

**End Uses.** End uses are discussed in Section 5.4.4, and a "high" rating was assigned.

**Alternative #8: In-Vessel Composting**

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

**Waste Diversion Potential** This criterion is not applicable, since waste diversion potential is almost entirely dependent on the collection method used.

**Absence of Hazard.** This alternative offers several advantages, including rapid processing, avoidance of weather-related problems and inefficiencies, and more complete process and odor control. Therefore, this alternative received a "high" rating since there are few unmitigated impacts.

**Ability to Accommodate Change.** Public acceptance for this option is uncertain. This technology has a limited ability to respond to changing, economic, technological, and social conditions. A "low" rating was assigned.

**Consequences to the Waste Stream.** Since this alternative may shift waste production to the generation of compostable wastes or possibly new markets for the finished compost, a "high" rating was assigned.

**Ease of Implementation.** The feasibility of this alternative will be evaluated in the medium-term planning period (1995-2000); a "medium" rating was assigned.

**Facility Needs.** Existing facilities must be altered to accommodate implementation of this alternative. A "medium" rating was assigned.

**Consistency with Local Policies.** The alternative is consistent with local plans, policies and ordinances and received a "medium" rating. Implementation will require compliance with the requirements of the Santa Clara County Health Department, including: 1) food establishments must have a minimum twice weekly collection, or more frequent depending on the size of the business; and 2) food wastes must be stored in tight, leak-proof containers to prevent access by flies and rodents.

**Absence of Institutional Barriers.** Alternative handling and storage procedures for food wastes must be implemented by participating businesses. A lack of space for additional bins may also restrict implementation of this alternative. For these reasons, a "medium" rating was assigned.

**Estimated Cost.** Additional collection truck trips would be required for the participating businesses. Typical combined capital and processing costs for a 10,000 ton per year facility are approximately $40 to $60 per ton.

Capital and operating costs over the lifetime of the alternative are estimated to be in excess of $200,000, so that this alternative received a "low" rating in terms of this criterion.

**End Uses.** End uses are discussed in Section 5.4.4, and received a "high" rating.

## Alternative #9: Brush and Wood Waste Chipping

Although not strictly composting, shredding and chipping brush and wood waste to size reduce these waste types can be an important and useful element of a yard waste recycling program, or 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.

**Waste Diversion Potential.** Finished products (i.e., wood chips) that are sold as fuel cannot be counted towards the state's 25 per cent diversion goal to be implemented by 1995. However, they

can be counted for up to 10 per cent of the state's 50 per cent diversion goal in 2000.

Since wood waste comprises a significant portion of the industrial and self-haul waste streams, this alternative received a "high" rating in terms of its waste diversion potential, as reported in Table 5.1.

**Absence of Hazard.** Hazards from flying projectiles can be minimized by locating the size reduction processing site at least 300 feet from public access. Since there are few unmitigated impacts, a "high" rating was assigned.

**Ability to Accommodate Change.** Since the technology can be adapted to adjust to technological, social and economic conditions, a "high" rating was received.

**Ease of Implementation.** The landfill operator at the contracted disposal site currently sells its processed wood chips as boiler fuel and wood fines to landscape companies so markets for the products have been established. Since the program is currently functioning and its continuation is anticipated, the alternative received a "high" rating.

**Facility Needs.** No new facilities would be required for this alternative, although a covered structure for the equipment may be desirable. A "high" rating was assigned.

**Consistency with Local Policies.** Since shredding or grinding of woody yard or wood wastes supports local source reduction and recycling efforts, a "high" rating was given.

**Absence of Institutional Barriers.** AB 939 allows a jurisdiction to divert up to 10 per cent of its total waste stream through transformation (egs: biological conversion or incineration) after January 1, 1995, provided that certain conditions are met. However, the limited use of transformation as a diversion credit may restrict the generation of wood chips as fuel during the medium-term planning period in order to ensure the City's compliance with the mandated 50 per cent diversion by 2000. A "high" rating was assigned.

**Estimated Cost.** 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.

Although AB 939 may restrict the generation of wood chips as fuel during the medium-term planning period, some wood chips could be marketed as fuel in order to provide financial stability and flexibility to the program.

A "high" rating was assigned.

**End Uses.** This option produces a variety of compost products and by-products, including composted fines, mulch and wood chips. This alternative has the capability of producing a high-quality compost. See also Section 5.4.5.

### 5.4.3 City Procurement

The City has adopted a recycled product procurement policy which became effective September 1991. The policy applies to all City-sponsored activities, and specifies, among other things, that any business or organization holding a contract with the City should demonstrate compliance with the policy.

Please also reference Section 3.4.4 Alternative 4 - Regulatory Programs for an evaluation of procurement ordinances.

### 5.4.4 Siting Considerations

In addition to the material presented here, please refer to Section 8 Disposal Facility Capacity Component. The availability of suitable sites for composting may pose a major barrier 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 areas;
- Buffer areas around industrial sites and institutions, including airports;
- Utility rights-of-way;

- Privately owned land;
- Municipally owned land used for buffer areas or storage.

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 may include:

- Proximity to waste stream;
- Proximity to potential markets;
- Availability and cost of the site;
- Accessibility;
- Potential for public acceptance;
- Physical condition of site, including topography, geology, aesthetics, and other factors;
- Availability of utilities;
- Current and planned adjacent land use.

The suitability of a given site will, of course, depend on its intended use. As described above, the various factors must be weighed against the proposed alternative's ability to divert waste.

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 needed 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).

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).

### 5.4.5 Market Development and Product Distribution

The City will cooperate with any countywide efforts made to identify and establish markets for the end-products from those composting programs which have been selected by the City. The market plan will identify the end-products and the quality standards, since such standards are critical to the marketing of the end-products.

Local markets such as homeowners, municipal and county agencies, nurseries, sod farms, and landscaping supply firms are examples of potential end users. It will be necessary to determine how the end-products will be distributed (i.e., bagged and/or bulk) and at what, if any, cost.

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

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, and 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, reduce 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. A market development program should first determine the specifications of the various materials that will be produced. This should 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.

Quality constraints associated with compost can include:

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

If supply exceeds demand, public users of soil amendments can be mandated to give preferential treatment to compost products. The jurisdiction will also consider giving the product away free to homeowners and landscapers willing to pick it up.

### 5.4.6 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 City-generated compost and other end products. The Public Information and Education Component addresses 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.

### 5.4.7 Requirements of the California Environmental Quality Act

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 need to be prepared.

## 5.5 Program Selection

### 5.5.1 Short-Term

In order to meet short-term goals, an estimated diversion of 14.45 per cent by weight of the total generated waste stream will be necessary. The programs to achieve this goal are:

- Continue residential curbside collection of Christmas trees until this service is incorporated into a residential yard waste collection program. This program is estimated to divert about 0.05 per cent (20 tons) of the total generated waste stream.

- Encourage landfill operators to expand the diversion program for yard and wood wastes at the designated landfill or other existing site, focusing on the industrial sector (debris boxes) and self-haulers. The program is estimated to divert about 14.4 per cent (565 tons) of the total generated waste stream.

- As necessary, support the concept of a regional compost processing facility (centralized if possible). Yard and wood wastes will be shredded and/or composted. A study would be needed to determine the most appropriate composting program.

- Encourage a marketing program for the distribution of end-products. Compost, mulch, and wood chips will be marketed as horticultural products. Some wood chips could be marketed as a fuel in order to provide financial stability and flexibility to the program. A successful marketing program could increase revenues to offset costs.

- Disseminate public education and publicity materials regarding yard and wood waste drop-off, home composting, and other yard waste reduction strategies. For more information, refer to Section 7, Education and Public Information Component. The success of the program depends, to a great extent, upon how successfully the public is informed and educated.

### 5.5.2 Medium-Term

For the medium-term, an estimated diversion rate of 34.22 per cent of the total generated waste stream will be necessary. The programs to achieve this goal are:

- Implement a residential yard waste collection program with the material going to a centralized composting facility and/or other solid waste facility. The program goal is a diversion of 15.07 per cent (620 tons) of the total generated waste stream. Selection is based on ease of implementation and on cost-effectiveness.

- Disseminate public education and publicity materials regarding curbside collection programs, home composting, and other yard waste reduction strategies.

- Encourage landfill operators to continue the diversion program for yard and wood wastes from the industrial sector (debris boxes) and the self-haul sector. The program is estimated to divert about 19.15 per cent (788 tons) from the total generated waste stream.

- Implement program to encourage use of compost by parks and highway departments and other public entities.

- Monitor food and food processing waste collection and composting programs.

- Monitor programs which co-compost yard waste with organic materials.

- Continue those programs listed in Section 5.5.1, Short-Term.

## 5.6 Program Implementation

The tasks and anticipated schedule to implement the various programs selected for the short-and medium-term planning periods have been included in Table 5.2, found at the end of this section. The City's Solid Waste Program staff are responsible for program implementation.

### 5.6.1 Program Implementation Costs

The cost to develop, implement, maintain, monitor, and evaluate the various programs selected for implementation in the short- and medium-term planning periods have been presented in Table 5.3, found at the end of this section.

It is anticipated that some communities will be able to share both facilities as well as administrative costs. These 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.

### 5.6.2 Monitoring and Evaluation

To ensure that the composting program is meeting its goals and objectives, the program will be monitored and evaluated on a regular basis. General criteria for evaluating the program include whether:

- the program was established on time and within budget;
- personnel were in place to ensure effective implementation of programs;
- activities were developed to meet all pertinent environmental regulations; and
- diversion goals are being met.

Program monitoring will include the following measures:

- daily recording at the processing site, the estimated volume (cubic yards) or weight (tons) of materials accepted for processing at the composting site;
- recording, when applicable, at the processing site the estimated volume or weight of rejected materials that require disposal after pre- or post-processing;
- daily recording by the hauler of the estimated volume or weight of materials collected and accepted at the composting site;
- other supplementary measures as deemed necessary or desirable.

A waste generation study will be undertaken by the City at a time agreed upon by the state 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 the City in 1991.

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 per cent diversion of yard and wood waste, unsatisfactory;
- between 25 per cent and 50 per cent diversion of yard and wood waste, needs improvement;
- between 50 per cent and 75 per cent diversion of yard and wood waste, satisfactory;
- greater than 75 per cent of yard and wood waste, effective.

**Contingency Measures**

If it is determined that projected diversion rates will not be obtained, the community has several alternatives available. For example, an evaluation of all selected programs might show the need for increased public information and educational materials. If necessary. the City will evaluate 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 selected compostable materials. Depending on the results of the evaluation, additional staff may also be hired.

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), or may modify its diversion objectives.

## 5.7 REFERENCES

1. *The BioCycle Guide to Yard Waste Composting*, ed. by the Staff of BioCycle, The J.G. Press, Emmaus, 1989.

2. Golueke, C.G., *Biological Reclamation of Solid Waste* Rodale Press, Inc., 249 pp., 1977.

3. U.S. Congress, Office of Technology Assessment, *Facing America's Trash: What Next for Municipal Solid Waste?* OTA-0-424, U.S. Government Printing Office, Washington, D.C., October 1989.

4. Cal Recovery Systems, Inc., *Manual for Composting Yard Wastes and Mixed MSW*, Prepared for U.S. Environmental Protection Agency, Draft August 1990.

5. Richard T.L., N.M. Dickson, and S.J. Rowland, *Yard Waste Management: Planning Guide for New York State,* New York State Department of Environmental Conservation, Albany, June 1990.

**Table 5.1 Summary of Composting Alternatives Evaluation (Page 1 of 2)**

A. Evaluation Criteria

| Program Alternatives | Waste Diversion Objectives | Absence of Hazard | Ability to Accommodate Change | Consequences to the Waste Stream | Ease of Implementation | Facility Needs |
|---|---|---|---|---|---|---|
| Alternative 1: Residential Collection | 3 high | 3 high | 3 high | 3 high | 3 high | 3 high |
| Alternative 2: Industrial Program | 3 high | 2 medium | 3 high | 3 high | 3 high | 3 high |
| Alternative 6: Windrow Composting Program | Not Applicable | 3 high | 3 high | 3 high | 2 medium | 3 high |
| Alternative 7: Aerated Static Pile | Not Applicable | 2 medium | 3 high | 3 high | 1 low | 2 medium |
| Alternative 8: In-Vessel Composting | Not Applicable | 3 high | 1 low | 3 high | 2 medium | 2 medium |
| Alternative 9: Brush/Wood Waste Chipping | 2 medium | 3 high | 3 high | 3 high | 3 high | 3 high |

**Table 5.1 Summary of Composting Alternatives Evaluation (Page 2 of 2)**

B. Additional Considerations

| Program Alternatives | Consistency with Local Policies | Absence of Institutional Barriers | Estimated Cost | End Uses | Total Point Score |
|---|---|---|---|---|---|
| Alternative 1: Residential Collection | 3 high | 3 high | 2 medium | 3 high | 29 |
| Alternative 2: Commercial Program | 3 high | 2 medium | 2 medium | 3 high | 27 |
| Alternative 6: Windrow Composting Program | 2 medium | 2 medium | 2 medium | 3 high | 23 |
| Alternative 7: Aerated Static Pile | 2 medium | 2 medium | 1 low | 3 high | 19 |
| Alternative 8: In-Vessel Composting | 2 medium | 2 medium | 1 low | 3 high | 19 |
| Alternative 9: Brush/Wood Waste Chipping | 3 high | 3 high | 3 high | 3 high | 29 |

**TABLE 5.2**

**Composting Implementation Plan**

| Task | Implementation Date |
|---|---|
| **Short-Term** | |
| Curbside Christmas Tree Collection | January 1991/ On-going |
| Encourage debris box and self-haul waste diversion | July-Sep 1993 |
| Encourage a regional compost processing facility | July-Sep 1993 |
| Encourage countywide marketing program for end-products | July-Sep 1993 |
| **Medium-Term** (in addition to those listed in the Short-Term category) | |
| Implement residential yard waste collection program | FY 96-97 |
| Implement program to encourage use of compost by municipality | FY 96-97 |
| Maximize recovery rates and participation | FY 98-2000 |

**TABLE 5.3**

**Composting Implementation Costs**

| Selected Programs and Alternatives | Estimated Costs | Revenues | Revenue Sources |
|---|---|---|---|
| **Short-Term** | | | |
| Continue curbside Christmas tree Collection | $10 | $10 | General Fund |
| Encourage debris box and self-haul waste diversion | $150 | $150 | General Fund |
| Encourage compost processing facility | $ 45 | $ 45 | General Fund |
| Encourage countywide marketing program for end products | $ 45 | $ 45 | General Fund |
| **Medium-Term** | | | |
| Implement residential yard waste collection program | N/A | N/A | General Fund |
| Disseminate Public Information | $200 | $200 | General Fund |
| Maximize recovery rates and participation | N/A | N/A | General Fund |
| Implement program to use compost by municipality | N/A | N/A | General Fund |

# SECTION 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."

The special wastes types include:

- sewage sludge
- ash
- asbestos
- used tires
- "white goods"
- abandoned vehicles
- dead animals
- other special wastes

### 6.2 Objectives

Based on data from the Solid Waste Generation Study (Section 2), the objectives presented in this section have been developed to address special wastes 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 continue to divert 0.05 per cent of the total waste stream by adopting the following objectives:

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

Target waste types for special waste in Monte Sereno 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:

- abandoned vehicles
- tires
- dead animals
- white goods

The results of the Waste Generation Study (Section 2) did not indicate other types of special wastes, including, for example, furniture, liquid wastes, agricultural or cannery wastes, contaminated soil, infectious materials, grease trap pumpings and street sweepings, and therefore are not addressed in this section.

## 6.3 Existing Conditions Description

This section describes the current special wastes management practices in the City of Monte Sereno. The existing special waste diversion rate is estimated to be 0.05 per cent of the current total waste stream (63 tons). None of the current special waste management practices are anticipated to be discontinued.

The City, the waste hauler, and the landfill operator have developed a variety of programs for managing special waste. These programs include the diversion of white goods, tires, dead animals, and abandoned vehicles from the landfill. The remaining special waste types listed in Section 6.1 require specific handling methods for disposal. These disposal methods are

enforced by the Regional Water Quality Control Board, the Local Enforcement Agency, and the California Integrated Waste Management Board. Summarized below is a description of each of the special wastes identified in Section 6.1, as well as required handling and disposal requirements.

**Sewage Sludge**

Sludge is produced by wastewater treatment plants during secondary treatment of waste water. In areas where wastewater systems service industrial areas, sludge may contain heavy metals and other constituents that can pose hazards to public health. Disposal of sewage sludge in solid waste landfills is becoming more difficult because of stricter landfill regulations.

Water treatment sludge can be discharged at a Class III landfill under the following conditions, unless the DHS determines that the waste must be managed as a hazardous waste: (1) the landfill is equipped with a leachate collection and removal system; (2) the sludge contains at least 20 per cent solids if primary sludge (or at least 15 per cent solids if it is secondary sludge); and (3) a minimum solids-to-liquid ratio of 5:1 by weight is maintained.

Since the City does not operate its own wastewater treatment plant, quantities of sewage sludge generated have not been included in this analysis. The San Jose/Santa Clara Wastewater Treatment Plant treats wastewater from San Jose, Santa Clara, Milpitas, Monte Sereno, Campbell, Los Gatos, Saratoga and surrounding unincorporated areas of the County.

**Ash**

Ash is generated from the combustion of solid waste, such as wood waste and sewage sludge. Ash can be disposed of at a Class III landfill[1] unless the Department of Health Services determines that the waste must be managed at a hazardous waste facility. Because concentrations of metals in ash commonly exceed levels set by the California Department of Health Services, the ash is considered to be a California Hazardous Waste and must be managed by a hazardous waste facility. However, the primary means of ash management in the United States is land disposal.

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[1] A Class III landfill accepts only non-hazardous solid waste.

Quantities of ash have not been documented as being generated in the City of Monte Sereno.

## Asbestos

Asbestos is a naturally-occurring fibrous substance that has been shown to cause lung cancer and other respiratory problems. Before 1970, asbestos was in widespread use in products such as ceiling and floor tiles, and insulation for pipes, boilers, and ducts. Asbestos is generally classified as friable (hazardous) or nonfriable (nonhazardous). Friable, or airborne asbestos is known to have adverse effects on the human lung and poses a potential public health risk when inhaled. It becomes available for inhalation when the material is disturbed in processes such as building repair or maintenance. Friable asbestos in the waste stream is considered a hazardous waste and requires special handling and disposal in a landfill permitted to accept hazardous wastes.

Since asbestos poses a potential risk to public health, it is not possible to recycle or divert it from landfill disposal; therefore, the only alternative to consider in managing asbestos is disposal in accordance with all pertinent local, state, and federal regulations.

In accordance with Sections 2520 and 2522 of Subchapter 15, Title 23, Chapter 3, nonfriable asbestos can be disposed of in a Class III landfill provided the facility has waste discharge requirements permitting the disposal of asbestos. Handling requirements include a dedicated disposal area away from the normal tipping area, and immediate entombment upon receipt of the waste.

No quantities of waste asbestos were documented in the waste generation study (Section 2) for the City of Monte Sereno. In Santa Clara County, during 1987, 2866.8 tons of friable asbestos-containing waste was generated. This waste was disposed of at out-of-county facilities. Since asbestos poses a potential risk to public health, it is not possible to recycle or divert it from landfill disposal; therefore, the only alternative to consider in managing asbestos is disposal.

## Used Tires

Used tires pose special handling and disposal problems because of potential environmental and public health impacts. For example, stockpiled used tires can collect rainwater and serve as breeding

grounds for disease vectors; they can also pose a fire hazard. Tires disposed of in a landfill tend to "float" to the surface, thereby interrupting landfill cover. They can cause differential landfill settlement if concentrated in one area in the landfill. Nevertheless, in compliance with current regulations, tires are considered nonputrescible waste and therefore can be accepted at Class III or unclassified landfills.

Tires accepted for disposal should be placed flat at the base of the active face in order to inhibit the tendency of tires in landfills to float to the surface. To prevent differential settlement, tires should not be buried in high concentrations in one area of the landfill. Tires can also be shredded before being landfilled in order to make burial less problematic.

Generally, used tires are either disposed of, or are diverted to a tire recycler for one or several uses, including re-use, tire-derived products, or tire-derived fuel.

The waste generation study identified a total of 13 tons of tires/rubber are being generated in Monte Sereno each year with none being diverted from the landfill.

**White Goods**

White goods are large appliances (such as washers, dryers, and refrigerators) that have entered the waste stream. White goods have special handling requirements because of their sheer size and weight; in addition, they may contain polychlorinated biphenyls (PCBs) and chlorofluorocarbons (CFCs). PCBs are a known human carcinogen, and CFCs have been shown to break down the stratospheric ozone layer.

The electrical capacitors and cooling units in these appliances should be removed before the white goods are placed in a landfill. White goods must be thoroughly crushed before burial to avoid refuse bridging, which can cause uneven compaction of the refuse fill. If the electrical capacitors and cooling units are not removed before crushing, PCBs and CFCs could be released into the environment.

Currently the City's waste hauler picks up white goods and other bulky items from residents for a fee of $25. These products are taken directly to a recycler, not to the landfill. Scavenging operations at the Guadalupe Landfill remove other white goods from the landfill face for repair, reuse, or recycling.

The General Manager of the Guadalupe Landfill has advised that there is no program or means to remove, collect and treat (recycle) PCB's and CFC's.

The waste generation study has identified 2 tons of white goods (including small household appliances) that are generated in Monte Sereno each year with 2 tons being diverted.

**Abandoned vehicles**

Abandoned vehicles ultimately consist of automobile bodies and auto shredder residue. Under California regulations these are considered to be an unclassified waste, thus qualifying for disposal in a Class III landfill. No landfills in Santa Clara County are currently permitted to accept auto bodies. The Guadalupe Landfill operator has advised that abandoned vehicles can be and are accepted for disposal, on rare occasions. Auto bodies pose the same disposal problems as other large bulky items such as white goods and should be handled accordingly. Guadalupe Landfill has received a permit to dispose of the treated auto shredder waste.

Abandoned vehicles are removed by private, City-contracted, towing companies and sold to salvaging operations. Total tonnages for abandoned vehicles were not included in the waste generation study. The current management and diversion practices in the City of Monte Sereno for abandoned vehicles are considered adequate, and no changes are anticipated to occur.

**Dead Animals**

Collection and disposal of dead animals are generally managed at a County level under the authority of the Animal Control Department of the Santa Clara County Public Services Agency. Owners are responsible for the disposal of their pets; however, the Department will collect and dispose of the animal for a fee. State agencies are responsible for dead animals found on highways or state property.

Many landfills are normally permitted to accept small animals for disposal; generally, large animals should be taken to a renderer. Small dead animals can be disposed of at the active tipping area of the landfill. Large quantities of small dead animals should be disposed of at the base of the active face and covered immediately with soil.

The primary management practice for small dead animals in the County is through contract for disposal with Koefran Services of Sacramento. Koefran provides a freezer at city animal shelters and the Humane Society of Santa Clara Valley 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.

Dead animals reported in the City of Monte Sereno are removed and disposed of by the County's Animal Control Program. The management and diversion practices in Monte Sereno for dead animals is considered adequate and no changes are anticipated to occur.

## 6.4 Evaluation of Alternatives

Management practices should take advantage of all viable markets and end uses for recyclable special wastes. In the City of Monte Sereno the recyclable special wastes include tires, white goods, abandon vehicles, and dead animals. 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.

Each of the seven special waste alternatives are described below. However, since the City of Monte Sereno does not treat sewage and does not have a landfill within its jurisdiction, many of the alternatives are not available for implementation by the City. The reasons for not evaluating these alternatives are presented below. The remaining alternatives are evaluated by the established set of criteria specified by the regulations governing AB 939.

### 6.4.1 Alternative 1 - Disposal of Special Wastes

Special wastes generated by the City of Monte Sereno can be disposed of at the Guadalupe landfill in accordance with the facility's Waste Discharge Requirements (WDR), issued by the Regional Water Quality Control Board. Based on the landfill's WDR, all of the special wastes described above, with the exception of friable asbestos and sewage sludge can be landfilled at the facility.

Alternative 1 - Disposal of Special Wastes in an environmentally safe manner in accordance with pertinent regulations is evaluated

below by the established criteria to determine whether this alternative is appropriate for the City and to allow a comparison of its relative effectiveness to other alternatives.

**Waste Diversion Potential** As this alternative does not reduce quantities of special wastes currently disposed of, a "low" rating was assigned.

**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. For these reasons, a "medium" rating was given.

**Ability to Accommodate Change** With relatively minor changes in the management of special wastes, disposal of special wastes can be adjusted to conform with changing conditions; a "high" rating was, therefore, assigned.

**Consequences to the Waste Stream** Since this alternative would not affect the waste stream, a "medium" rating was given.

**Ease of Implementation** As no "startup" period would be required, a "high" rating was assigned.

**Facility Requirements** This alternative would not require any new or expanded facilities, so that a "high" rating was given.

**Consistency with Local Conditions** Disposal of special waste is consistent with local plans and policies; a "high" rating was, therefore, given.

**Institutional Barriers** Since there are no significant institutional barriers to this alternative, a "high" rating was assigned.

**Estimated Cost** Since no significant costs are associated with this alternative, a "high" rating was assigned.

**End Uses** Not applicable.

### 6.4.2 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 is not generated in the City of Monte Sereno. Sewage from the City of Monte Sereno is treated at the Santa Clara/San Jose wastewater treatment plant where sewage sludge is a by product of the treatment process. Sewage sludge resulting from sewage generated in the City could be composted and sold to the general public for the uses listed above. 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.

Alternative 2 - Sewage Sludge Composting is not evaluated because the City does not process wastewater that generates sewage sludge.

### 6.4.3 Alternative 3 - Land Application of Sewage Sludge

Sewage sludge is not generated in the City of Monte Sereno. Sludge resulting from sewage generated in the City of Monte Sereno could be used beneficially as soil amendment or fertilizer for agricultural purposes. Benefits accruing from the use of sludge for these purposes include reduced need for inorganic fertilizers, improved soil fertility and tilth, decreased consumption of energy, and reduced hazardous air emissions.

Alternative 3 - Land Application of Sewage Sludge is not evaluated because the City does not process wastewater that generates sewage sludge.

### 6.4.4 Alternative 4 - Divert Tires from Landfilling for Ultimate End Use

Used tires generated in the City of Monte Sereno could be reused or recycled as a variety of end products including floor tiles, dock bumpers, and playground covering. An important component of this alternative is the availability of a facility to stockpile used tires. The City could 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.

Alternative 4 - Divert Tires from Landfilling for Ultimate End Use is evaluated below by the established criteria to determine whether this alternative is appropriate for the City and to allow a comparison of its relative effectiveness to other alternatives.

**Waste Diversion Potential** Since this alternative could be effective in reducing the quantity of used tires in the waste stream, a "low" rating was assigned.

**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. For these reasons, a "medium" rating was given.

**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. A "medium" rating was, therefore, assigned.

**Consequences to the Waste Stream** This alternative would have a positive effect on the waste stream by diverting a problem waste from landfilling. Tires/rubber represent approximately 0.3 per cent of the disposal waste stream in the City. A "high" rating was given since this alternative does not create any non-recyclable or uncountable (under 939) wastes.

**Ease of Implementation** 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. A "medium" rating was, therefore, given.

**Facility Requirements** A facility for the stockpiling of tires 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 jurisdiction. Since new facilities must be developed, a "low" rating was given.

**Consistency with Local Plans and Policies** Diversion of tires for ultimate end use is consistent with plans and policies and ordinances of the City of Monte Sereno. A "high" rating was given.

**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. For these reasons, a "medium" rating was given.

**Estimated Cost** Cost for construction and permitting of a facility are not available at this time. Costs for staff time to monitor quantities diverted are presented in Table 6.3. A "high" rating was assigned.

**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. The City should support cooperative efforts to market the diverted tires. For these reasons, a "high" rating was assigned.

### 6.4.5 Alternative 5 - Prohibit Disposal of Used Tires at Landfills

Used tires could continue to be accepted at the Guadalupe 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.

Alternative 5 - Prohibit Disposal of Used Tires at Landfills is not evaluated because the City does not have jurisdiction over the landfill which accepts waste from the City of Monte Sereno.

A ban of tires at the Guadalupe landfill would divert tires from the waste stream. According to the waste generation study, tires/rubber represent approximately 0.3 per cent of the waste in the City of Monte Sereno (13 tons).

### 6.4.6 Alternative 6 - Prohibit Disposal of White Goods at Landfill

White goods could continue to be accepted at the Guadalupe Landfill, but would be banned from disposal. The landfill would require waste haulers to identify white goods in the incoming loads and to deposit them at a specified stockpile location at the landfill site.

Alternative 6 - Prohibit Disposal of White Goods at Landfills is not evaluated because the City does not have jurisdiction over the landfill which accepts waste from the City of Monte Sereno.

A ban of white goods at the Guadalupe landfill would divert white goods from the waste stream. According to the waste generation study, white goods (including small household appliances) represent a small portion (approximately 0.05 per cent) of the waste in the City of Monte Sereno.

### 6.4.7 Alternative 7 - White Goods Processing Operation

White goods can be diverted from the waste stream at the landfill by facility personnel. As incoming loads are discharged, the spotter and the equipment operator will separate identified white goods from the discharged load. The white goods will then be moved to an area removed from the active face of the landfill. At the end of each day, the collected white goods will be moved to a designated white goods stockpile area. At the stockpiled area, electrical capacitors, cooling units, insulation, and wiring will be removed. The electrical capacitors and cooling units will be recycled and the insulation and wiring landfilled. The scrap metal will be sold to a scrap metal dealer. This process is currently conducted at the Guadalupe landfill.

Alternative 7 - White Goods Processing Operation is evaluated below by the established criteria to determine whether this alternative is appropriate for the City and to allow a comparison of its relative effectiveness to other alternatives.

**Waste Diversion Potential** Since this alternative could be somewhat effective in diverting white goods from disposal, a "low" rating was assigned.

**Hazard** Potential hazards include risk of injury to landfill personnel from removing the white goods or from working around heavy equipment, and exposure to PCBs. To reduce the potential for hazard, workers should be properly equipped and trained in handling PCBs. A "medium" rating was, therefore, given.

**Ability to Accommodate Change** This alternative is limited by the quantity of white goods that can be stockpiled on site during unfavorable market conditions. A "high" rating was, therefore, given.

**Consequences to the Waste Stream** This alternative would divert white goods from the waste stream; white goods account for approximately 0.05 percent of the City's waste stream. A "high" rating was assigned.

**Ease of Implementation** Since a diversion program for white goods is already being conducted at the Guadalupe Landfill, and its continuation is anticipated, a "high" rating was given.

**Facility Requirements** As this alternative requires an area at the Guadalupe Landfill for stockpiling white goods, but does not require any new facilities, a "high" rating was assigned.

**Consistency with Local Plans and Policies** This alternative is consistent with local plans and policies, so that a "high" rating was given.

**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 goods (capacitors and cooling units). A "high" rating was given.

**Estimated Cost** There are no significant costs associated with this alternative; however, additional labor would be required to dismantle the white 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. For these reasons, a "high" rating was given.

**End Uses** The electrical capacitors and cooling units that have been removed from the white goods can be recycled. The remaining scrap metal can be processed for reuse in mills and foundries to produce new steel. The market for scrap metal is relatively stable. A "high" rating was, therefore, assigned.

## 6.5 Selection of Program

In the previous section, seven alternatives were presented for consideration. Four alternatives are not feasible for the City of Monte Sereno to implement and therefore were not considered for implementation. The remaining three alternatives were 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.

To accomplish the evaluation, the City has assessed whether or not each alternative is appropriate to the City's needs and assigned each alternative a ranking in order to select among the various alternatives. In selecting among alternatives and programs, the City considered the following critical factors: (1) the degree to which each alternative and program is appropriate to the conditions of the jurisdiction (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.

Alternatives were assigned ratings of high, medium, and low (see Appendix A for evaluation approach) according to the assessment of their evaluation criteria. The results of these ratings are presented in Table 6.1.

Based on the results of this evaluation and assessment, the alternatives selected to meet the goals and objectives of this component in the short-term and medium-term planning periods are presented below.

### 6.5.1 Short-Term Planning Period

In order to meet the goals and objectives outlined in this component, the City will work with the waste hauler and landfill operators to continue the activities listed below. The City of Monte Sereno can expect to continue to divert approximately 0.05

per cent of the total waste stream (2 tons) in the short-term planning period by continuing the current operations listed below:

- Continue the disposal of special waste. This program will not result in any diversion of the total generated waste stream.
- Continue support of programs to divert tires from landfilling for ultimate end use.
- Continue a white goods processing operation at the Guadalupe landfill. The City of Monte Sereno can expect to divert 0.05 percent (2 tons) of the total waste stream through diversion programs for white goods. This selection is based solely on the ease of implementation in the short-term period.

### 6.5.2 Medium-Term Planning Periods

All programs and alternatives selected in the short-term planning period will be continued in the medium-term.

## 6.6 Program Implementation

The City of Monte Sereno Solid Waste Program staff are responsible for working with the waste haulers and landfill operators to implement the selected alternatives and programs for diversion of tires/rubber and white goods. Other special waste disposal responsibilities and the implementation periods are indicated in Table 6.2.

### 6.6.1 Multi-Jurisdictional Special Waste Efforts

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 multi-jurisdictional efforts include: (1) multi-jurisdictional waste tire facilities; (2) establishment of a county landfill permitted to accept only shredded tires; and (3) coordination of marketing of composted sludge.

### 6.6.2 Monitoring and Evaluation

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.

**Monitoring Methods**

This section presents the methods for quantifying and monitoring the achievement of the following objectives for the special waste component.

**Objective 1: Continue existing programs that divert recyclable special waste from landfilling, including tires and white goods.**

**Objective 2: Continue to provide for environmentally safe management or disposal of special waste that cannot be recycled.**

**Objective 3: Increase the recovery of recyclable special waste from the solid waste stream.**

Monitoring Method: Periodic inspections of handling methods for special waste will be conducted at the Guadalupe landfill by the Local Enforcement Agency. 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 the increased diversion of special waste from landfilling.

### 6.6.3 Written Criteria

The City will prepare annual reports summarizing 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 achieved; (2) the selected programs and activities were implemented on schedule; (3) waste handling practices have changed.

### 6.6.4 Responsibility For Monitoring

The monitoring and evaluation activities described in this section will be implemented by the City's Solid Waste Program staff.

### 6.6.5 Funding Requirements

Funding for the monitoring and evaluation program described in this section will be provided by the City through the Solid Waste Rate Fund. 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.

The anticipated funds needed to plan, implement, operate and monitor each of the selected alternatives can be found in Table 9.1 of the Funding Component.

### 6.6.6 Contingency Measures

If the programs described above fail to meet the goals and objectives of this component, the following tasks can be implemented:

- Promotion of the introduction of additional waste acceptance procedures at the landfill in order to divert special wastes from disposal.
- Promote an increase in 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 special waste activity and implementation schedule.
- Seek additional funding
- Select additional alternatives
- Consider regulatory programs or mandatory programs

**Table 6.1 Summary of Special Waste Alternatives Evaluation**

A. Evaluation Criteria

| Program Alternatives | Waste Diversion Objectives | Absence of Hazard | Ability to Accommodate Change | Consequences to the Waste Stream | Ease of Implementation | Facility Needs |
|---|---|---|---|---|---|---|
| Alternative 1: Disposal of Special Wastes | low | medium | high | medium | high | high |
| Alternative 4: Divert Tires from Landfilling for Ultimate End Use | low | medium | medium | high | medium | low |
| Alternative 7: White Goods Processing Operations | low | medium | high | high | high | high |

B. Additional Considerations

| Program Alternatives | Consistency with Local Policies | Absence of Institutional Barriers | Estimated Cost | End Uses |
|---|---|---|---|---|
| Alternative 1: Disposal of Special Wastes | high | high | high | NA |
| Alternative 4: Divert Tires from Landfilling for Ultimate End Use | high | medium | medium | high |
| Alternative 7: White Goods Processing Operations | high | high | high | high |

**Table 6.2**

**Special Waste Implementation Plan**
**Short-term and Medium-term**

| Task | Responsible Agency | Implementation Date |
|---|---|---|
| 1. Continue disposal of Special Wastes | | |
| - sewage sludge | San Jose | On-going |
| - ash | private | |
| - asbestos | private | |
| - abandoned vehicles | City/private | |
| - dead animals | County/City/private | |
| 2. Continue diversion of Tires | Landfill operator/ City | On-going |
| 3. Continue white goods processing | Waste hauler/ Landfill operator/ City | On-going |

**Table 6.3**

**Special Waste Implementation Costs**

| Activity/Task | Cost | Revenue | Source |
|---|---|---|---|
| 1. Continue disposal of Special Wastes<br>- sewage sludge<br>- ash<br>- asbestos<br>- abandoned vehicles<br>- dead animals | $ 25-150 | $ 25-150 | General Fund |
| 2. Continue diversion of tires | $ 25-150 | $ 25-150 | General Fund |
| 3. Continue white goods processing | $ 25-150 | $ 25-150 | General Fund |

# SECTION 7

# PUBLIC EDUCATION AND INFORMATION COMPONENT

## 7.1 Introduction

An active and imaginative education and public information program is necessary throughout implementation of the Source Reduction and Recycling Element (SRRE) in order to increase community support. Education and public information should stress the reduce, reuse, recycle, and compost ethic. It should persuasively explain the economic and environmental benefits of source reduction, recycling, and composting. To achieve long-term effectiveness, public education campaigns should introduce timely, specific themes, carry a well-designed graphic image, a consistent, memorable slogan, and use a variety of communication channels to reach the public.

Citizens not only need to be convinced of the importance of source reduction and recycling, they need to know what is expected of them in practical terms. Residents need to know how to separate different materials, where and when they should take their recyclables, and how to purchase wisely to avoid unnecessary waste.

## 7.2 Goals and Objectives

This component documents current education and public information activities for the City. Section 7 also describes how participation in source reduction, recycling, and composting activities will be stimulated during the short (1992-95) and medium (1995-2000) terms by expanding existing education and public information programs and by implementing new ones.

Establishing clear goals and objectives for educational efforts provides an understanding of the program to governmental agencies, residents, and the business community. Moreover, when the goals and objectives are specified, monitoring, evaluation, and improvement of public education become easier. Goals identified by the City include:

- support existing and planned source reduction, recycling, and composting programs and services through education and public information activities;
- increase participation in existing and planned source reduction, recycling, and composting education and public information efforts;
- increase public awareness of environmental and solid waste issues;

- create broad visibility for recycling;
- familiarize consumers with recycling;
- motivate increased participation in available source reduction and recycling programs by all sectors;
- stress the importance to all sectors of buying recycled and composted material.

### 7.2.1 Short-Term Objectives (1992-1995)

The following sections describe short- and medium-term objectives for the City's Education and Public Information Component.

- expand existing public education and information programs to address source reduction, composting, and recycling, for the residential sector (includes industrial[1] waste);
- provide information to all residents regarding the City's waste reduction and recycling programs;
- create public involvement opportunities through recycling promotions and events;
- provide residents with detailed information for participation in local collection programs;
- educate the public about the uses of recycled and composted materials, emphasize "closing the loop" through a "buy recycled" campaign;
- participate in countywide public education efforts.

### 7.2.2 Medium Term Objectives

Medium-term (1995-2000) objectives build upon short-term objectives and will focus upon the following:

- expand existing programs;

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[1]By definition, industrial waste includes solid waste generated by industries as well as any material placed into debris boxes, regardless of the source. Since there are no manufacturing facilities, refineries or other types of industry in the City of Monte Sereno, industrial waste will only refer to material placed in debris boxes by residential accounts.

- revise and improve current efforts based on feedback obtained from the evaluation of short-term activities;

- develop new programs to target specific sub-populations or waste streams.

## 7.3 Existing Conditions Description

### 7.3.1 Residential Activities

The following is a list of educational services and information provided by the City. Copies of these materials referred to are included at the end of Section 7.

- a City-government newspaper, The City Council Report, is distributed semi-annually via U.S. mail to all households. Some topics that have been addressed include the residential curbside program start-up, and announcements for upcoming household hazardous waste collection events.

- Several brochures are provided to residents by Green Valley Disposal Company (GVDC), the contracted hauler. The brochures address proper materials preparation and are provided on request or whenever a household has not properly prepared their setout of recyclables. GVDC also prepares and distributes an annual newsletter to all households.

- Phone book recycling is a joint effort between the City, Pacific Bell, GVDC and Lucky Foodstores. The education and public information efforts consist of Pacific Bell-supplied signage for drop boxes and stores, and new phone books delivered in a plastic bag with drop-off locations for the old books printed on it.

- GVDC assists the City in promoting the various recycling services by answering customers' questions via telephone or in person, as needed.

- GVDC staff have made presentations to most of the public and private elementary and middle schools; high school and college age students are also occasionally included. The format and size of the audience varies, though most consist of an assembly format with 60 to 100 students per presentation. These assemblies include a film and visual aids. The film used for children up to the sixth grade is "The Rotten Truth" produced by the Childrens Television Network. "Garbage in America" produced by Refuse Industry Productions, Inc. is used for the older children. Examples

of all the recyclables collected and the bins used are shown to the children. Also included in each presentation is information on how schools can participate in the recycling program. On request, tours of the recycling center site and landfill are also provided.

- A 52-character space is available for public information announcements on the approximately 4x5 - inch refuse bill, and that space has been used for that purpose.

- For the past two years (1991 and 1992), curbside collection of Christmas trees has been provided to all single-family dwellings. Advertisements are placed in local newspapers by GVDC to advise residents of the service. Local scout troops have also provided a similar service for fund-raising efforts.

- Monte Sereno residents enjoy access to a local cable channel which features local environmental topics.

- The City has participated in creating and staffing an educational display at the County Fairs, promoting recycling in general, as well as curbside programs for individual cities.

### 7.3.2 Commercial Activities

There are no commercial recycling activities at this time since there is no commercial retail sector.

### 7.3.3 Institutional and Municipal Activities

Institutional and municipal recycling activities include:

- The public school in the City (which is part of the Los Gatos School District) participates in the recycling service provided by GVDC. Materials recycled include newspaper and office paper (white and colored ledger).

- Separate weekly collection of the following waste types from the City office: newspaper, corrugated cardboard and office paper.

- An educational program for City employees was begun in 1990 to educate the employees about the importance of recycling and to advise them about the on-site recycling services provided by GVDC. Employees were also advised how to respond to various questions from residents.

## 7.4 Program Alternatives

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. Section 7.4 incorporates these specific audiences by presenting the various program alternatives in terms of approaches for each segment of the community. These approaches are based on:

- waste sector, i.e., residential, industrial and institutional; and
- programs, i.e., source reduction, recycling, composting and special wastes.

### 7.4.1 General Approaches to Education and Public Information

- Designate a staff member to be in charge of developing public education and publicity materials. Staffing needs will be sufficient to allow for both work in the office and in the field.
- Create a 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.

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;

- o press coverage of as many promotions, program introductions and effectiveness updates, and other notable events as possible;
- o press coverage through news conferences, feature stories, press kits and press releases;
- o newspaper articles and inserts in The Los Gatos Weekly Times and The City Council Reports;
- o local radio and TV, including cable, to produce awareness shows or public service messages and outdoor advertising;
- o seminars, workshops, and related programs;
- o participation in special events e.g., Earth Day, Recycling Week, County Fair, art and wine festivals, and local events such as employee picnics, holiday parades and celebrations;
- o slide shows, videos, and speakers' bureaus available to community groups;
- o recycling curriculum and other information distributed to public and private schools;
- o cooperation with community service organizations (e.g., Rotary, Lions, Boy Scouts).

### 7.4.2 Education and Public Information Approaches Based on Waste Sector

**Residential Sector**

Approaches to consider when developing public education programs for the residential sector include:

Meetings and Forums

- o sponsor City meetings, community forums, and public hearings to present and discuss reduction, reuse, recycling, and composting ideas;
- o appoint citizen advisory boards or task forces to monitor events and report to the public.

Volunteer Networks

- Organize a neighborhood block leader program whose volunteers personally encourage their neighbors to use recycling and composting services, adopt source reduction habits, and use safer alternatives and properly handle household hazardous wastes. 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 Sector**

Although there is no commercial retail sector in the City, as explained in Section 7.3.2, Commercial Activities, for reference purposes, this Section includes information about possible commercial recycling activities.

The tactics available for reaching the commercial sector are generally simpler and more direct than the residential sector. The City can develop materials specific to individual services, and disseminate these to the businesses in question via a number of approaches, which may include:

- conduct mailings to businesses;

- work with the Chamber of Commerce and other business and professional associations;

- develop 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 evaluation guide. Once the evaluation 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 generators;

- work with various unions to encourage members to get involved (i.e., union sanctioned functions or workshops);
- develop specific programs tailored for the need of individual businesses (i.e., bakeries, dry cleaners);
- establish programs for specific business parks and centers;
- prepare employee packets that explain the various programs. These can be disseminated by employers;
- require refuse hauler(s) to contact customers periodically to offer recycling services.

**Institutional Sector**

The City should work in cooperation with the local 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 schools;
- encourage recycling programs at schools currently not participating;
- where feasible, establish student-run pilot composting program;
- develop environmental and waste management awareness in schools by integrating relevant topics into school curricula;

The City will need to work in cooperation with the municipal, county, and state agencies to develop appropriate programs, such as:

- 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 the county and state to develop programs to manage solid waste for agencies located within the community.

### 7.4.3 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 program areas have been identified as needing specific information and educational programs: source reduction, recycling, composting, 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. Such environmentally conscious shopping behavior is called "precycling".

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, since 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 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 or paper;
- provide residents with 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;

- o evaluate the feasibility of providing a mechanism for residents to purchase composting containers at a discount to take advantage of large-volume orders;
- o encourage the use of cloth diapers, in cooperation with a local medical association and diaper services;
- o provide a directory of reuse and repair businesses;
- o provide information on how to remove names from junk mail lists.

**Recycling**

The emphasis will be to enhance the current recycling education and information programs. The following are recommended approaches:

Residential

- o continue the residential curbside education program.
- o work with recycling service providers and community groups to publicize the locations and promote the use of buy-back/drop-off collection centers;
- o provide feedback to the public on the success of the recycling programs (i.e., amount of materials recycled/resources saved, and the economics of the programs). Provide feedback through ads in local newspapers and publishing of 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

- o expand educational materials that address the residential yard waste collection program for leaves, grass clippings, and other vegetative material, with corresponding information on handling;
- o inform the public how they can obtain compost and mulch from the program;
- o work with local garden clubs and Master Gardeners to help promote and educate the public;

- work with the local organizations (e.g., the University of California Cooperative Extension Program) to develop backyard compost workshops;

- provide feedback to the public on the amount of yard waste collected and composted and how this material is used (through publishing of annual reports and reports in local newspapers);

- educate the public on the benefits of using compost and mulch for home purposes.

- develop information and education materials to support commercial and institutional yard waste collection programs.

**Special Wastes**

Special wastes, like infectious wastes, sludge, and ash, are quite specific and would not necessarily require that an educational program be developed. Other special wastes will require that educational materials be developed.

Examples of programs to consider are:

Residential

- develop informational materials for the proper disposal of tires, white goods, auto bodies, and certain wood wastes. The information could be summarized in the local papers and mailed, on request;

- have informational materials regarding the proper removal and disposal of asbestos on hand for distribution. List local firms that are licensed to remove asbestos.

Institutional

- develop informational materials that address proper disposal of tires, white goods, auto bodies, and certain wood wastes. This information could be summarized in the local papers, and mailed, on request.

- develop information for self-haul generators that will explain disposal of construction and demolition debris.

## 7.5 Selection of Program

### 7.5.1 Short-Term

General Approaches

- continue to have designated staff responsible for developing education and publicity materials.
- expand the program that addresses solid waste management in general; approach should be directed to residential generators;
- provide feedback to the public on the success of all implemented programs; methods include publishing an annual report and newspaper articles;
- in cooperation with countywide efforts and the local school districts, assist in the development of educational materials for school age children and make available to private schools as well. Topics to be covered are recycling, composting, and source reduction.
- implement provisions to inform residents who order debris boxes of the various options to the disposal of construction and demolition debris. The information could be summarized in the local papers, and mailed, on request. Distribution of the information could be made by the public works/building inspection offices.

Source Reduction

- develop a backyard composting program. Include availability of "how-to" literature, materials describing the uses for compost, and possibly establishment of a Master Composter program;
- develop materials that explain on-site grass clipping program;
- publish a directory of all reuse and repair businesses.

Recycling

- continue providing education materials for the residential curbside recycling program;
- continue to update the directory that lists brokers and end users of recyclable materials;

Composting

- o evaluate the feasibility of providing a mechanism for residents to purchase composting containers at a discount to take advantage of large-volume orders;
- o work with local garden clubs and Master Gardeners to help promote and educate the public;

Special Waste

- o develop education materials that describe how to properly dispose of special wastes.

### 7.5.2 Medium-Term

To a great extent, the various programs outlined as 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

- o develop education materials for residential curbside collection of yard waste. Include information about how residents can obtain compost from the program, if applicable; and
- o continue those programs identified for implementation in the short term.

## 7.6 Program Implementation

Each component requires the implementation of certain education 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 ensure 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, newspapers), but what is actually said, and 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 any diversion short-fall.

Table 7.1 at the end of this section shows the selected tasks and implementation dates for public information and education.

### 7.6.1 Monitoring and Evaluation

General criteria for evaluating the program include whether:

- the program was established on time and within budget;
- personnel were in place to ensure effective implementation of programs;
- activities were developed to meet all pertinent environmental regulations; and
- diversion goals are being met.

Qualifying the results of the various programs can be accomplished through one of 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 the designated staff 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; and
- compare the progress of the overall program toward diversion goals

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 the

education and public information efforts will be determined in advance and will be appropriate to the monitoring methods that have been chosen.

Formative evaluation attempts to identify the strengths and weaknesses of the messages, materials, and educational or informational strategies before one proceeds 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 evaluation identify the immediate and longer term effects of efforts on the intended audience.

### 7.6.2 Written Criteria

The program's effectiveness will be summarized in an annual report, outlining the success of individual tasks, comparisons with neighboring communities, and plans for next year.

### 7.6.3 Responsibility for Monitoring

The monitoring and evaluation activities described in this section will be implemented by the City's Solid Waste Program staff.

### 7.6.4 Funding Requirements

The cost to develop, implement, maintain, monitor, and evaluate the various tasks outlined in this component are presented in Table 7.2, found at the end of this section. The anticipated funds required to plan, implement, operate and monitor each of the selected alternatives can be found in Table 9.1 of the Funding Component.

Whenever possible, volunteers will be encouraged to assist in the education and public information outreach programs, with City guidance. Funding will be provided by the General Fund.

### 7.6.5 Contingency Measures

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;
- 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.

**TABLE 7.1**

**Education and Public Information Implementation Timeline**

| Activity/Task | Implementation Date |
|---|---|
| **Short-Term** | |
| **General** | |
| Expand existing education that addresses solid waste management in general | Oct-Dec 1992 |
| Assist in development and distribution of educational materials for schools | Apr-June 1993 |
| Prepare and distribute options for disposal of construction and demolition debris | July-Sep 1994 |
| **Source Reduction Program** | |
| Prepare/print home compost brochures | July-Sep 1993 |
| Purchase prepared activities brochures | July-Sep 1993 |
| Prepare directory of reuse/repair businesses | Oct-Dec 1993 |
| Prepare special waste disposal guide | Jan-Mar 1994 |
| **Medium-Term** (in addition to the Short-Term tasks listed above) | |
| **Composting** | |
| Prepare residential yard waste collection program brochure; provide feedback on quantities collected and how the finished compost can be obtained | FY 96-97 |

**TABLE 7.2**

**Education and Public Information Implementation Costs**

| Activity/Task | Cost | Revenue | Source(s) |
|---|---|---|---|
| **General** | | | |
| Expand existing education that addresses solid waste management in general | $90-150 | $90-150 | General Fund |
| Assist in the development and distribution of educational materials for schools | $20 | $20 | General Fund |
| Implement and monitor options to disposal of construction and demolition debris | $90-150 | $90-150 | General Fund |
| **Source Reduction** | | | |
| Prepare/print compost brochures | $60-155 | $60-155 | General Fund |
| Purchase general activities brochures | $90 | $90 | General Fund |
| Prepare directory of reuse organizations and repair shops | $45-95 | $45-95 | General Fund |
| Prepare Special Wastes Guide | $10-80 | $10-80 | General Fund |
| **Recycling** | | | |
| Public awareness programs for: residential curbside collection services | N/A | N/A | General Rates |
| Develop informational materials - technical assistance program | See source reduction component | | |

# CITY OF MONTE SERENO

## 91st City Council Report
## December 1990

### HAPPY HOLIDAYS!

**NON-POINT SOURCE/HOUSEHOLD HAZARDOUS WASTE**

The 1986 San Francisco Bay Water Quality Control Board Basin Plan requires all cities to develop a program to control pollution from urban run-off or non-point sources. The cities have jointly agreed to evaluate pollutants, monitor the identified pollutants and develop control measures. A cooperative plan is being developed with the help of consultants. The cost is based upon population. Monte Sereno's share is .01% or about $2,600.

It is important that residents become aware of the effects of a number of potential sources of pollution. They include toxics that are poured down storm drains, erosion from the grading of land and leaking septic tank or sewer systems. Some toxics are motor oil, contaminated gasoline, herbicides, pesticides and paint.

City Hall has received many calls from residents concerning the safe disposal of toxic household materials such as paint, cleaning solvents and car batteries. These substances cannot be included with the weekly residential trash pick up and require special handling. The most popular and effective method of handling this type of disposal is a centralized household hazardous waste collection day.

Earlier this year such an event was held in Campbell under the auspices of the cities of Campbell, Monte Sereno and Saratoga, The Town of Los Gatos and Santa Clara County. Because of its success, a Second Household Hazardous Waste Day will be held in March of 1991. It is hoped that this collection day will meet with even greater participation than the last one. You will be notified by mail when a specific date and location is set. You are urged to buy only the amount of toxics needed, use what you buy and dispose of all residuals at scheduled collection days.

**RECYCLING**

In an effort to continue the enthusiastic momentum established by local residents for the recycling effort, Green Valley Disposal Company has added another recyclable item to its program. Glossy page magazines are now being collected in addition to newspapers, glass, plastic, aluminum and waste oil. The magazine pages are processed and reused as packing materials.

In the past year, Monte Sereno residents have shown remarkable cooperation in the recycling program and the percentage of local citizens who participate on a regular basis is the highest in the County. City staff commends this attitude and is confident that this concern and sense of responsibility for the environment will continue in the future.

**SARATOGA LIBRARY COMMISSION**

The City of Monte Sereno wishes to extend its thanks to Barbara Wood, who, for the past eight years, has served as the City's representative on the Saratoga Library Commission. Mrs. Wood has volunteered her time and knowledge resulting in improved services to the community. Her current term will expire in January, 1991. Although Mrs. Wood has done an exceptional job for the City, it is the policy of the Library Commission that two terms (eight years) is the maximum amount that can be served by an individual representative.

**WATER RESTRICTIONS**

Although mandatory water restricting had been scheduled to be discontinued as of October 31, 1990, the Santa Clara Valley Water District Board has voted to continue the program through the winter months this year. This is being done as a safety measure in the event that this winter is our fifth consecutive dry one.

Monte Sereno residents have been very dedicated in their efforts to curb water use and the number of complaints received by City Hall concerning irresponsible water use has diminished greatly during the hot summer months. City staff is confident that residents will respect the guidelines set by the Water District Board and cut their water consumption at least 20 percent from 1987 levels. The hours for outside watering have been changed to after 4:00 p.m. and before 8:00 a.m. since the change to standard time.

**GUIDE TO CITY CODE REQUIREMENTS:** Listed below are excerpts from our City Code describing more commonly encountered regulations. The City Code contains policies, standards, and regulations adopted by successive City Councils over the City's 32 years. It's purpose is to guide both our government and ourselves in achieving and maintaining the goals of our Community. Your awareness and cooperation improve our City and reduce government expenses. For further information contact the City Office at 354-7635.

**BURGLAR ALARMS:** The fourth false alarm sounding in a 12 month period results in a $25 fee. Each successive alarm is charged at an additional $10 to a maximum of $95 for the 11th and each succeeding alarm within 12 months.

**BUSINESS LICENSES:** All persons or companies coming into the City to do business require a City license.

**CONSTRUCTION PERMITS:** Almost all work on structures other than routine maintenance, decorative or wall and floor covering requires a permit.

**FRONT YARD STORAGE:** Recreational vehicles, trailers, unlicensed or inoperative cars, parts for vehicles and other materials are not to be kept in the street or in front yards, unfenced side or rear yards for more than 8 hours except for loading or unloading. Homes in R-1-8 zone may keep operative, licensed vehicles and trailers in the front yard, off the street.

**OFF-ROAD VEHICLES:** Use of off-road vehicles (including motorized cycles) on private property requires a City Permit.

**SIGNS:** Generally, commercial signs are prohibited in the City. This includes contractors working at homes in Monte Sereno.

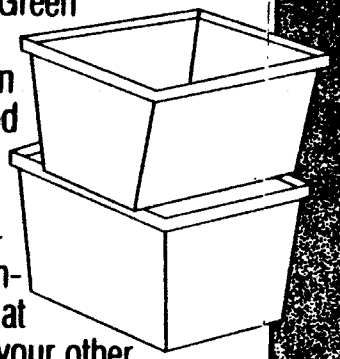
**OUTDOOR LIGHTING:** The City continues to receive complaints of excessive illumination. The city code is specific; Outside lights must be shielded and shine into the property and not create more than one foot candle of light on adjacent property or streets. Sports courts are not to be lighted. Your cooperation and courtesy to your neighbors are requested.

**ALL POLICE, FIRE, AMBULANCE OR MEDICAL EMERGENCIES: DIAL 911**

**CITY OFFICE 18041 Saratoga-Los Gatos Road: 354-7635; M-F 9-5; Other hours call County Communications at 299-2507.**

## How you can participate in curbside recycling

We have provided you with a set of the **nestable/stackable** Curbside Recycling Bins. Please keep the bins in your garage or another secure area. They will provide a convenient way for you to store recyclables. The Green Valley Recycling truck will collect in your neighborhood every week on the same day as regular garbage pick-up. To recycle, simply place the bins at the curbside with your other recyclables on the morning of your collection in a place separate from your garbage and is clearly visible to the recycling driver. The Recycling truck may collect before the garbage truck in some neighborhoods, and after the garbage truck in others.



## Theft

If someone other than our special Green Valley Recycling driver picks up your recyclables or bins, please call 354-2100. If you witness the theft and are able to get a description of the person(s) and a license number of the vehicle, notify the police immediately. City ordinance prohibits the collection of these materials by anyone other than the City's designated contractor. The revenues from the sale of materials only partially offset the cost of this program.

GREEN VALLEY RECYCLING
573 University Avenue
P.O. Box 1227
Los Gatos, CA 95031-1227
(408) 354-2100
FAX (408) 354-2101

# CURBSIDE RECYCLABLES COLLECTION

GREEN VALLEY RECYCLING

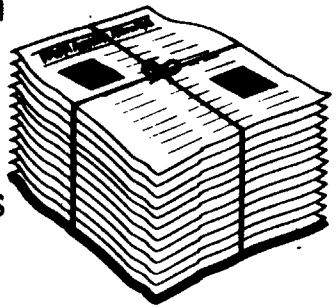
Printed on recycled paper

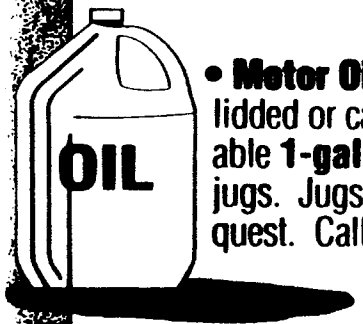
# GREEN VALLEY RECYCLING

All materials should be put out by 6 am on collection day.

## Types of Materials

• **Newsprint** - Place next to the bins. Flat and tied in bundles, or in paper grocery bags. No magazines, mail, phone books, paper bags or other papers please.



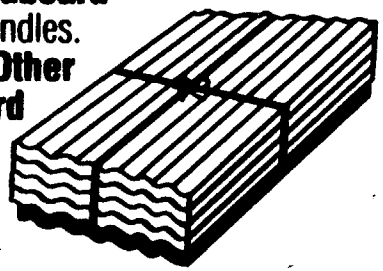



• **Motor Oil** - In securely lidded or capped disposable **1-gallon** milk/water jugs. Jugs available on request. Call us.

• **Metal cans** - Place in "can" bin. Rinse and *remove paper labels;* flatten if you need room.

• **Glass Bottles** - Place in "glass" bin. All colors can be mixed together. It is not necessary to remove labels, but *please remove caps and lids.* **(No mirrors, windows, ceramics, pottery, tempered glass - Pyrex®, Corningware®, etc.)**

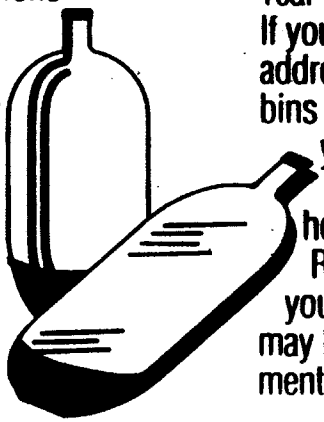
• **Corrugated Cardboard** - Flatten and tie in bundles. Max size: 3' x 3'. **(Other types of cardboard not accepted)**



• **Aluminum Scrap** - (for example: foil, trays, pie tins, etc) Must be clean. Place small items in "can" bin. Leave large (maximum dimensions 3' x 1'x 1') items loose.

• **PET Plastic Containers** - (generally soft drink bottles) Place in "can" bin. *Caps removed. Flatten.* **(No HDPE milk/water jugs.)**





• **Magazines with glossy covers and glossy pages** - Place next to the bins. Flat and tied in bundles or in paper bags separate from newspapers.

## Pick-Up Schedule

### How often you should set out your recyclables

You probably will not need to put out all bins every week. In fact, it is best to place bins out *only* when full.

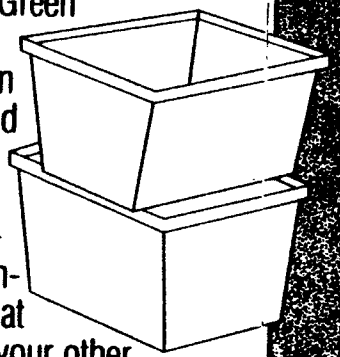
### Holidays

Curbside recycling service, like regular garbage pick-up, observes 2 holidays a year: New Year's Day and Christmas.

If you move from your current address, do not take the recycling bins with you. Before moving, you should arrange to have the bins picked up at your house by calling Green Valley Recycling at 354-2100. If you take the bins with you, you may be charged for their replacement.

## How you can participate in curbside recycling

We have provided you with a set of the **nestable/stackable** Curbside Recycling Bins. Please keep the bins in your garage or another secure area. They will provide a convenient way for you to store recyclables. The Green Valley Recycling truck will collect in your neighborhood every week on the same day as regular garbage pick-up. To recycle, simply place the bins at the curbside with your other recyclables on the morning of your collection in a place separate from your garbage and is clearly visible to the recycling driver. The Recycling truck may collect before the garbage truck in some neighborhoods, and after the garbage truck in others.



## Theft

If someone other than our special Green Valley Recycling driver picks up your recyclables or bins, please call 354-2100. If you witness the theft and are able to get a description of the person(s) and a license number of the vehicle, notify the police immediately. City ordinance prohibits the collection of these materials by anyone other than the City's designated contractor. The revenues from the sale of materials only partially offset the cost of this program.

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# CURBSIDE RECYCLABLES COLLECTION

GREEN VALLEY RECYCLING

Printed on recycled paper.

# SECTION 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.

Many landfills in the state have reached or are approaching capacity since the amount of municipal solid waste generated and disposed has increased. The Source Reduction and Recycling Element (SRRE) 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.

## 8.2 Objectives

The objectives of this component are to:

- identify and describe all existing solid waste disposal facilities used by the City;
- project the additional capacity that will be required for waste generation in a 15-year planning period; and
- identify and describe all facilities which may open or close in the short-to medium-term (one to ten years) future and their effect on disposal capacities in the jurisdiction.

## 8.3 Existing Permitted Solid Waste Disposal Facilities

### 8.3.1 Existing 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; 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 per cent, the Plan projected 24 years of remaining capacity. With a 25 per cent reduction in wastes landfilled by 1995 (the Plan's goal), the County had projected 32 years of remaining capacity.

### 8.3.2 Guadalupe Rubbish Disposal Site

The City of Monte Sereno has a 20-year (1983-2003) agreement with Guadalupe Rubbish Disposal Company for the disposal of its municipal solid wastes. The types and estimated quantities to be disposed are listed in Section 2 Waste Generation Study.

The Guadalupe Landfill is owned and operated by Guadalupe Rubbish Disposal Company, Inc. The site was opened in 1931 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 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 (approximately 396,562 cubic yards) of waste in the 1990 calendar year. The input tonnage is converted to in-place cubic yards by using a compaction factor of 1,200 pounds per cubic yard and a refuse to cover ratio of 6 to 1. As of January 1992, public disposal fees were $7.00 per cubic yard, with a minimum charge of $9.00. Tipping fees as of January 1992 were $30.32 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) which is sold to PG&E.

Guadalupe's permitted capacity is 16.5 million cubic yards. As of January 1, 1991, the landfill had 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 prepared 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 (#77-153 - January 9, 1978); and
- County Land Use Permits (#13 P75.4 - February 18, 1977, and #3463-38-50-88P - June 2, 1988).

## 8.4 Disposal Capacity Needs Projection

The disposal facility capacity needs projection provides an estimate of the disposal capacity (in tons/year) that is needed to accommodate projected solid waste for a 15-year period commencing in 1991. 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.

In estimating waste generation for the 15-year period, the following factors should be considered:

- changes in population
- changes in residential, commercial, and industrial units
- import/export of waste

Additional capacity requirements for a 15-year planning period (1991-2006) are calculated using the following formula from Chapter 9, Section 18744 of the Integrated Waste Management Board's planning guidelines and procedures for preparing,

revising, and amending County-wide integrated waste management plans.

$$AC_n=[(G+I)-(D+TC+LF+E)]_n$$

where:

AC = Additional Capacity required in year n.

G = The amount of solid waste projected to be generated in the jurisdiction (from Waste Generation Study).

I = The amount of solid waste which is expected to be imported to the jurisdiction for disposal in permitted solid waste disposal facilities through interjurisdictional agreements(s) with other cities or counties, or through agreements with solid waste enterprises, as defined in Section 40193 of the Public Resources Code.

D = The amount diverted through successful implementation of proposed source reduction, recycling, and composting programs (from the Waste Generation Study and Integration Component.

TC = The amount of volume reduction occurring through available permitted transformation facilities.

LF = The amount of permitted solid waste disposal capacity, which is available for disposal in the jurisdiction, of solid waste generated in the jurisdiction.

E = The amount of solid waste generated in the jurisdiction that is exported to solid waste disposal facilities through interjurisdictional agreement(s) with other cities or counties, or through agreements with solid waste enterprises, as defined in Section 40193 of the Public Resources Code.

n = Each year of a 15-year period commencing in 1991 (iterative in one-year increments).

The results of the solid waste disposal facility needs projection are presented in Tables 8.1 and 8.2, both of which can be found at the end of this section. Table 8.1 indicates estimated disposal capacity needs without implementing any of the new programs proposed in the SRRE, while Table 8.2 incorporates the estimated quantities of wastes diverted as a result of the

proposed programs. These results indicate that the City will not require additional disposal capacity until 2003, at which time the City's disposal agreement with Guadalupe Landfill Rubbish Disposal Company will expire. The assumption that there is adequate disposal capacity is not contingent on the achievement of the AB 939 diversion goals.

## 8.5 Disposal Facility Phase-Out or Closure

As was noted in Section 8.3.2, the City has a disposal agreement with Guadalupe Rubbish Disposal Company (GRDC) which will expire in 2003. In order to secure the required additional capacity for each year after 2003, the City will either renew the disposal agreement with GRDC or enter into a new disposal agreement with a different operator.

## 8.6 Proposed Facility Improvement Activities

The following are some proposed facility improvement activities:

- Continue to pursue regional options with other jurisdictions.
- Require all new developments to provide adequate space in their site plans or building layouts for future diversion activities.

Table 8.1
Solid Waste Capacity Needs Evaluation for the City of Monte Sereno (without SRRE Implementation)

| Year (n) | Generation (G) | Import (I) | Divert (D) | Trans. (TC) | Landfill (LF) | Export (E) | Capacity Remaining (AC) |
|---|---|---|---|---|---|---|---|
| Jan. 1991 | | | | | | | 7,100,000 |
| 1991 | 4,148 | 0 | 1,030 | 0 | 0 | 3,118 | 7,096,882 |
| 1992 | 4,140 | 0 | 1,028 | 0 | 0 | 3,112 | 7,093,770 |
| 1993 | 4,132 | 0 | 1,026 | 0 | 0 | 3,106 | 7,090,664 |
| 1994 | 4,123 | 0 | 1,024 | 0 | 0 | 3,099 | 7,087,565 |
| 1995 | 4,115 | 0 | 1,022 | 0 | 0 | 3,093 | 7,084,472 |
| 1996 | 4,115 | 0 | 1,022 | 0 | 0 | 3,093 | 7,081,379 |
| 1997 | 4,115 | 0 | 1,022 | 0 | 0 | 3,093 | 7,078,286 |
| 1998 | 4,115 | 0 | 1,022 | 0 | 0 | 3,093 | 7,075,193 |
| 1999 | 4,115 | 0 | 1,022 | 0 | 0 | 3,093 | 7,072,100 |
| 2000 | 4,115 | 0 | 1,022 | 0 | 0 | 3,093 | 7,069,007 |
| 2001 | 4,123 | 0 | 1,024 | 0 | 0 | 3,099 | 7,065,908 |
| 2002 | 4,132 | 0 | 1,026 | 0 | 0 | 3,106 | 7,062,802 |
| 2003 | 4,140 | 0 | 1,028 | 0 | 0 | 3,112 | 7,059,690 |
| 2004 | 4,148 | 0 | 1,030 | 0 | 0 | 0 | 7,062,808 |
| 2005 | 4,156 | 0 | 1,032 | 0 | 0 | 0 | 7,065,932 |
| 2006 | 4,165 | 0 | 1,034 | 0 | 0 | 0 | 7,069,063 |

Table 8.2
Solid Waste Capacity Needs Evaluation for the City of Monte Sereno (with SRRE Implementation)

| Year (n) | Generation (G) | Import (I) | Divert (D) | Trans. (TC) | Landfill (LF) | Export (E) | Capacity Remaining (AC) |
|---|---|---|---|---|---|---|---|
| Jan. 1991 | | | | | | | 7,100,000 |
| 1991 | 4,148 | 0 | 1,030 | 0 | 0 | 3,118 | 7,096,882 |
| 1992 | 4,140 | 0 | 1,083 | 0 | 0 | 3,057 | 7,096,882 |
| 1993 | 4,132 | 0 | 1,136 | 0 | 0 | 2,996 | 7,096,882 |
| 1994 | 4,123 | 0 | 1,189 | 0 | 0 | 2,934 | 7,096,882 |
| 1995 | 4,115 | 0 | 1,295 | 0 | 0 | 2,820 | 7,096,882 |
| 1996 | 4,115 | 0 | 1,482 | 0 | 0 | 2,633 | 7,096,882 |
| 1997 | 4,115 | 0 | 1,669 | 0 | 0 | 2,446 | 7,096,882 |
| 1998 | 4,115 | 0 | 1,856 | 0 | 0 | 2,259 | 7,096,882 |
| 1999 | 4,115 | 0 | 2,044 | 0 | 0 | 2,071 | 7,096,882 |
| 2000 | 4,115 | 0 | 2,231 | 0 | 0 | 1,884 | 7,096,882 |
| 2001 | 4,123 | 0 | 2,235 | 0 | 0 | 1,888 | 7,096,882 |
| 2002 | 4,132 | 0 | 2,240 | 0 | 0 | 1,892 | 7,096,882 |
| 2003 | 4,140 | 0 | 2,244 | 0 | 0 | 1,896 | 7,096,882 |
| 2004 | 4,148 | 0 | 2,249 | 0 | 0 | 0 | 7,098,781 |
| 2005 | 4,156 | 0 | 2,253 | 0 | 0 | 0 | 7,100,684 |
| 2006 | 4,165 | 0 | 2,258 | 0 | 0 | 0 | 7,102,591 |

NOTES: All figures shown are expressed in tons.
There are no quantities shown in the "Import" column since the City of Monte Sereno's franchised wastes are exported to the Guadalupe Landfill, which is located in the City of San Jose.
Quantities shown in the 'Trans' column refer to wood wastes which were transformed, i.e., sold as biomass fuel.
The data shown was taken from the regional processor survey conducted in 1991 for the County of Santa Clara.
The figures shown in the 'Export' column refer to municipal solid waste hauled from Monte Sereno to Guadalupe Landfill under contract with Green Valley Disposal Company. No figures are shown in the "Export" column for the years 2004-2006 as they have been included in the "Additional Capacity Required" column, since Monte Sereno's disposal agreement will expire in 2003, and additional capacity will need to be secured for the 2004-2006 planning period.
There are no figures shown in the "Landfill" column, since the City of Monte Sereno has no permitted solid waste disposal facilities within its boundaries.
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## Section 9

## FUNDING COMPONENT

### 9.1 Introduction

AB 939 requires development and implementation of source reduction, recycling, and/or composting programs (referred to here as diversion programs). These programs generally have two features in common:

- They provide a reduced environmental impact compared to landfilling or transformation of wastes.
- They cost more in the short term than landfilling or transformation.

These programs will benefit current and future residents of the City by reducing the potential for ground and groundwater contamination and by preserving a scarce resource -- landfill space. It is only in the context of these benefits that the additional costs of source reduction, recycling, and composting can be economically justified. The California diversion objectives, 25 per cent by 1995 and 30 per cent by 2000, and the threat of $10,000-per day fines, make planning and implementation of these programs a practical necessity.

Waste collection and disposal fees in California have been relatively inexpensive compared to metropolitan areas around the country. In fact, the disposal fees in some areas are up to five times those in Santa Clara County. Many of these communities have experienced disposal costs that have increased significantly in the past five years. While adequate landfill space can mitigate these dramatic rate increases in Santa Clara County, it is reasonable to expect rapidly increasing rates for both garbage and diversion programs in the City due to increasingly stringent regulations and the public's concern about the environment. For these reasons, it is important that the waste management fees reflect the full costs of the services provided.

The purpose of this section is to provide:

- evidence of sufficient funding for program planning, development, implementation and monitoring;
- cost estimates for programs scheduled for implementation in the short-term planning period (by 1995);
- revenue sources sufficient to support component programs; and
- sources of contingency funding for component programs.

## 9.2 Current Funding Structure

The City's municipal code provides that rates for refuse collection shall be established by City Council resolution. The City has a 20-year (1983-2003) collection agreement with Green Valley Disposal Company (GVDC) for the right to collect solid waste generated by the residential sector, whether collected in frontloaders or debris boxes. Solid waste is transported to the Guadalupe Landfill, also under a 20-year agreement.

About 50 per cent of the flatland area residents are assessed a flat refuse rate, regardless of the amount of trash prepared for disposal by residents. All hill area residents have been assessed a variable can rate for several years. The rate structure combines all fees for solid waste-related services, including refuse collection and disposal, the current and planned residential recycling services, and the household hazardous waste collection and disposal program. GVDC bills all customers and routes payments (including the franchise fee) to the City, for deposit in the General Fund.

The local jurisdictions in Santa Clara County have tentatively agreed to a $1 per ton fee to be applied countywide; final agreement is anticipated in spring 1992. This fee would be charged on tons disposed at all landfills in the County and rebated to each local jurisdiction to pay for implementation of the City's Source Reduction and Recycling Element (SRRE). The City will continue to examine the advisability of using such a funding source to supplement or replace funding for implementation of AB 939 from refuse rates.

## 9.3 Program Cost Estimates

The estimated annual program costs are presented in Table 8.1, which can be found at the end of this section. All costs are in 1992 dollars. These estimated costs are preliminary and will continually be refined.

## 9.4 Revenue Sources

The City's refuse collection rate structure should be re-evaluated in FY 93-94 so that residential users receive clear and substantial economic incentives to reduce and recycle their solid waste. Volume-based user fees for refuse collection, combined with relatively lower fees for collection or source-separated yard wastes and recyclables, help to provide a direct economic incentive to reduce the amount of waste generated and to reuse and recycle as much as possible. Recycling services will continue to be initiated by negotiating agreements and user fees with the existing hauler or independent recycling companies.

While funding is not provided by AB 939, the regulations based on this law allow municipalities to levy fees (either directly on residents or passed through costs from the waste hauler) to pay all program costs. The City intends to make adjustments to its existing rate system to fund the implementation of the provisions of AB 939 and other applicable legislation. This approach can accommodate changing economic conditions, including unexpected developments.

## 9.5 Contingency Funding Sources

Contingency funding will allow for alternative collection strategies or processing arrangements with other jurisdictions. If contingency funding is needed to preserve the health and welfare of the City, the City Council has the authority to implement an emergency surcharge to existing rates.

Other potential sources of revenue include:

- grants issued under the Economic Development Allocation for the Community Development Block Grant Program (CDBG). CDBG monies from the state may be loaned by the local government to businesses to fund specific projects, such as a recycling program or business that uses or manufactures products made from recyclable materials.

  Other grant funding sources include those from the California Department of Conservation, Division of Recycling and from the California Integrated Waste Management Board (CIWMB). CIWMB funds are available for new or existing household hazardous waste management programs or from the California Department of Commerce, Office of Competitive Technology to fund technological projects that show promise for commercialization. In 1989, federal, public and private agencies and institutions were awarded 29 grants from over 240 applicants.

- loans and financing assistance are available from the California Pollution Control Financing Authority for manufacturing facilities that use recycled materials. Although there are no limitations for these loans, taxable funding is limited to the useful life of the project.

Table 9.1

Funds Required for Program Planning, Development and Implementation - City of Monte Sereno (figures expressed in dollars by fiscal year) Page 1 of 6

| Program | 91-92 | 92-93 | 93-94 | 94-95 | 95-96 |
|---|---|---|---|---|---|
| | | | | | |
| SOURCE REDUCTION | | | | | |
| Periodic surveys | | | | | |
| Planning | | 115 | 150 | 150 | 150 |
| Implementation | | 300 | 300 | 300 | 300 |
| Operation | | 650 | 650 | 650 | 650 |
| Monitoring | | 150 | 150 | 150 | 150 |
| | | | | | |
| Rate structure modifs. | | | | | |
| Planning (1) | | 730 | | | |
| Implementation (1) | | 1,825 | | | |
| Operation | | * | * | * | * |
| Monitoring (1) | | | 460 | 460 | 460 |
| | | | | | |
| Review mutli-juris. approach | | | | | |
| Planning | | 20 | 20 | 20 | 20 |
| Implementation | | | | | |
| Operation | | | | | |
| Monitoring | | | | | |
| | | | | | |
| Technical Asst. to HH | | | | | |
| Planning | | | 90 | 90 | 90 |
| Implementation | | | 20 | 20 | 20 |
| Operation | | | 55 | 55 | 55 |
| Monitoring | | | 45 | 45 | 45 |
| | | | | | |
| City procurement policy | | | | | |
| Planning | 45 | | | | |
| Implementation | 460 | | | | |
| Operation | | | | | |
| Monitoring | 45 | 45 | 45 | 45 | 45 |
| | | | | | |
| Non-procurement policies | | | | | |
| Planning | | | 45 | | |
| Implementation | | | 150 | | |
| Operation | 400 | | | | |
| Monitoring | | | 45 | 45 | 45 |
| | | | | | |
| Public recognition/awards | | | | | |
| Planning | | | | 10 | |
| Implementation | | | | 10 | |
| Operation | | | | 30 | 30 |
| Monitoring | | | | | |
| | | | | | |
| TOTALS | 950 | 3,835 | 2,225 | 2,080 | 2,060 |

(1) Costs reflect City Solid Waste Program staff time necessary to plan, implement and/or monitor program. Program operating costs will be included in the refuse collection rates.

* Operating cost to be included in refuse collection rates.

Table 9.1
Funds Required for Program Planning, Development and Implementation - City of Monte Sereno (figures expressed in dollars by fiscal year) Page 2 of 6

| Program | 91-92 | 92-93 | 93-94 | 94-95 | 95-96 |
|---|---|---|---|---|---|
| | | | | | |
| COMPOSTING | | | | | |
| Curbside Christmas Tree Coll. | | | | | |
| Planning | | | | | |
| Implementation | | | | | |
| Operation | | | * | * | * |
| Monitoring (1) | 10 | 10 | 10 | 10 | 10 |
| | | | | | |
| Encourage self-haul diversion | | | | | |
| Planning | | | | | |
| Implementation | | | | | |
| Operation | | | | | |
| Monitoring | | | 150 | 150 | 150 |
| | | | | | |
| Encourage compost facility | | | | | |
| Planning | | | 45 | 45 | 45 |
| Implementation | | | | | |
| Operation | | | | | |
| Monitoring | | | | | |
| | | | | | |
| Encourage countywide mktg. | | | | | |
| Planning | | | | 45 | 45 |
| Implementation | | | | | |
| Operation | | | | | |
| Monitoring | | | | | |
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| | | | | | |
| TOTALS | 10 | 10 | 205 | 250 | 250 |

(1) Costs reflect City Solid Waste Program staff time necessary to plan, implement and/or monitor program. Program operating costs will be included in the refuse collection rates.

* Operating cost to be included in refuse collection rates.

Table 9.1
Funds Required for Program Planning, Development and Implementation - City of Monte Sereno (figures expressed in dollars by fiscal year) Page 3 of 6

| Program | 91-92 | 92-93 | 93-94 | 94-95 | 95-96 |
|---|---|---|---|---|---|
| | | | | | |
| SPECIAL WASTE | | | | | |
| Cont. disposal of Spec. Wsts. | | | | | |
| Planning | | | | | |
| Implementation | | | | | |
| Operation | | | | | |
| Monitoring (1) | | 25 | 150 | 150 | 150 |
| | | | | | |
| Continue diversion of tires | | | | | |
| Planning | | | | | |
| Implementation | | | | | |
| Operation | | | | | |
| Monitoring (1) | | 25 | 150 | 150 | 150 |
| | | | | | |
| Cont. white goods processing | | | | | |
| Planning | | | | | |
| Implementation | | | | | |
| Operation | | | | | |
| Monitoring (1) | | 25 | 150 | 150 | 150 |
| | | | | | |
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| TOTALS | 0 | 75 | 450 | 450 | 450 |

(1) Costs reflect City Solid Waste Program staff time necessary to plan, implement and/or monitor program. Program operating costs will be included in the refuse collection rates.

Table 9.1
Funds Required for Program Planning, Development and Implementation - City of Monte Sereno (figures expressed in dollars by fiscal year) Page 4 of 6

| Program | 91-92 | 92-93 | 93-94 | 94-95 | 95-96 |
|---|---|---|---|---|---|
| | | | | | |
| PUBLIC EDUCATION | | | | | |
| Expand existing education | | | | | |
| Planning | | | | | |
| Implementation | | 45 | | | |
| Operation | | 45 | 150 | 150 | 150 |
| Monitoring | | | | | |
| | | | | | |
| Assist in distr.of school mater. | | | | | |
| Planning | | | 20 | 20 | 20 |
| Implementation | | | | | |
| Operation | | | | | |
| Monitoring | | | | | |
| | | | | | |
| Option for constr/demo debris | | | | | |
| Planning | | | | 90 | |
| Implementation | | | | | 150 |
| Operation | | | | | |
| Monitoring | | | | | |
| | | | | | |
| Compost brochures | | | | | |
| Planning | | | 55 | | |
| Implementation | | | 40 | | |
| Operation | | | 60 | 60 | 60 |
| Monitoring | | | | | |
| | | | | | |
| General Activity brochures | | | | | |
| Planning | | | | | |
| Implementation | | | | | |
| Operation | | | 90 | 90 | 90 |
| Monitoring | | | | | |
| | | | | | |
| Directory of reuse organization | | | | | |
| Planning | | | 30 | | |
| Implementation | | | 20 | | |
| Operation | | | 45 | 45 | 45 |
| Monitoring | | | | | |
| | | | | | |
| Special waste guide | | | | | |
| Planning | | | 40 | | |
| Implementation | | | 40 | | |
| Operation | | | | 10 | 10 |
| Monitoring | | | | | |
| TOTALS | 0 | 90 | 590 | 465 | 525 |

Table 9.1

Funds Required for Program Planning, Development and Implementation - City of Monte Sereno (figures expressed in dollars by fiscal year) Page 5 of 6

| Program | 91-92 | 92-93 | 93-94 | 94-95 | 95-96 |
|---|---|---|---|---|---|
| | | | | | |
| RECYCLING | | | | | |
| Incr. particip. in curbside | | | | | |
| Planning | | | | | |
| Implementation | | | | | |
| Operation | | | | | |
| Monitoring | | 180 | 500 | 500 | 500 |
| | | | | | |
| Eval. regulatory approaches | | | | | |
| Planning | | | | 90 | 90 |
| Implementation | | | | | |
| Operation | | | | | |
| Monitoring | | | | | |
| | | | | | |
| Continue City office recycling | | | | | |
| Planning | 10 | 45 | | | |
| Implementation | | 45 | 90 | 90 | 90 |
| Operation | | | 45 | 45 | 45 |
| Monitoring | | | 90 | 90 | 90 |
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| | | | | | |
| TOTALS | 10 | 270 | 725 | 815 | 815 |
| GRAND TOTAL | 970 | 4,280 | 4,195 | 4,060 | 4,100 |

FUND MS.WQ1

# SECTION 10

## INTEGRATION COMPONENT

### 10.1 Introduction

A jurisdiction must integrate source reduction, recycling, composting and special wastes programs and activities to achieve the diversion requirements mandated by AB 939. These components must also be integrated as necessary so that solid waste management follows the integrated waste management hierarchy of (1) source reduction, (2) recycling and composting, and (3) environmentally safe transformation and disposal.

This component contains a description of the solid waste management practices that promote integrated waste management in the City of Monte Sereno, and an explanation of how the City has integrated the source reduction, recycling, composting, and special wastes components. In addition, this component summarizes how the 25 per cent and 50 per cent diversion mandates will be achieved, and how priorities were established between the components consistent with the requirements of AB 939. This component also contains a schedule which combines the various implementation schedules provided in the source reduction, recycling, composting, special wastes and public education components.

### 10.2 Integrated Solid Waste Management Practices

The solid waste management practices described in the source reduction, recycling, composting, and special wastes components of this document (Sections 3 through 6), which are to be continued, expanded or implemented in the City, are designed to comply with the integrated waste management hierarchy established by AB 939. Consistent with this hierarchy, the City will promote source reduction activities targeted at decreasing the amount of solid wastes being generated in the City. For wastes that continue to be generated in the City, recycling and composting programs will contribute to diverting wastes from disposal to the extent feasible. For wastes that cannot be diverted, the City will ensure that they are transformed or landfilled in an environmentally safe manner.

### 10.3 Component Integration

The source reduction, recycling, composting and special wastes components have been integrated so that the programs selected for implementation from each component achieve their maximum potential. Initially, mutually exclusive objectives and target materials for each component were developed to prevent overlapping or duplication of activities or programs selected for

one component with those of another component. The objectives and target materials identified for each component also do not duplicate the existing source reduction, recycling, and composting activities in the City. With its focus on mutually exclusive programs and activities, the City's SRRE maximizes the use of all feasible source reduction, recycling and composting options.

Public education and information, and funding for source reduction, recycling, and composting activities and programs will be integrated for time efficiency and cost effectiveness. Staff time required for public education and information will be shared among the components. All funding requirements will be by obtained from the General Fund.

## 10.4 Compliance with Diversion Mandates

The City currently diverts approximately 24.83 per cent of the solid waste generated in the City from disposal through existing diversion programs. The source reduction, recycling, composting, and special wastes activities and programs selected for implementation are designed to achieve the diversion mandates in AB 939 in coordination with existing (and planned expansions of existing) diversion programs.

Table 10.1, which is located at the end of this section, summarizes the City's integration components and their corresponding diversion targets for the short-term planning period.

The per cent of the waste stream estimated to be diverted remains constant for source reduction since, as was explained in Section 3, future source reduction efforts are difficult to quantify at this time. The estimated diversion rates as a result of the programs described in the recycling and composting components assume the balance of the diversion rates shown.

## 10.5 Component Priorities

Some materials in the waste stream may be diverted from land disposal by a variety of methods. Yard waste, for example, is a targeted material that may be diverted from landfilling by composting at home, as well as residential curbside collection.

In developing the City's SRRE, priorities had to be set among the components in those instances with various available diversion options. Prioritizing among the specific components and programs

or activities for each targeted material was based on several regulatory, technical, institutional and economic considerations. These included:

- location of the activity or program in the integrated waste management hierarchy;
- effectiveness in reducing the volume, weight, or hazard of the targeted wastes;
- consistency with existing waste management practices; and
- cost effectiveness and ease of implementation.

Based on these criteria, the components of the City's SRRE were prioritized to effectively achieve the mandated diversion goals of 25 per cent by 1995 and 50 per cent by 2000.

## 10.6 Integrated Schedule

The schedule that integrates the various programs proposed in each of the several components for the short-term planning period is presented in Table 10.2. The table includes all implementation tasks for new and expanded programs and identifies the agency responsible for implementation, task and milestone dates, and the target date for achieving the diversion. Unless otherwise indicated in the table, the City of Monte Sereno is the responsible agency.

**Table 10.2 Summary of Component Timelines**

**Source Reduction Implementation Timeline**

| Task | Implementation Date |
|---|---|
| **Technical Assistance, Education and Promotion** | |
| Conduct periodic surveys to assist in quantifying the effectiveness of various activities, eg: home composting, use of cloth diapers | Jan-Mar 1993 |
| Review/expand current multi-jurisdictional approaches, such as public education and technical assistance | July-Sep 1993 |
| Develop technical assistance program for consumers/homeowners | July-Sep 1993 |
| Develop or participate in programs to provide public recognition and awards to individuals or organizations who implement source reduction activities | Apr-June 1995 |
| **Regulatory Programs** | |
| Continue the City procurement policy and procedure to encourage source reduction through purchasing decisions | On-going |
| Continue non-procurement activities aimed at source reduction throughout City offices | On-going |
| Adopt Model Water Efficient Landscape Ordinance | Apr-June 1993 |
| **Rate Structure Modifications** | |
| Implement a variable can rate structure for flatland-area residents | Apr-June 1994 |

## Table 10.2 Summary of Component Timelines

### Recycling Implementation Timeline

| Task | Implementation Date |
|---|---|
| **Residential** | |
| Increase participation and recovery rates in residential curbside collection program | Oct-Dec 1992 |
| **Residential and Non-residential** | |
| Continue City-sponsored programs throughout City offices and operations | On-going |
| Continue City procurement policy | On-going |
| Review/expand multi-jurisdictional approaches, such as public education and technical assistance | Oct-Dec 1992 |
| Evaluate a program of regulatory approaches, such as zoning, building code, and land use requirements to promote recycling activities | July-Sep 1993 |
| Implement rate structure modifications for the entire residential sector | Apr-June 1994 |

## Table 10.2 Summary of Component Timelines

### Composting Implementation Timeline

| Task | Implementation Date |
|---|---|
| **Collection** | |
| Continue residential curbside collection of Christmas trees until this service is incorporated into a residential yard waste collection program (FY 96-97) | On-going |
| **Processing** | |
| Encourage landfill operators to expand the debris box diversion program for wood wastes, including self-haulers and debris boxes | July-Sep 1993 |
| Encourage a regional composting facility | July-Sep 1993 |
| **Marketing** | |
| Encourage a countywide marketing program for the distribution of end-products | July-Sep 1993 |

## Table 10.2 Summary of Component Timelines

### Special Wastes Implementation Timeline

| Task | Implementation Date |
|---|---|
| **Continue disposal of Special Wastes, including:** | On-going |
| Sewage sludge; the City of San Jose is the responsible agency | |
| Ash; only Class III landfills may accept for disposal | |
| Asbestos; Class III landfill disposal | |
| Abandoned vehicles; removed by private, City-contracted towing companies and sold to salvaging operations | |
| Dead animals; responsible parties include Santa Clara County Animal Control Department, a County contract with a private firm, and animal owners | |
| **Continue diversion of tires**; responsible parties include the landfill operator and the City | On-going |
| **Continue white goods processing**; responsible parties include the waste hauler, landfill operator and the City | On-going |

## Table 10.2 Summary of Component Timelines

### Education and Public Information Implementation Timeline

| Activity/Task | Implementation Date |
|---|---|
| **General** | |
| Expand existing education that addresses solid waste management in general | Oct-Dec 1992 |
| Assist in development and distribution of educational materials for schools | Apr-June 1993 |
| Prepare and distribute materials describing options for disposal of construction and demolition debris | July-Sep 1994 |
| **Source Reduction Program** | |
| Prepare/print home compost brochures | July-Sep 1993 |
| Purchase prepared activities brochures | July-Sep 1993 |
| Prepare directory of reuse/repair businesses | Oct-Dec 1993 |
| Prepare special waste disposal guide | Jan-Mar 1994 |

## Appendix A

## EVALUATION APPROACH

### Evaluation Criteria

The Planning Guidelines and Procedures for Preparing and Revising Countywide Integrated Waste Management Plans, Section 18733.3, Chapter 9, Division 7, Title 14, California Code of Regulations, requires certain criteria to be used in evaluating alternative programs for source reduction, recycling, composting, and special wastes. The following evaluation methodology was developed by Emcon Associates. All criteria have been assigned a scale of high, medium, and low, with high being positive.

The following criteria, required by the Planning Guidelines, and reworded so that all are viewed in the positive, are used for evaluating alternative programs for source reduction, recycling, composting, and special wastes.

### 1. Waste Diversion Potential

Waste Diversion Potential is the estimated percentage of the total waste stream by weight that the alternative reduces or diverts waste, as allowable under AB 939, from disposal. This is a measure of the alternative's diversion effectiveness.

| | |
|---|---|
| Low: | 0 - 3 per cent |
| Medium: | 3 - 7 per cent |
| High: | 7 per cent |

### 2. Absence of Hazard

Absence of Hazard reflects the extent to which hazards could impact the alternative. Hazards could include health risks, injury, fire, or others identified for the alternative.

| | |
|---|---|
| Low: | Potential hazards are not completely understood, or the alternative increases the potential hazards. |
| Medium: | Potential hazards are known and controllable. Some impacts remain. |
| High: | There are few or no potential hazards or unmitigated impacts. |

### 3. Ability to Accommodate Change

Ability to Accommodate Change measures the alternative's ability to accommodate changing economic, technological, and social conditions.

Low: The alternative has a limited ability to respond to changing conditions. Limitations may include inflexible or unpredictable markets for diverted materials, operational limitations, or others identified for the alternative.

Medium: The alternative is anticipated to demonstrate a moderate ability to respond to changing conditions. Significant changes in the program may be required.

High: The alternative is anticipated to be readily adaptable in meeting changing conditions. No significant changes in the program are necessary.

**4. Consequences to the Waste Stream**

Limited Shift in Waste Type Generation measures the alternative's ability to limit the consequences of diversion on the characterized waste, such as shifting solid waste generation from one type of solid waste to another.

Low: The alternative would significantly shift solid waste production to the generation of non-recyclable, unmarketable, or uncountable (under AB 939) materials.

Medium: The alternative would result in the creation of little non-recyclable, unmarketable, or uncountable (under AB 939) wastes.

High: The alternative would result in the creation of no non-recyclable, unmarketable, or uncountable (under AB 939) wastes, or may shift waste production to the generation of recyclable or compostable wastes or new markets.

**5. Ease of Implementation**

Ease of Implementation measures the extent to which the alternative can be relatively quickly implemented, i.e. whether it can be implemented in the short-term or medium-term planning periods.

Low: Implementation of the alternative could not be completed until after 2000.

Medium: Implementation of the alternative is anticipated to be completed by 2000.

High: Implementation of the alternative is anticipated to be completed by 1995.

**6. Facility Needs**

Facility Needs measures the need for expanding existing facilities or building new facilities to support the implementation of the alternative.

Low: New facilities must be developed to accommodate implementation of the alternative.

Medium: Existing facilities must be expanded or altered to accommodate implementation of the alternative.

High: The alternative can be easily integrated into existing facilities.

**7. Consistency with Local Policies**

Consistency with Local Policies measures the alternative's compatibility with existing local plans, policies, and ordinances.

Low: The alternative would require major changes to existing local plans, policies, or ordinances for implementation.

Medium: The alternative would require minor changes to existing local plans, policies, or ordinances for implementation.

High: There are no existing local plans, policies, or ordinances that would impede the implementation of the alternative.

**8. Absence of Institutional Barriers**

Absence of Institutional Barriers evaluates the extent to which institutional barriers, such as long-term franchise agreements or other contracts, may impact the implementation of the alternative.

Low: The alternative is impacted by existing institutional barriers which are not under the control of the jurisdiction.

Medium: The alternative is impacted by existing institutional barriers over which the jurisdiction maintains some control.

High: There are no existing institutional barriers to the alternative.

**9. Estimated Cost**

Estimated Cost is the estimated cost of the alternative, including capital costs and operating costs over the lifetime of the alternative. This may also be presented by a range of costs.

Low: > $200,000

Medium: $50,000 - 200,000

High: $0 - 50,000

**10. End Uses**

End Uses measures the short-term marketability of the diverted materials.

Low: End uses are currently non-existent or unreliable, though the potential for the development of long-term or medium-term markets may exist.

Medium: End uses exist, but are subject to moderate fluctuations. The potential for the development of short-term markets may exist.

High: Existing end uses are relatively stable.

**Ranking System**

A numerical system has been developed for the evaluation criteria with points assigned as follows:

- high 3 points
- medium 2 points
- low 1 point

In addition, all criteria include a fatal flaw consideration. A fatal flaw is indicated by a zero. Any alternative with a fatal flaw is eliminated from consideration and does not receive a total point score. The fatal flaw designation was developed to prevent the possibility of an infeasible alternative from being selected due to its overall point score.

A weighting factor is applied to each evaluation criterion and

multiplied by the assigned points. The total points are then summed for each alternative and the results analyzed. Working with City staff, the alternatives are selected for implementation based on the ranking system results and professional judgement.

SRRE-EVL.APP

# PART I

## CHAPTER I

## OVERVIEW OF HOUSEHOLD HAZARDOUS WASTE PROBLEM

Hazardous substances are prevalent in modern society, not only in the commercial and industrial sectors, but in the residential sectors as well. Hazardous substances can be found throughout the home, garage, garden, and hobby shop as constituents in such products as cleaners, paints, pesticides and glue. Once these products are no longer needed by the consumer, the unused portion is considered household hazardous waste (HHW). Improper disposal of HHW can pose a risk to human health and the environment and thus requires special handling.

A substance is classified as a hazardous waste by the Department of Health Services (DHS), California Code of Regulations (CCR) Title 22, if it demonstrates one of the following characteristics:

- ignitability - flammable (e.g., lighter fluid, spot and paint removers);
- corrosivity - eats away materials and can destroy human and animal tissue by chemical action (e.g., oven and toilet bowl cleaners);
- reactivity - creates an explosion or produces deadly vapors (e.g., bleach mixed with ammonia-based cleaners); and
- toxicity - capable of producing injury, illness, or damage to humans, domestic livestock, or wildlife through ingestion, inhalation, or absorption through any body surface (rat poison, cleaning fluids, pesticides, bleach).

Until the early 1980's, city- and county-sponsored programs to properly manage HHW were virtually non-existent, thereby resulting in wastes being disposed in the garbage, down the sewer, into storm drains, or directly onto the ground. The improper disposal of hazardous wastes can result in contamination of ground and surface water and potentially hazardous leachate migration from solid waste landfills.

In response to the growing public awareness of the HHW issue, the City began offering in 1990 one-day collection programs for these wastes. The Cities of Monte Sereno, Campbell and Saratoga, and the Town of Los Gatos jointly participated in a March 10, 1990, collection event. The City of Campbell hosted the event.

The City is currently participating in the development and implementation of a new, countywide pilot HHW management effort aimed at providing ongoing, convenient and cost-effective collection services and public education for all residents.

# CHAPTER 2

# INTRODUCTION TO DRAFT HHW ELEMENT

## HOUSEHOLD HAZARDOUS WASTE ELEMENT REQUIREMENTS

Assembly Bill 2707 requires that each city and the County for the unincorporated area characterize and quantify its HHW stream and develop plans for safe collection, recycling, treatment, and disposal of hazardous wastes generated by its households. An AB 2707 Household Hazardous Waste Element must be submitted to the County by each city and the County for the unincorporated area by July 1, 1991.

The County of Santa Clara Solid Waste Program staff anticipates that it will submit the city and unincorporated area HHW Elements to the California Integrated Waste Management Board (CIWMB) in 1994. The CIWMB will review each HHW Element no less frequently than every two years. If the Board finds that the city or county has failed to implement its Elements, the Board shall issue an order of compliance with a specific schedule for achieving compliance.

In Santa Clara County, a number of cities and the County for the unincorporated area have already agreed upon HHW management goals and have developed plans for a pilot multi-jurisdictional HHW collection and source reduction system. However, the California Integrated Waste Management Board (CIWMB) requires that each city and County for the unincorporated area provide its own AB 2707 Household Hazardous Waste Element.

## HHW PLANNING EFFORTS IN SANTA CLARA COUNTY

### BACKGROUND

With nearly 1.5 million residents, Santa Clara County ranks first in the Bay Area and fourth in California in terms of population according to the Association of Bay Area Governments. The county covers 1,320 square miles, making it the second largest county in the San Francisco Bay Area. It is a diverse county encompassing both highly urbanized as well as rural-agricultural areas. The county has experienced rapid population growth since the 1950's, with corresponding growth in solid waste and household hazardous waste generation.

Located at the southern end of the San Francisco Bay, Santa Clara County has a number of landfills located in close proximity to the Bay and wetland ecosystems. This, coupled with the fact that

groundwater supplies 50 per cent of the drinking water in Santa Clara County, requires that special measures be taken to protect the environment and groundwater by keeping hazardous waste out of landfills.

Household hazardous waste is generated in almost all homes, and until recently, residents have not had access to proper disposal options for this waste on an ongoing basis. As a result, HHW may be improperly disposed in sanitary landfills.

Santa Clara County cities have been in the forefront in California and the nation in developing HHW management programs. Cities have sponsored one- or two-day HHW collection events and have set up curbside motor oil collection programs for their residents. Some cities sponsor additional HHW disposal programs at their drop-off recycling centers. Cities and non-profit organizations have developed and distributed educational materials that alert residents to the proper disposal methods for HHW and suggest alternatives to household products that generate hazardous waste.

The County has co-sponsored collection events for the unincorporated area with neighboring cities. Reciprocal agreements that allow participation in another jurisdiction's events have been utilized on a limited basis.

The success of past HHW programs has resulted in an increasing demand for services. However, because of the limited number of one- or two-day HHW events available in most jurisdictions, the hazardous waste disposal needs of many county residents have not been fully met. This is an acute problem for those with immediate disposal needs, such as residents who are moving.

This increasing demand, together with rising costs of HHW collection and disposal, led a number of local jurisdictions to the conclusion that one- or two-day collection events alone do not offer a viable solution for meeting future needs. Additionally, there was a recognition that the problems associated with improper disposal of HHW are a regional issue and may require regional solutions.

The Household Hazardous Waste Working Group of the Santa Clara County Tanner Advisory Committee developed a set of goals for management of household hazardous waste in the county. The Working Group is composed of household hazardous waste program coordinators from cities; County hazardous waste, solid waste, and environmental health staff; private and solid waste contractors; and community advisory members. The Working Group developed the following HHW goals for the county.

**Tanner Plan Household Hazardous Waste Goals**

- Keep household hazardous waste out of landfills; sanitary and storms sewers; and waterways;
- Reduce potential adverse effects of household hazardous waste on public health and safety;
- Prevent harmful exposures in the home and environment through coordinated public education; and
- Provide services to all residents in the county.

The Working Group determined that while most jurisdictions hold one-day collection events, a number of unmet needs remain in the county.

**Unmet Needs**

- Access to household hazardous waste collection on an "immediate need" basis (residents who are moving or otherwise need to dispose of materials rapidly);
- Access to ongoing collection centers; and
- Public education materials and programs that are consistent for all jurisdictions in the county.

These conclusions are echoed in the County's Hazardous Waste Management Plan (Tanner Plan) of 1989 which states that:

> "The County and cities shall coordinate the development of a program for the proper management and disposal of household hazardous waste on a countywide basis in accordance with the waste management hierarchy and considering existing programs and conditions."

Under direction of staff to the Tanner Committee, a HHW Working Group began a planning effort to examine alternative program models and determine equitable and efficient methods of countywide service delivery. During the planning process, the group concluded that a countywide program might be more cost effective and provide greater access to service for county residents.

## COUNTYWIDE HHW COLLECTION SYSTEM

The Working Group recommended a HHW program to provide service via a mobile collection unit, with a permanent HHW facility to be

added in the near future. The mobile unit will be located at neighborhood collection sites identified by the city HHW coordinators and will move to new locations throughout the county on a rotational basis. Residents of any participating jurisdiction will be eligible to use the mobile unit on an appointment-only basis at any of its scheduled stops throughout the county.

The mobile collection unit is expected to consist of a specially equipped vehicle and/or trailer, a portable chain link fence for security, and canopies to protect workers from the weather. The vehicle could contain an electric generator, a water system, as well as emergency and personal protective equipment and a small lab. A mobile trailer may provide storage space for supplies and equipment needed to conduct the mobile collections. The mobile unit would operate on an appointment basis.

The County Division of Environmental Health Services will serve as the lead agency for the administration and implementation of the countywide HHW program. Hazardous materials specialists and environmental health specialists will be utilized for development and initial implementation of the collection program. Health Department in-house support services include an industrial hygienist, a toxicologist, and a chemist. A public health laboratory will be available to augment to the on-site chemical identification kits used for identifying unlabeled wastes. Health Department staff will contract for transportation and disposal of the waste in compliance with federal, state, and local regulations.

The County Department of Planning and Development will serve as the lead agency for public education efforts. The Planning Department will coordinate with other agencies to maximize use of available resources and avoid duplication in the development of educational materials and programs. Educational projects will emphasize not only safe disposal practices, but also reduction in the use of potentially hazardous products.

A permanent HHW collection site is planned to begin operation in the near future. The permanent site will provide additional collection services and support the mobile collection program, by allowing expanded storage capabilities for more efficient consolidation of wastes prior to disposal. This may result in lower per unit disposal costs as well as additional opportunities to separate materials for reuse, treatment, or recycling. The permanent facility could also support a door-to-door HHW pickup service for elderly and disabled residents.

**PARTICIPANTS**

Thirteen jurisdictions are currently planning to participate in the countywide pilot HHW program:

| | |
|---|---|
| City of Campbell | City of Cupertino |
| City of Los Altos | Town of Los Altos Hills |
| Town of Los Gatos | City of Milpitas |
| City of Monte Sereno | City of Mountain View |
| City of San Jose | City of Santa Clara |
| City of Saratoga | City of Sunnyvale |
| County for the Unincorporated Area | |

The countywide pilot HHW Program began collection in late-1991. Some participating cities may rely entirely upon the countywide program for collection of HHW. Other cities plan to use the countywide program to augment existing HHW programs such as periodic drop-off events and curbside oil collection programs.

While the countywide HHW Program will be operated as a pilot project in its first year, it is anticipated that it will continue into the short-term (1991-1995) and medium-term (1996-2000) planning periods. At the end of the first year of operation, the program will be evaluated. Participating cities will decide if and to what extent they wish to continue participation in the countywide HHW program. Cities not currently participating in the pilot program in 1991-1992 may decide to join the countywide HHW Program at some later date.

# PART II

# HOUSEHOLD HAZARDOUS WASTE ELEMENT

## CHAPTER 1

## GOALS

Improper disposal of household hazardous waste will be reduced or eliminated in the City in the short-term and medium-term planning periods. Generation of household hazardous waste will be reduced through source reduction efforts. Household hazardous waste generated by residents will be safely collected, recycled, treated, or disposed.

## OBJECTIVES

### 1.1 OBJECTIVES FOR SHORT-TERM PLANNING PERIOD (1991-1995)

**OBJECTIVE #1 PROVIDE RESIDENTS ACCESS TO CONVENIENT HOUSEHOLD HAZARDOUS WASTE COLLECTION SERVICES.**

Mobile Collection Unit

The City plans to participate in the countywide HHW Program which will provide the residents with year round collection services. The mobile unit will operate one to two times per year in close proximity to most residents. In addition, residents in need of immediate disposal services can deliver their HHW, by appointment, to the mobile collection unit at any location in the county.

Telephone Appointment and Information Telephone Service

The countywide HHW Program will initially operate on an appointment-only basis. The County Division of Environmental Health Services will operate the telephone appointment and information line for the mobile collection unit and the permanent HHW facility.

Potential participants will be screened before establishing an appointment. The rationale for this procedure is to reserve the appointments for residents with larger amounts and/or more toxic wastes. Residents with small amounts of materials may be advised to use it up, or place it at the curb for collection with other recyclables (eg: used motor oil). Those with recyclable materials may be directed to HHW recycling drop-off centers.

Permanent Facility

The City intends to participate in the countywide HHW Program plan to develop and operate a permanent HHW collection facility in addition to the mobile collection unit.

**OBJECTIVE #2 CONTINUE CURBSIDE MOTOR OIL COLLECTION PROGRAMS, TO THE MAXIMUM EXTENT POSSIBLE, TO INCLUDE ALL SINGLE FAMILY DWELLINGS IN THE CITY**

Expand Collection

The existing curbside motor oil collection program began in February 1990 via contract with Green Valley Disposal Company, and serves all dwelling units. The City has only single-family units; no multi-family dwelling units are anticipated.

Increase Participation

In areas where participation is low, special publicity and educational efforts will be conducted to increase the percentage of residents using the curbside motor oil collection service and/or drop-off locations.

**OBJECTIVE #3 MINIMIZE DISPOSAL OF COLLECTED HHW THROUGH DISTRIBUTION OF REUSABLE MATERIALS AND HHW RECYCLING**

Distribution to Agencies and Municipal Departments

When practical, usable materials such as paint and automotive maintenance products will be offered to non-profit agencies, and city and county departments.

Distribution at Collection Events

When practical, reuse tables will be operated at HHW collections events to allow residents to select usable products.

Recycling

To the maximum extent possible, HHW such as paint, motor oil, and automotive batteries will be separated from incoming waste and sent away for recycling.

**OBJECTIVE #4 IMPROVE MONITORING AND EVALUATION OF HHW PROGRAMS**

The City intends to participate in the development of countywide standardized methods for measuring collected HHW.

**OBJECTIVE #5 LIMIT IMPROPER DISPOSAL OF HAZARDOUS WASTE AT SOLID WASTE LANDFILLS BY CONTINUING STATE-MANDATED HAZARDOUS WASTE EXCLUSION PROGRAMS**

Load Checking, Sign Posting, Training, and Customer Notification

Incoming solid waste at Guadalupe Landfill, which serves the City, will be monitored by load checking programs under the oversight of County Environmental Health, the local enforcement agency, as required by the Regional Water Quality Control Board. Landfill operators will carry out required sign posting, employee training and customer notification regarding the prohibition of HHW from landfill disposal.

**OBJECTIVE #6 INCREASE EFFICIENCY AND EFFECTIVENESS OF HHW COLLECTION SERVICES AND PUBLIC EDUCATION BY COORDINATING PROGRAMS WITH OTHER JURISDICTIONS AND AGENCIES WHENEVER FEASIBLE**

HHW Management in Santa Clara County

The Cities of Campbell, Cupertino, Los Altos, Milpitas, Monte Sereno, Mountain View, Sunnyvale, San Jose, Santa Clara, Saratoga, the Towns of Los Altos Hills and Los Gatos, and the County for the Unincorporated area, County Hazardous Waste Management Program, County Environmental Health Services, and the County Solid Waste Program intend to participate in cooperative HHW management efforts. The Nonpoint Source Pollution Control Program, the waste water treatment plants, community advisory persons, schools, and non-profit organizations will be included in this multi-jurisdictional effort.

**OBJECTIVE #7 DECREASE POTENTIAL SHORT- AND LONG-TERM LIABILITY RISKS BY MONITORING ENVIRONMENTAL COMPLIANCE RECORDS AND PROOF OF INSURANCE OF CONTRACT WASTE HAULERS AND CONTRACT TREATMENT, STORAGE AND DISPOSAL FACILITIES**

Environmental Compliance

The past three years' environmental compliance records of all hazardous waste contractors will be examined by the Department of Environmental Health Services.

On-Site Audits

Audits of facilities under consideration will be conducted by Environmental Health Services to confirm safe waste management methods.

Liability Insurance

Proof of adequate liability insurance will be required and be kept on file.

The verification of environmental compliance will be done by the Santa Clara County Department of Environmental Health Services.

**OBJECTIVE #8 INCREASE SOURCE REDUCTION OPTIONS FOR RESIDENTS BY SUPPORTING LEGISLATIVE EFFORTS AIMED AT PROMOTING DEVELOPMENT OF SAFER PRODUCTS AND SAFER HHW MANAGEMENT METHODS**

Legislative Efforts

The City will initiate, endorse and support efforts to require manufacturers to market less hazardous or non-hazardous products. Increased recycling options for household hazardous wastes may also be encouraged through the support of legislation.

## 1.2 OBJECTIVES FOR MEDIUM-TERM PLANNING PERIOD

Landfill disposal of household hazardous waste will be further reduced or eliminated in the City in the medium-term planning period (1996-2000) by achievement of the following objectives:

**OBJECTIVE #1 CONTINUE THE OBJECTIVES DEVELOPED FOR THE SHORT-TERM PLANNING PERIOD INTO THE MEDIUM-TERM PLANNING PERIOD**

**OBJECTIVE #2 INCREASE SOURCE REDUCTION EFFORTS**

## 1.3 TARGETED AND EXCLUDED MATERIALS

Household materials that have the characteristics of hazardous waste, as defined by Section 25117 of the Health and Safety Code, have been targeted for collection by the City. See Attachment 1 for Section 25117 of the Health and Safety Code.

Several types of materials are excluded from HHW collection programs due to potential hazards to the public and collection program staff. Ammunition and explosives will not be accepted. Residents who request disposal services for ammunition or explosives will be referred to the police or fire department. Compressed gas cylinders; i.e., propane tanks, over 20 lbs., will not be accepted. Residents will be referred to dealers for disposal of gas cylinders.

Medical wastes will not be accepted. Residents requesting disposal services for medical wastes will be advised of proper disposal methods for specific types of waste materials. Radioactive waste will not be accepted. Smoke alarms, the common household product containing radioactive materials, is considered "Below Regulatory Concern" and may be discarded with household solid waste.

# CHAPTER 2

# EXISTING HHW CONDITIONS

## 2.1 QUANTITY OF HOUSEHOLD HAZARDOUS WASTE GENERATED BY THE CITY

The 1991 waste characterization study conducted at the Guadalupe Landfill indicated that 2,249 tons of residential waste were generated in that year. The study also indicated that 0.4 per cent of the City's residential waste stream was identified as HHW and that the entire estimated quantity (10 tons) of HHW were reported as diverted. These quantities reported as diverted were obtained from surveys which were conducted and are described in Section 2 Waste Generation Studies of the Source Reduction and Recycling Element.

In 1990, 2.3 tons of HHW was collected by City-sponsored HHW collection programs and the curbside oil collection service. This figure was derived by converting the amount of gallons or drums collected to pounds or tons. The following conversion methods were used for the calculations cited in this Element.

- 1 gallon of liquid (other than oil) = 8.6 lbs. (Source: Santa Clara County Department of Weights and Measures)
- 1 gallon of used motor oil = 7.6 lbs. (Sources: Santa Clara County Department of Weights and Measures, State Division of Measurement Standards, and Evergreen Oil, Inc.)
- 1 automotive battery = 34 lbs. (Source: County Environmental Health)
- 55 gallon drum of lab-packed wastes = 20 gallons of liquid (Source: County Hazardous Waste Management Program) 1 gallon of paint weighs about 8 lbs. (Source: Romic Chemical Corporation)
- 55 Gallon drum of consolidated oil-based paint = 55 gallons of paint (Source: Palo Alto Public Works) 1 gallon of paint weighs about 8 lbs. (Source: Romic Chemical Corporation)

It can therefore be estimated that in 1990 12.3 tons of HHW were generated and disposed of properly, including 10 tons reported by surveys and 2.3 tons from City-sponsored HHW collection events and curbside oil collection. Table 2.1 below summarizes HHW disposed in the City.

**Table 2.1**

**HHW Disposed in City, Calendar 1991**

| | |
|---|---|
| Tonnage of Residential Waste | 2,249 |
| % Identified as HHW | 0.4 |
| Tonnage HHW in Residential Waste Stream | 10 |
| Tonnage HHW Collected at the 1990 Event (Properly Managed) | 2 |
| Tonnage of Used Motor Oil Collected at Curbside in 1990 (Properly Managed) | 0.3 |
| Tonnage HHW Reported as Diverted by Surveys (see Section 2 Waste Generation Study of the Source Reduction and Recycling Element) | 10 |
| Amount of HHW Discovered in Landfill Load Checking Program | Negligible |
| Residential Tonnage Diverted in 1991 (Properly Managed) | 12.3 |

## 2.2 TYPES AND AMOUNTS OF HHW DIVERTED

The types of HHW and amounts collected by City-sponsored collection events and programs in the City in 1990 are shown on the CIWMB Form 303 "Household Hazardous Waste Collection Information" included as Attachment 2.

The load checking program at Guadalupe Landfill discovered very small quantities (negligible tonnage) of HHW in incoming loads during 1991. The purpose of the program is to discourage intentional disposal of hazardous wastes rather than to collect and properly dispose of small quantities of household hazardous waste.

## 2.3 EXISTING SOURCE REDUCTION, COLLECTION, RECYCLING, TREATMENT AND DISPOSAL PROGRAMS

In 1990, several types of household hazardous waste collection and recycling programs were developed and implemented in the City. In 1990, the City sponsored the following programs.

1. One Drop-off Event
2. Curbside Motor Oil Collection
3. Hazardous Waste Exclusion Program
4. Exclusion Measures Taken by Waste Hauler
5. Waste Exchange at Drop-off Events

### 1. Periodic Drop-off Events

In 1990, the City jointly sponsored an annual HHW drop-off event. As shown below in Table 2.2, a total of 36 households participated and two tons of waste were collected during this period.

**Table 2.2**

**Periodic Drop-off Events in the City, 1990**

| DATE | TOTAL NUMBER HOUSEHOLDS | HOUSEHOLDS PARTICIPATING | TONS COLLECTED |
|---|---|---|---|
| March 10 | 1,163 | 36 | 2 |

### 2. Curbside Motor Oil Collection

The City contracts with Green Valley Disposal Company for curbside motor oil collection; service began February 1990. Eligible households include all single-family dwellings; the City has no multi-family dwellings and none are anticipated. A total of 0.3 tons (72 gallons) were collected from the households served in 1990.

### 3. Hazardous Waste Exclusion Program

The objective of the Hazardous Waste Exclusion Program is to discourage the improper disposal of hazardous waste at the solid waste disposal facility. Solid waste generated in the City is landfilled at Guadalupe Landfill. All landfills are required to implement hazardous waste exclusion programs. The Hazardous Waste Exclusion Program consists of the following components.

Load Checking at Guadalupe Landfill

Load checking involves inspection of incoming solid waste, landfill employee training, state and county-mandated hazardous waste handling, and reporting procedures.

Landfill Public Awareness Efforts

Landfill public awareness efforts include sign posting at landfill entrances and unloading areas, verbal instructions to residents using the landfill, and answering phone inquiries regarding waste disposal.

4. Exclusion Measures Taken by Waste Hauler(s)

The franchised waste hauler mails a packet of information to all new customers advising them of the prohibition on the disposal of hazardous wastes. The hauler also posts notices on dumpsters, conducts hazardous materials training, and inspects incoming waste during collection.

5. HHW Waste Exchange at Drop-off Events

Household products judged to be legal and usable are separated from the HHW waste stream at the collection events/transfer station. Residents may take such items home, thereby reducing the amount of HHW needing more expensive treatment or hazardous waste disposal. In 1990, waste exchange tables were operated at the HHW collection event sponsored by the City. Although no data is available on the pounds or number of items taken home by residents, the waste exchange was well received.

## 2.4 MANAGEMENT OF HHW DIVERTED FROM LANDFILL DISPOSAL IN 1990

The City ascribes to the disposal hierarchy "Reduce, Reuse, Recycle, Treat, Dispose" for management of collected HHW. The management methods for diverted HHW are included in Attachment 2. A total of 2.3 tons of HHW were collected, of which 17 per cent was recycled, 13 per cent was reprocessed as blended fuel, 54 per cent was incinerated, and 16 per cent hazardous waste landfilled in 1990. A description of the recycling, treatment and disposal methods for HHW is included in Chapter 4, Section 4.9 and Chapter 5, Section 5.5 and CIWMB Form 303 which is included in Form 303, included as Attachment 2.

## 2.5 FUTURE STATUS OF EXISTING PROGRAMS

During the first year of operation, the mobile collection unit will operate at least two times in close proximity to City residents. The City intends to contribute $11,000 for services of the countywide HHW Program for the first 12 months. This level of commitment to the countywide program will provide 110 households with HHW collection services. The City will determine future level of service and financial commitment to the countywide HHW Program on an annual basis in the short- and medium-term planning periods.

Residents will participate in the drop-off events on an appointment basis only. The County will make appointments on a first-come first-served basis. County staff will screen callers to ensure that the allocated spaces are used by those who need the service. Callers with materials which can be handled through other programs (used motor oil, for example) will be directed to the appropriate program.

Existing HHW waste exchange activities will be incorporated into the countywide HHW Program. Other regional public education efforts (Nonpoint Source Program, non-profits, etc.) are expected to continue into the short- and medium-term planning periods. The curbside collection service for used motor oil will continue. The hazardous waste exclusion activities at the Guadalupe Landfill are expected to continue into the short- and medium-term planning periods.

# CHAPTER 3

# METHODOLOGY FOR EVALUATION OF HHW MANAGEMENT ALTERNATIVES

The following evaluation methodology was developed by EMCON Associates. Additional criteria; "Availability of Service" and "Provides Immediate Disposal Services"; were added to reflect needs of other Santa Clara County communities. The evaluation criteria is consistent with the evaluation procedure outlined in the California Integrated Waste Management Board's (CIWMB) Draft Planning Guidelines for Source Reduction and Recycling Elements.

## 3.1 EVALUATION CRITERIA

The following 12 criteria have been rated using a scale of high, medium, and low with high being positive. Ten alternatives for managing HHW were evaluated. The evaluation was summarized in Table 4.1 which is located in the following chapter of this document.

### 3.1.1 Waste Diversion Potential

Waste diversion potential is the estimated ability of the alternative to reduce the amount of HHW improperly disposed in the landfill. Waste diversion potential measures the alternative's ability to accept, handle, recycle, or properly dispose of HHW.

Low: The alternative has low potential to divert HHW.
Medium: The alternative is likely to divert some HHW.
High: The alternative is likely to divert large amounts of HHW.

### 3.1.2 Absence of Hazard

Absence of hazard reflects the extent to which hazards result from the alternative. Hazards could include health risks, injury, fire, or other.

Low: Potential hazards are not completely understood, or the alternative presents potential hazards.
Medium: Potential hazards are known and controllable. Some impacts remain.
High: There are few or no potential hazards or unmitigated impacts.

### 3.1.1. Flexibility

Flexibility measures the adaptability to changing economic, technological, and social conditions.

Low: The alternative is limited in adaptability to changing conditions.
Medium: The alternative is anticipated to have a moderate adaptability to changing conditions.
High: The alternative can be readily adapted to meet changing conditions.

### 3.1.4 Availability of Service (Nearby and Frequent Services)

Availability of service is a consideration of travel distance for participants and frequency of service. Optimal travel distance was determined to be no more than a 20-minute commute from residents' homes. Optimal frequency of service was determined to be at least two disposal opportunities per year within the 20-minute commute distance.

Low: The alternative does not provide services within a 20-minute commute. Cost or logistical barriers make frequent service with this alternative difficult.
Medium: The alternative has potential to provide disposal services within a 20-minute commute. The alternative has the potential for frequent service.
High: The alternative is designed to provide disposal services within a 20-minute commute and frequent service is not hindered by cost or logistical barriers, in comparison with other alternatives.

### 3.1.5 Provides Immediate Need Disposal Services

Provides immediate-need disposal service refers to the alternative ability to provide disposal services within several days of a request. Residents who are moving often request HHW disposal services. If disposal services are not available, these residents may improperly dispose of their stored HHW.

Low: The alternative does not accommodate needs of residents requesting immediate disposal services.
Medium: The alternative may provide some immediate need services.
High: The alternative has flexibility to accommodate residents requesting immediate disposal of HHW.

### 3.1.6 Limited Shift in Waste Type Generation

Limited shift in waste type generation measures the alternative's ability to limit consequences of diversion of one material at the expense of increased generation of another material.

Low: The alternative would significantly shift waste production to generation of non-recyclable, non-marketable, or more hazardous materials.

Medium: The alternative would result in the creation of little shift toward non-recyclable, non-marketable, or more hazardous wastes.

High: The alternative would result in no shift toward non-recyclable, non-marketable, or more hazardous wastes.

### 3.1.7 Ease of Implementation

Ease of implementation measures the speed with which the alternative can be brought into service, i.e., whether it can be implemented in the short-term or medium-term planning periods.

Low: Implementation of the alternative could not be completed until after 2000.

Medium: Implementation of the alternative is anticipated to be completed between 1995 and 2000. This is the medium-term planning period.

High: Implementation of the alternative is anticipated to be completed by 1995. This is the short-term planning period.

### 3.1.8 Facility Need

Facility need measures the need to expand existing facilities or build new facilities to support the implementation of the alternative.

Low: New facilities must be developed to accommodate the alternative.

Medium: Existing facilities must be expanded or altered to accommodate the alternative.

High: The alternative requires no new facilities or modification of facilities.

### 3.1.9 Consistency with Local Policies

Consistency with local policies measures the alternative's compatibility with existing local plans, policies, and ordinances.

Low: The alternative would require major changes to existing local plans, policies, or ordinances.
Medium: The alternative would require minor changes to existing local plans, policies, or ordinances.
High: There are no existing local plans or policies of ordinances that would impede the implementation of the alternative.

### 3.1.10 Absence of Institutional Barriers

Absence of institutional barriers evaluates the extent to which institutional barriers, such as long-term franchise agreements or other contracts, or other barriers, may impact local implementation of the alternative.

Low: The alternative is impacted by existing institutional barriers which are not under the control of the jurisdiction.
Medium: The alternative is impacted by existing institutional barriers over which the jurisdiction maintains some control.
High: There are no existing institutional barriers to the alternative.

### 3.1.11 Estimated Cost

Estimated cost evaluates the projected cost of the alternative, including capital costs and operating costs for the short-term and medium-term planning period.

### 3.1.12 End Uses (Recyclability and Redistribution Potential)

End uses measures the recycling or reuse potential of collected HHW products.

Low: Recycling or redistribution activities are incompatible with the alternative.
Medium: The alternative might allow for recycling/redistribution.
High: Recycling or redistribution activities are compatible with the alternative.

# CHAPTER 4

## EVALUATION OF HOUSEHOLD HAZARDOUS WASTE MANAGEMENT ALTERNATIVES

This section presents an evaluation of alternatives that were considered by the City to meet its HHW management objectives, using the criteria described in Chapter 3. The following nine alternatives were evaluated. The results of the evaluation are summarized in Table 4.1, which has been included as Attachment #3 at the end of this Element.

Alternative 1 Periodic HHW Drop-off Events
Alternative 2 Five Permanent HHW Facilities
Alternative 3 Mobile Collection
Alternative 4 Combination - Mobile Unit Plus One Permanent Facility
Alternative 5 Curbside Motor Oil Collection
Alternative 6 Door-to-Door Pickup for Elderly and Disabled Residents
Alternative 7 Hazardous Waste Exclusion Program
Alternative 8 Household Hazardous Waste Recycling Component
Alternative 9 Household Hazardous Waste Exchange

An additional method of HHW management was considered: curbside HHW collection. This method was not included in the "Evaluation of Alternatives" due to unacceptably high potential public health risks. HHW set at the curbside could be blown over or rained upon, resulting in toxic run-off into the storm drain system. Children or pets could tamper with materials left at the curb, and waste haulers could be harmed if residents set out unacceptable types or amounts of wastes.

Curbside HHW collection programs that accept all types of HHW have not been implemented in California. Unlike programs that collect motor oil at the curb, it is not known if permits could be obtained to collect all types of HHW in this manner. The permitting process for curbside HHW collection was not explored as the alternative was deemed infeasible due to potential health and safety hazards.

## 4.1 EVALUATION OF ALTERNATIVE 1 - PERIODIC DROP-OFF EVENTS

The City has sponsored periodic drop-off events since 1990. These events have been scheduled annually. The 1990 event was held at the Campbell Community Center and 36 households participated.

WASTE DIVERSION POTENTIAL

Periodic events have proven to be effective in collecting large amounts of HHW. The City rated the waste diversion potential of periodic drop-off events as "high".

ABSENCE OF HAZARD

Potential public health risks and safety hazards associated with any HHW collection method include spills, fires, leaks, or explosions resulting from improper collection, storage, handling, or transport of hazardous material. However, proper design, equipment, and health and safety training minimize potential hazards. Periodic drop-off events were rated as "medium" in the absence of hazard.

FLEXIBILITY

Periodic drop-off events have a limited ability to respond to unanticipated conditions, such as an unexpectedly high turn-out. On the other hand, periodic events are flexible in the sense that, if funding permits, a city can decide to hold more frequent events to accommodate high demand in a safer, more orderly manner. A "medium" rating was assigned.

AVAILABILITY OF SERVICE (Nearby and Frequent Service)

Availability of service refers to the alternative's ability to provide HHW disposal services within a 20-minute commute of residents' homes and at optimally, four times per year. The periodic drop-off event alternative was rated "medium" as these events are generally held in one centralized location and only one or two times per year. However, additional events and event locations could be added.

PROVIDES IMMEDIATE NEED DISPOSAL SERVICES

Periodic drop-off events have generally operated one or two days per year, although the possibility exists to hold such events more frequently. The periodic drop-off event alternative was rated "low" in its ability to provide immediate need disposal services.

LIMITED SHIFT IN WASTE TYPE GENERATION

Not applicable.

EASE OF IMPLEMENTATION

The City has sponsored annual drop-off events since 1989 and is familiar with the planning and implementation procedures. Should the City decide to continue operation of periodic drop-off events, it is anticipated that such events could be implemented within the short-term planning period (before 1995). Ease of implementation was therefore rated "high".

FACILITY NEEDS

Periodic drop-off events do not require expansion or development of facilities and were, therefore, rated "high".

CONSISTENCY WITH LOCAL POLICIES

The City has sponsored annual events in 1990 and 1991, indicating that this alternative is consistent with local policies and ordinances. However, the events do not meet the needs of residents requesting immediate disposal services or provide ongoing collection services as recommended in the County Hazardous Waste Management (Tanner) Plan. A "medium" rating was assigned.

ABSENCE OF INSTITUTIONAL BARRIERS

No institutional barriers, such as existing contracts, would impede the City in implementing periodic drop-off events. A "high" rating was assigned.

ESTIMATED COST

In calendar year 1990, the City spent $3,974 to operate one HHW collection event. This amount includes the contractor's fee for management of the events and disposal of collected waste. Additional costs for the program are city planning time, advertising, donated equipment, and volunteer labor. A total of 36 households were served in 1990.

A preliminary cost analysis of past periodic events throughout the county indicates considerable variation in cost among city events. Factors contributing to the cost variations include amount of volunteer labor and other donated services used to plan and operate the events.

Costs for HHW collection alternatives under consideration (periodic; mobile, five permanent facilities; and combination mobile and one permanent facility) are driven primarily by

siting, waste disposal, event staffing, and capital expenditures. It was estimated that the cost per vehicle service at all four of these options would be within the $90 - $110 range.

END USES (RECYCLABILITY AND REDISTRIBUTION POTENTIAL)

Periodic collection events divert latex paint, oil, and automotive batteries from landfill disposal for recycling. However, lacking storage space and permits to store materials, periodic events are limited in their ability to promote redistribution of usable products. A "medium" rating was assigned.

## 4.2 EVALUATION OF ALTERNATIVE 2 - FIVE PERMANENT FACILITIES

In this alternative, five permanent HHW collection facilities would be located throughout the county to provide HHW collection services within a 20-minute commute for a majority of residents in participating communities. The program would be administered by the countywide HHW Program. Each city would determine, on an annual basis, the desired level of HHW services for its residents.

WASTE DIVERSION POTENTIAL

Five permanent facilities may process participants more efficiently than collection events because of the presence of more extensive equipment and greater storage capabilities. Permanent facilities can provide comprehensive, ongoing disposal services and was rated "high" for waste diversion potential.

ABSENCE OF HAZARD

Permanent facilities can provide a safe means of collecting and properly disposing of HHW. Proper design, equipment, and permanent staff can minimize potential hazards associated with HHW collection. The permanent facilities alternative received a "high" rating.

FLEXIBILITY

Permanent facilities do not have the flexibility to operate in various locations as do periodic collection events or a mobile collection unit. However, permanent facilities can accommodate changing social conditions, such as increasing demand for service, by adjusting the days of operation. A permanent facility can also serve as a "hub" for a mobile unit which would collect HHW from elderly and disabled residents. This alternative received a "high" rating.

AVAILABILITY OF SERVICE (Nearby and Frequent Service)

The five permanent facilities alternative has the potential to provide frequent services, depending on the number of days the facility is open. Residents from any participating community could use the permanent facilities. Facilities could be located so that most residents would have a 20-minute or less commute to the nearest facility. The five permanent facilities alternative was rated "high".

PROVIDES IMMEDIATE NEED SERVICES

The five permanent facilities alternative was rated "high" in its ability to provide immediate need services.

LIMITED SHIFT IN WASTE TYPE GENERATION

Not applicable.

EASE OF IMPLEMENTATION

The implementation phase for permanent facilities requires site selection, environmental review, permitting, Board of Supervisors' approval, and construction. In addition, the siting of permanent facilities may be subject to the Tanner Plan review process. The implementation of five permanent facilities could extend beyond the short-term planning period (1991 to 1995) and therefore received at "medium" rating.

FACILITY NEEDS

This alternative requires the location or construction of collection and storage facilities. A HHW facility must meet local, state, and federal safety and operating standards. A facility should have separate storage bays or bins to prevent spilled or leaked incompatible wastes from mixing. A collection and storage building may need explosion proofing; ground columns; proper containment; and sufficient ventilation. Adequate emergency response and safety equipment would be necessary. A permanent facility should be situated on an impervious surface and fenced for security. A "low" rating was assigned to this alternative due to the complexity of facility needs for five permanent facilities. Until the new state regulations are available, it is not possible to further describe the requirements of the permanent facilities.

CONSISTENCY WITH LOCAL POLICIES

The five permanent facilities alternative appears to be consistent with the Tanner Plan recommendations to provide

ongoing and immediate need disposal services for all residents. However, a land use decision may be required by the local planning commission. A "medium" rating was assigned.

ABSENCE OF INSTITUTIONAL BARRIERS

No contractual or other institutional barriers exist to implementing the five permanent facilities alternative. A "high" rating was assigned.

ESTIMATED COST

A preliminary cost analysis for the five permanent facilities indicates that the cost of this alternative is dependent, to a large extent, on two factors; availability of sites and facility design.

If appropriate sites could be located that did not require purchase of land, the cost of this alternative would be significantly lower. It might be possible to site permanent HHW facilities at existing landfills, transfer stations, materials recovery facilities, waste water treatment plants, or public works facilities. However, if siting permanent facilities requires the purchase of property, or if residents opposed the siting of such facilities, a significant increase in cost would result.

The second factor that would affect the cost is the actual design of the facilities. A range of options exists for structural design and equipment for permanent HHW facilities. These factors would greatly influence cost of implementing the five permanent facilities alternative. The cost estimates used here assume permanent facilities consisting of slightly modified existing structures and/or the use of roll-off bins for waste collection and storage.

It was estimated that it might be possible to implement the five permanent facilities alternative at a cost similar to costs for the other HHW collection alternatives under consideration (periodic; mobile; and combination mobile and one permanent facility). Costs of all options are driven primarily by siting, waste disposal, event staffing, and capital expenditures. It was estimated that the cost per vehicle serviced at all four of these options would be within the $90 - $110 range. However, the unknown factors regarding facility siting and design could significantly change this estimate.

END USES (RECYCLABILITY AND REDISTRIBUTION POTENTIAL)

Valuable materials diverted from the incoming waste stream can be stored at a permanent facility, thereby making waste exchange or organized waste referral services feasible. The presence of permanent, trained staff enhances the ability to carry out recycling and redistribution activities. The five permanent facilities alternative received a "high" rating for recycling/redistribution potential.

## 4.3 EVALUATION OF ALTERNATIVE 3 - MOBILE COLLECTION

A mobile collection program consists of a modified collection vehicle or vehicles which may contain an electric generator, compressor, and water system; a fire response system; emergency equipment; and a lab for identification of unlabeled HHW. A mobile facility can be dismantled in a short time once a collection event is completed. This alternative assumes no permanent sites would be developed.

WASTE DIVERSION POTENTIAL

A mobile collection program is an effective approach for HHW collection in a large geographical area. A "high" rating was assigned to this alternative.

ABSENCE OF HAZARD

The mobile collection alternative involves more transportation of equipment and staff than a permanent facility and therefore, presents a slightly higher risk of hazard. Proper design, equipment, as well as safety training can minimize potential hazard. The potential for risks to the public health associated with mobile collection was rated as "medium".

FLEXIBILITY

A mobile collection unit is highly flexible as both location and frequency of operation can be readily changed to accommodate variations in demand or shifts in population density. However, because of location changes, sufficient advertising must be done to notify the public of the exact location. In addition, finding sites with adequate and safe accessibility might be difficult in some areas. The mobile unit received a "high" rating due to its ability to accommodate changing conditions in a large geographical area.

AVAILABILITY OF SERVICE (Nearby and Frequent Service)

The mobile unit would be scheduled to operate in approximately 20 locations throughout the county during the first year of operation. Most residents will have a maximum 20-minute drive to the unit. The mobile unit's operating schedule could be modified to include additional collection locations or more frequent service as needed. Additional locations and days of operation may be added annually throughout the short- and medium-term planning period. The mobile collection unit was rated "high" for availability of service.

PROVIDES IMMEDIATE NEED DISPOSAL SERVICES

The mobile unit would operate at the various locations in the county on a rotational basis. Residents in need of immediate disposal services will be able to deliver their HHW, by appointment, to the mobile unit at its next scheduled day of operation anywhere in the county. A "high" rating was assigned to this alternative for ability to provide immediate disposal services.

LIMITED SHIFT IN WASTE TYPE GENERATION

Not applicable.

EASE OF IMPLEMENTATION

It appears likely that a mobile program could be permitted by the Department of Health Services under the Permit By Rule regulations for "temporary events". These regulations are currently under development and are expected to be finalized in mid-1991. Therefore, it is likely that a mobile program could be implemented in the short-term planning period (before 1995). A "high" rating was assigned to the mobile collection alternative.

FACILITY NEEDS

The mobile collection unit requires a modified vehicle or vehicles and equipment. However, no purchase of land or construction of facilities is required. The mobile collection alternative was rated "high" for facility needs.

CONSISTENCY WITH LOCAL POLICIES

The mobile collection program was determined to be a HHW management technique best able to provide ongoing and immediate need services to residents in a large geographical area. This alternative is expected to require a less complex siting process due to the temporary nature of the mobile unit stopovers. The

mobile collection unit alternative was rated "high" in consistency with local policies that recommend countywide access to ongoing HHW collection services.

ABSENCE OF INSTITUTIONAL BARRIERS

No regulatory prohibitions or contractual barriers exist to implementing a mobile HHW collection program. A "high" rating was assigned.

ESTIMATED COST

A preliminary cost analysis for the mobile HHW collection alternative indicates that this alternative might be implemented at a cost similar to the periodic events alternative, five permanent facilities alternative, and the combination mobile unit plus one permanent site alternative. Costs of all options are driven primarily by siting, waste disposal, event staffing, and capital expenditures. It was estimated that the cost per vehicle serviced at all four of these options would be within the $90 - $110 range.

END USES (RECYCLABILITY AND REDISTRIBUTION POTENTIAL)

A mobile collection unit can divert materials for recycling and can include a HHW waste exchange component. However, limited space prevents storage of reusable products for distribution at future events. Therefore, this alternative was rated "medium" in recyclability/redistribution potential.

## 4.4 EVALUATION OF ALTERNATIVE 4 - COMBINATION PROGRAM: MOBILE UNIT PLUS PERMANENT FACILITY

The combination program consists of a mobile unit plus one permanent facility. The permanent facility would be located in a densely populated urban area and the mobile unit would operate in the cities and unincorporated area throughout the county on a rotating basis. The number of vehicles served will be adjusted in response to demand for services and availability of funds.

WASTE DIVERSION POTENTIAL

The mobile unit plus permanent facility alternative could provide convenient, cost-effective service to both a densely populated area and large geographical region. A "high" rating was assigned to the combination alternative.

ABSENCE OF HAZARD

The mobile unit involves more movement of equipment and materials than the permanent facility. The majority of collected HHW would be removed directly from the mobile unit by licensed waste haulers. To minimize waste disposal costs, partially-filled lab packed drums might be delivered to the permanent facility to await additional waste. Proper equipment, training, and operating procedures would minimize the potential hazards. A "medium/high" rating was assigned to the combination mobile plus one permanent facility alternative.

FLEXIBILITY

Depending on demand for services, days of operation of the mobile unit and permanent facility can be adjusted. The mobile unit's schedule can be modified to include additional locations as needed. A special effort to notify residents of changing location would be necessary. In addition, multilingual advertising and telephone appointment services may be necessary. The combination alternative received a "high" rating in its ability to respond to changing social conditions.

AVAILABILITY OF SERVICE (Nearby and Frequent Service)

The combination alternative will provide HHW disposal services within a 20-minute commute for most residents in the participating cities. Depending on demand for services, frequency of both of these collection services can be expanded in the short- and medium-term planning period. A "high" rating was assigned to the combination alternative.

PROVIDES IMMEDIATE NEED SERVICES

A "high" rating was assigned, as residents from any of the participating cities could be able to deliver HHW, by appointment, to the next operating day of either the permanent facility or the mobile unit.

LIMITED SHIFT IN WASTE TYPE GENERATION

Not applicable.

EASE OF IMPLEMENTATION

It appears likely that a mobile program could be permitted by the Department of Health Services under the Permit By Rule regulations for "temporary events". The Permit By Rule regulations are currently under development by the Department of Health Services and are expected to be finalized in mid-1991.

Therefore, it is likely that a mobile program could be implemented in the short-term planning period (before 1995). A "high" rating was assigned to the mobile collection alternative.

The implementation phase for a permanent facility includes site selection, environmental review, permitting, Board of Supervisors' approval, and possibly, facility construction or modification of existing structures. Regulations for siting permanent HHW facilities are under development by the California Department of Health Services and are expected to be in place by late 1991. In addition, the siting of a permanent facility may be subject to the Tanner Plan review process. It appears likely that one permanent facility could be operational before the end of the short-term planning period (before 1995). A "high" rating was assigned.

FACILITY NEEDS

The mobile collection unit requires waste collection and storage equipment. However, no purchase of land or construction of facilities is required.

The permanent facility will require either location of an appropriate site for storage roll-off bins or the construction or modification of a collection and storage structure.

A "medium" rating was assigned to the combination mobile unit plus one permanent facility alternative.

CONSISTENCY WITH LOCAL POLICIES

Countywide planning efforts have determined that the combination of a mobile unit and a permanent facility for HHW collection appears to be the alternative that best meets the needs of the participating cities. This alternative appears to be consistent with the Tanner Plan recommendations for ongoing, convenient, and immediate need services.

The mobile collection unit requires siting a number of temporary locations and the process of siting a permanent facility may be complex. A "medium" rating was assigned to the combination alternative.

ABSENCE OF INSTITUTIONAL BARRIERS

No institutional barriers are known that would prevent the implementation of the combination alternative. A rating of "high" was assigned.

ESTIMATED COST

A preliminary cost analysis for the combination mobile unit plus one permanent facility alternative indicates that this alternative might be implemented at a cost similar to the cost of the periodic events alternative, the mobile collection program alternative, or the five permanent facility alternatives.

A preliminary cost analysis for a permanent facility indicates that the cost of this alternative is dependent, to a large extent, on two factors; availability of sites and facility design.

If an appropriate site could be located that did not require purchase of land, the cost of this alternative would be significantly lower. It might be possible to site a permanent HHW facility at an existing landfill, waste water treatment plant, or public works facility. However, if siting a permanent facility requires the purchase of property, or if residents opposed the siting of a facility, a significant increase in cost would result.

The second factor that would affect the cost is the actual design of the facility. A range of options exists for structural design and equipment for permanent HHW facilities. These factors would influence the cost of implementing this alternative.

It is estimated that it might be possible to implement the mobile unit plus one permanent facility alternative at a cost similar to the costs for the other HHW collection alternatives under consideration (periodic; mobile; and five permanent facilities). Costs of all options are driven primarily by siting, waste disposal, event staffing, and capital expenditures. It is estimated that the cost per vehicle serviced at all four of these options would be within the $90 - $110 range. However, the unknown factors regarding facility siting and design could significantly change this estimate.

END USES (RECYCLABILITY AND REDISTRIBUTION POTENTIAL)

The permanent facility has the potential of facilitating waste exchange activities due to its ability to store valuable products found in the waste stream. The mobile unit has a similar redistribution potential but lacks storage capability of the permanent facility. A "high" rating was assigned to the combination alternative.

## 4.5 EVALUATION OF ALTERNATIVE 5 - CURBSIDE MOTOR OIL COLLECTION

The City sponsors curbside pick-up of used motor oil. Since used motor oil is often disposed into storm sewers, drains, into the trash or onto the ground by residents who service their own cars, collection of used oil is an effective means of reducing improper disposal of one type of HHW.

WASTE DIVERSION POTENTIAL

The City's existing curbside oil collection program serves all single-family dwellings. The City has no multi-family dwellings and none are anticipated. Curbside motor oil collection was rated "high" in waste diversion potential.

ABSENCE OF HAZARD

The potential exists that oil set on the curb for collection could be disturbed by children, pets, or vehicles. However, residents generally use the curbside oil collection program as directed and existing programs experience minimal problems. Curbside motor oil collection was rated "medium" for absence of hazard.

FLEXIBILITY

The curbside oil collection alternative can meet the growing demand by expanding into neighborhoods with low participation. Curbside motor oil collection was rated "high" in flexibility.

AVAILABILITY OF SERVICE (Nearby and Frequent Service)

This alternative requires no travel to a disposal event. In addition, the frequency of service can be adjusted to meet residents' needs. Curbside motor oil collection was rated "high" for availability of service.

PROVIDES IMMEDIATE NEED DISPOSAL SERVICES

Curbside motor oil collection programs generally provide weekly service, thereby providing disposal services to residents preparing to move or otherwise in need of immediate disposal. A "high" rating was assigned.

LIMITED SHIFT IN WASTE TYPE GENERATION

Not applicable.

EASE OF IMPLEMENTATION

The City already sponsors a curbside collection program. Therefore this HHW management alternative was rated "high".

FACILITY NEEDS

Existing recycling trucks used for curbside collection of glass, paper, and metals also collect used motor oil. The waste oil collection tank is located at the Green Valley Disposal Company corporation yard in the City of Santa Clara. This HHW alternative was rated "medium" since the current 400 gallon tank serves five jurisdictions (Campbell, Los Gatos, Monte Sereno, Saratoga and adjacent unincorporated areas), is pumped every other day, and therefore may be too small to accommodate additional anticipated capacity.

CONSISTENCY WITH LOCAL POLICIES

Curbside motor oil collection is consistent with local and state policies that encourage HHW recycling. Effective January 1, 1991, pursuant to AB 2597, HHW collection agencies will no longer need a hazardous waste permit if materials accepted are limited to latex paint, used oil, antifreeze, spent lead-acid batteries, and nickel-cadmium, alkaline, carbon-zinc, and other small batteries.

Section 25250.11(a), Health and Safety Code, exempts from its HW permit requirements "any person who receives used oil from consumers or other used oil generator", as long as no more than 20 gallons of used oil are received at a time, and containers hold no more than 5 gallons each.

Government Code Section 66798.9 (Statute, 1989) provides immunity for local agencies operating HHW programs unless the agencies act negligently. Additional immunity from state liability is provided in Health and Safety Code, Section 25366.5 for local governments or their contractors who are running HHW facilities and events.

However, HHW programs would still be liable if disposal sites holding the program's HHW were declared a federal Superfund site. A "high" rating was assigned for consistency with local policies.

ABSENCE OF INSTITUTIONAL BARRIERS

There are no institutional barriers to this program; a "high" rating was, therefore, given.

ESTIMATED COST

Costs for operation of the program are part of the overall costs for the curbside recycling program. A separate cost for oil collection is not available. The costs for the program are low in comparison with other alternatives discussed in this document.

END USES (RECYCLABILITY AND REDISTRIBUTION POTENTIAL)

Markets for used motor oil are well-established. Used oil from the City is picked up by Allied Oil. The oil is reprocessed and used as fuel in industrial burners or boilers. Used motor oil collection received a "high" rating for recyclability.

## 4.6 EVALUATION OF ALTERNATIVE 6 - DOOR-TO-DOOR PICKUP FOR ELDERLY DISABLED

A door-to-door pickup program would provide HHW services to residents unable to participate in collection events. Door-to-door pickup would be available by appointment only and the service dates could be coordinated with an upcoming mobile unit or periodic events; or a permanent facility in the area. The HHW would be picked up by a registered hazardous waste hauler using licensed hazardous waste transport vehicles that comply with the Department of Transportation (DOT) regulations. HHW collected from residents' homes would be transferred to a permanent HHW facility if the facility was permitted to receive such wastes; to an approved treatment, storage, or disposal (TSD) facility; or transported directly to a permitted hazardous waste disposal facility.

WASTE DIVERSION POTENTIAL

A door-to-door HHW pickup service is designed to collect wastes from individuals who may otherwise not have the opportunity to properly dispose of their HHW. This target population, the elderly and disabled, who are unable to participate in other HHW services, represents a relatively small percentage of households in the City. A "high" rating was assigned to this alternative for its potential to divert HHW from this target population.

ABSENCE OF HAZARD

Proper program design, equipment, and health safety training can minimize potential hazards associated with door-to-door HHW pickup. A "medium" rating was assigned.

FLEXIBILITY

Door-to-door collection services could be operated as an adjunct to periodic events, mobile unit or permanent facility. The service would operate on an appointment basis. The door-to-door routing plan can be coordinated with other HHW events. A "high" rating for flexibility was assigned to this alternative as its operation schedule and route can be readily modified.

AVAILABILITY OF SERVICE (Nearby and Frequent Service)

The door-to-door HHW pickup service would require no travel for elderly or disabled residents. The frequency of service would be determined by frequency of other HHW events in the area as this service would most likely operate as an adjunct to other HHW collection services. Frequency of service is also dependent upon the level of funding available. A "medium" rating was assigned to this alternative as costs for door-to-door services may be a seriously limiting factor for frequency of service.

PROVIDES IMMEDIATE NEED DISPOSAL SERVICES

The door-to-door HHW pickup service is designed to operate on an appointment-only basis due to the cost of providing this service to a small number of residents. If the door-to-door HHW pickup service is operating as an adjunct to a permanent facility, with permanent staff, equipment, and storage space, the potential exists to provide immediate need services to elderly and disabled residents. A "medium" rating was assigned.

LIMITED SHIFT IN WASTE TYPE GENERATION

Not applicable.

EASE OF IMPLEMENTATION

If a door-to-door service operated in conjunction with a permanent facility, the permanent facility would need a variance to accept waste collected by door-to-door service. Collected HHW was delivered to the permanent facility could be sorted and stored to enhance recycling and reuse potential. In addition, waste could be bulked to reduce disposal costs. Another method of providing door-to-door service would be to contract with a licensed hazardous waste management company which would transport collected HHW directly to a disposal facility.

It is anticipated that a door-to-door HHW pickup service could be implemented in the short-term planning period (before 1995),

either as an adjunct to other HHW collection services or by contracting for services of a private hazardous waste disposal company. A "high" rating was assigned to this alternative.

FACILITY NEEDS

Door-to-door HHW pickup services require trucks equipped to transport, handle, sort, and store hazardous materials. Space is also needed to store the collected materials unless the wastes are delivered directly to a disposal facility. It is possible that this service could be obtained on a contract basis from a licensed hazardous waste management company. A "medium" rating was assigned.

CONSISTENCY WITH LOCAL POLICIES

Door-to-door HHW collection does not appear to be incompatible with local policies. The City supports the provision of services to its residents regardless of handicap or physical limitation. A "high" rating was assigned.

ABSENCE OF INSTITUTIONAL BARRIERS

There are no existing contracts or agreements that would prevent the implementation of a door-to-door HHW pickup service for elderly and disabled residents. A "high" rating was assigned.

ESTIMATED COST

Door-to-door HHW pickup services have been sponsored by the Cities of Burbank and San Diego. In Burbank, a licensed private waste hauler collected HHW from approximately 200 elderly and disabled residents. The service was operated in conjunction with a city-sponsored HHW drop-off event. The routing schedule was prepared by City staff. The collected HHW was delivered to the drop-off event. The cost for this service was $8,000. This cost includes only the actual collection of the HHW from the elderly and disabled residents, and does not include planning time or waste disposal costs which were included with the costs of operating the drop-off event. If planning and disposal costs were to be included, the estimated cost may be $130-150 dollars per household -- exceeding that of the cost per car for the drop-off events.

END USES (RECYCLABILITY AND REDISTRIBUTION POTENTIAL)

Recyclability and redistribution potential of HHW collected in a door-to-door service would depend on whether or not the service was associated with other HHW collection programs. If collected HHW was delivered to a permanent facility, recyclable and

reusable materials could be retrieved. However, if the door-to-door service was operated independent of other HHW programs, and those collected wastes were delivered directly to a hazardous waste disposal facility, then all of those wastes would be disposed. A "medium" rating was assigned to this alternative.

## 4.7 EVALUATION OF ALTERNATIVE 7 - HAZARDOUS WASTE EXCLUSION PROGRAM/LOAD CHECKING

The purpose of a load checking program is to detect and deter attempts to dispose of prohibited waste in landfills. It involves visual inspection for hazardous waste at the entrance to the landfill and at the working face. If prohibited waste is identified, the generator is notified and becomes responsible for removing the waste. If the generator cannot be found, the waste is removed and properly disposed. Repeat offenders are barred from the disposal site. Other waste acceptance control activities include sign posting and employee training. In addition, the franchised waste hauler notifies customers about the prohibition on disposal of hazardous waste in the landfill by mailing a packet of information to all new customers, posting signs on dumpsters, and by training employees to inspect incoming waste for hazardous materials.

WASTE DIVERSION POTENTIAL

The load-checking program diverts a small amount of HHW from landfill disposal. However, load checking and the other hazardous waste exclusion programs educate generators, haulers, disposal facility personnel, and the public about the proper disposal of hazardous waste. An effective hazardous waste exclusion program reduces landfill disposal of HHW in landfills, and was therefore rated "medium".

ABSENCE OF HAZARD

The potential hazards involved in a load checking program include the risk from exposure while inspecting and handling waste. Proper equipment, training and management of the load checking program can reduce hazards. Other waste acceptance control activities, such as sign posting, training, and notification of proper HHW procedures pose minimal hazards. The overall hazardous waste exclusion program alternative was rated "medium".

FLEXIBILITY

The load checking program is mandated by the state. Additional inspections and notifications could be added to strengthen

existing programs. Hazardous waste exclusion activities are judged to have "medium" flexibility.

AVAILABILITY OF SERVICE

Not applicable.

PROVIDES IMMEDIATE NEED SERVICES

Not applicable.

LIMITED SHIFT IN WASTE TYPE GENERATION

A Hazardous Waste Exclusion Program might result in a desirable shift in waste type generation. By preventing illegal landfill disposal of hazardous waste, residents may be more likely to purchase and use less hazardous substitutes.

It is possible that load checking might deter landfill disposal of hazardous waste but at the same time result in an increase in illegal disposal elsewhere. It is anticipated, however, that illegal disposal will decrease as legal disposal options become more widely available and awareness increases about environmental impacts of improper disposal. This alternative was rated "medium".

EASE OF IMPLEMENTATION

The Hazardous Waste Exclusion Program was rated "high" as it is currently in place at all landfills in the County of Santa Clara.

FACILITY NEEDS

No new facilities are needed for the load checking program. Signs have been posted at the landfills. A "high" rating was assigned to this alternative.

CONSISTENCY WITH LOCAL POLICIES

The Hazardous Waste Exclusion Program is consistent with local and state policies to keep prohibited wastes from entering the landfill. A load checking program is required in California. The State Water Resources Control Board requires landfills to operate hazardous waste load checking programs (Section 2523, Title 23, California Code of Regulations (CCR)).

The Department of Health Services and the CIWMB require solid waste facilities to follow certain procedures regarding their load checking programs. The Department of Health Services requires a solid waste facility with a hazardous waste load

checking program to obtain an identification number as a hazardous waste generator. Hazardous waste will be stored for less than 90 days in accordance with a hazardous waste permit issued by the Department of Health Services. If hazardous waste will be stored for more that 90 days, the solid waste facility must apply to the Department of Health Services for a hazardous waste facility permit or variance. Hazardous Waste Exclusion Programs were rated "high" for consistency with local policies.

ABSENCE OF INSTITUTIONAL BARRIERS

No contractual or other institutional barriers are known that would interfere with the continuation of Hazardous Waste Exclusion Programs. A "high" rating was assigned.

ESTIMATED COST

Load checking program costs are included in the tipping fees assessed by Guadalupe Landfill. Program costs can vary, depending on the quantity of materials found and the number of loads checked. In general, however, the costs of these programs are low on a per-ton basis since only a small percentage of the waste stream is checked. The positive effect of the program lies in the knowledge among users of the landfill that such a program is in effect. This program is therefore considered very cost effective.

END USES (RECYCLABILITY AND REDISTRIBUTION POTENTIAL)

It is unlikely that significant amounts of HHW in good condition would be retrieved in the load checking program. Efforts by waste haulers to identify and reject HHW might encourage residents to use proper disposal methods, including recycling materials such as automotive batteries, latex paint and motor oil. Landfill sign posting and notices advising residents of upcoming HHW collection events also encourage residents to use the city-sponsored HHW collection system that will separate a number of materials for recycling and redistribution potential.

## 4.8 EVALUATION OF ALTERNATIVE 8 - HHW RECYCLING COMPONENT

A HHW Recycling Component would implement recycling procedures at all HHW collection programs. Oil, auto batteries and latex paint are currently recyclable. Solvent and antifreeze recycling may be implemented in the future.

WASTE DIVERSION POTENTIAL

Markets are already established for waste oil, auto batteries, and latex paint. Strong community support exists for the concept of recycling. HHW recycling diverts wastes from both solid waste landfills and hazardous waste landfills. Therefore, the waste diversion potential of the HHW recycling component is rated "high".

ABSENCE OF HAZARD

Some hazards are associated with collection and handling of latex paint. Latex paint that has been stored for many years may contain mercury and/or lead. Older latex paint, improperly labeled paint, paint not in its original container, and possibly contaminated paint should be disposed instead of recycled. Collection of used auto batteries may present hazards if batteries are cracked and leaking. Oil collection presents hazards of accidental spillage or exposure in a curbside collection program. However, recycling programs for latex paint, motor oil, and auto batteries are well-established in some Santa Clara County communities and have operated safely. Proper staff training and operating procedures can reduce potential hazards. A "medium" rating was assigned.

FLEXIBILITY

As more residents use the HHW programs, additional collection opportunities and HHW handling space might be required. This alternative was rated "high" in flexibility. Increasing amounts of recyclable materials can be accommodated without major changes in the program.

AVAILABILITY OF SERVICE

The HHW recycling component could be incorporated into mobile collection and/or the permanent facility. A "high" rating was assigned.

PROVIDES IMMEDIATE NEED SERVICE

Recyclable HHW can be accepted at a mobile unit and/or permanent facility, both of which are able to accommodate residents requesting immediate HHW disposal service. A "high" rating was assigned.

LIMITED SHIFT IN WASTE TYPE GENERATION

Not applicable.

EASE OF IMPLEMENTATION

Recycling of oil, auto batteries, and latex paint are well-established components of City-sponsored programs and will also be incorporated into the countywide HHW Program. No obstacles are known that would hinder the continuation of existing HHW recycling programs or implementation of new recycling procedures. The HHW recycling component alternative was rated "high".

FACILITY NEEDS

A "high" rating was assigned, as no additional facilities are required to operate the recycling component of a HHW collection program.

CONSISTENCY WITH LOCAL POLICIES

The City encourages recycling of solid and hazardous waste. The County Hazardous Waste Management (Tanner) Plan ascribes to the waste management hierarchy in which recycling is the most desirable management option. In addition, state regulations encourage the collection and recycling of latex paint, used oil, antifreeze, and lead-acid batteries. HHW recycling was therefore rated "high" in consistency with local policies.

ABSENCE OF INSTITUTIONAL BARRIERS

There are no known long-term contracts or franchise agreements that would interfere with recycling of HHW. A "high" rating was assigned.

ESTIMATED COST

The cost of recycling hazardous waste is very low in comparison with the cost of disposal. This program is very cost-effective.

END USES (RECYCLABILITY AND REDISTRIBUTION POTENTIAL)

A "high" rating was assigned, as recycling options for motor oil, automotive batteries, and latex paint are well-established. Common uses of recyclable HHW include the following:

- Latex paint can be collected, sorted, consolidated, blended, repackaged, and sold or given to local public agencies and nonprofit groups. It is commonly used to cover graffiti. It can also be sent to a paint company to be re-manufactured.

- Used oil is a valuable resource. Recycling used oil saves energy and natural resources. Used oil can be refined into

lubricating oil, reused as motor oil, or reprocessed and used as fuel in industrial burners and boilers. The Environmental Protection Agency estimates that only 1 gallon of used oil is needed to make 2.5 quarts of lubricating oil, compared to 42 gallons of raw crude oil.

- Lead-acid batteries - According to the CIWMB, 70 per cent of spent lead-acid batteries are recycled nationwide. California law requires retailers to accept trade-in of used batteries. Consumers can also deliver batteries to lead-acid battery recyclers or to HHW programs.

The average lead-acid battery contains 17.5 pounds of lead and 1.5 pounds of sulfuric acid. After the lead is separated from the non-metallic components of the battery, it is than smelted to produce soft lead and lead alloys. The non-metallic materials include sulfuric acid, which is neutralized and released into the sewer; and other non-recyclable, non-hazardous materials are disposed. [Household Hazardous Waste, Lead-Acid Batteries, CIWMB, September, 1990.]

- Small Household Batteries - Recycling options for small household batteries are very limited at this time. Silver oxide button batteries may be recycled, but substantial obstacles exist to collecting and sorting these batteries. Consumer nickel cadmium battery recycling may be available in the near future. Recycling options for small household batteries are currently under study by the CIWMB. Results of this study and related research will be monitored and resulting recommendations will be considered for implementation.

- Antifreeze - Used antifreeze can be recycled for use by the mining and glycol industries. Antifreeze is sprayed on coal to inhibit sticking. Antifreeze can also be used for airplane de-icing solution, cement grinding and brake fluid. [Household Hazardous Waste, Antifreeze, CIWMB, September, 1990.]

## 4.9 EVALUATION OF ALTERNATIVE 9 - HHW WASTE EXCHANGE COMPONENT

A waste exchange program recovers valuable materials from the HHW waste stream and makes these materials available for use. The County Division of Environmental Health Services estimates that approximately five per cent of incoming waste can be diverted for use. Waste exchange activities can take place at periodic events, mobile collection units, and permanent facilities. A permanent facility allows for storage of valuable products thereby enhancing waste exchange activities.

WASTE DIVERSION POTENTIAL

Usable materials can be diverted from disposal and made available to participating residents, voluntary organizations and public agencies. A HHW waste exchange program has a "high" waste diversion potential in that a high percentage of usable materials found in the incoming waste stream could be diverted from disposal by this program.

ABSENCE OF HAZARD

Waste exchange takes place under the supervision of HHW program staff, thereby limiting hazard. However, care must be taken that outdated or contaminated products are not redistributed. In addition, residents should be required to sign a waiver of liability before accepting reusable products. A waste exchange was rated "medium" in terms of its absence of hazard.

FLEXIBILITY

A HHW waste exchange component can be implemented or eliminated depending on available space, staff, and demand. A waste exchange was rated "high" in flexibility.

AVAILABILITY OF SERVICE

The HHW waste exchange activities can be added to periodic events, mobile collection or a permanent facility. A "high" rating was assigned.

PROVIDES IMMEDIATE NEED DISPOSAL SERVICES

Not applicable.

LIMITED SHIFT IN WASTE TYPE GENERATION

Not applicable.

EASE OF IMPLEMENTATION

A HHW waste exchange component involves examination of incoming waste and segregation of usable materials for distribution to residents or public agencies. The implementation of waste exchange activities is tied to the operation of a periodic, mobile, or permanent facility, all of which can implemented in the short-term planning period (before 1995). A "high" rating was assigned.

FACILITY NEEDS

No new facilities would be required to implement a HHW waste exchange component. However, the ability to store valuable products between events at the permanent facility will increase the program's ability to redistribute valuable products. A "high" rating was assigned.

CONSISTENT WITH LOCAL POLICIES

The City supports efforts to reduce volume and toxicity of the waste stream. Waste exchange efforts were therefore rated "high".

ABSENCE OF INSTITUTIONAL BARRIERS

There are no known institutional barriers, such as contracts or franchise agreements, that would interfere with implementation of waste exchange activities as a component of HHW collection programs. A "high" rating was assigned.

ESTIMATED COST

Waste exchange activities are not expected to add to the cost of HHW collection. In fact, this alternative has the potential to reduce waste disposal costs by distributing valuable products to residents and agencies.

END USES (RECYCLABILITY AND REDISTRIBUTION POTENTIAL)

A HHW waste exchange component was rated "high" in recyclability/redistribution potential as the purpose of this component is to redistribute usable products.

# CHAPTER 5

# SELECTION OF HHW PROGRAM

## 5.1 ALTERNATIVES SELECTED

The selection of HHW management alternatives was based on the results of the solid waste generation study evaluation described above in Chapter 4 and summarized in Table 4.1.

### 5.1.1 SHORT-TERM PLANNING PERIOD

The following alternatives were selected to properly manage HHW during the short-term planning period (1991-1995) in the City.

| | |
|---|---|
| Alternative 4 | Combination Mobile Unit Plus One Permanent Facility |
| Alternative 5 | Curbside Motor Oil Collection |
| Alternative 7 | Hazardous Waste Exclusion Program |
| Alternative 8 | Household Hazardous Waste Recycling Component |
| Alternative 9 | Household Hazardous Exchange Component |

Alternative 4, the combination program which includes both a mobile collection unit and one permanent facility, was selected. The mobile collection unit has the ability to provide convenient, cost-effective services to a large geographical area. The unit will be operated within a 20-minute commute of most residents in participating cities. A mobile collection unit is highly flexible as both location and frequency of operation can be readily changed to accommodate variations in demand or shifts in population density. Residents requesting immediate disposal services can be accommodated at the mobile unit. The mobile unit will operate on an appointment basis. Residents arriving at the mobile unit without appointment will be accommodated when possible. The mobile unit became operational in late 1991.

The permanent collection facility has the ability to provide convenient, cost-effective services for a large, centralized portion of the county. The permanent facility can also meet the needs of residents throughout the county who are moving and request immediate disposal services.

A permanent facility can process participants efficiently and safely due to the presence of permanent, trained staff, proper equipment, and storage capabilities. Options for reuse and recycling of collected materials are enhanced due to space for

storage. A permanent facility is flexible in that the hours of operation can increase as demand for HHW disposal services increases.

Depending on the complexity of the siting, environmental review, and permitting process, the facility should be operational before the end of the short-term planning period (before 1995). The planning process is already underway for the permanent facility and it is anticipated that the facility could be operational in one to two years.

Additional advantages of this alternative over the periodic events alternative are as follows. It would relieve cities of the burden of planning and staffing HHW events. Waste disposal and planning costs may be lower due to the advantage of an economy of scale for a countywide program. The combination of these two methods of HHW collection (a mobile unit plus one permanent facility) has advantages in the location and frequency of service, ease of implementation, and ability to provide immediate need service in a cost-effective manner.

Alternative 5, curbside motor oil collection, was selected due to its potential to divert large quantities of one of the most prevalent types of HHW. This alternative does not require the development of a new program, rather, existing programs will be continued and expanded.

Alternative 7, the hazardous waste exclusion program, has the potential to divert incoming HHW from disposal at the landfill. This alternative can also help to educate residents and waste haulers about proper disposal of HHW. Hazardous waste exclusion programs are mandated by the state, and are already in place at all landfills in Santa Clara County.

Alternative 8, the HHW recycling component, was selected for inclusion in the permanent facility and mobile collection unit. Materials such as latex paint, motor oil, and automotive batteries can be easily separated from the incoming HHW and sent for recycling instead of disposal. The recycling component has the potential of reducing the costs of the HHW collection program as there will be a reduction in the amount of HHW sent for more expensive hazardous waste disposal. Recyclable HHW materials will be sent only to permitted facilities and environmental compliance records will be maintained on file for all waste haulers and treatment, storage, and disposal companies.

Alternative 9, a HHW waste exchange component, was selected due to its ability to divert usable HHW from disposal by making it available for redistribution to residents, public agencies, and non-profit organizations. Waste exchange activities can take

place at both the mobile collection unit and the permanent facility. The HHW waste exchange component is not expected to add to program cost, and in fact, may reduce costs by reducing the amount of HHW sent for disposal.

### 5.1.2 MEDIUM-TERM PLANNING PERIOD

The following programs were selected to manage HHW during the medium-term planning period (1995-2000).

Alternative 4 Combination Mobile Unit Plus Permanent Facility
Alternative 5 Curbside Motor Oil Collection
Alternative 7 Hazardous Waste Exclusion Program
Alternative 8 Household Hazardous Waste Recycling Component
Alternative 9 Household Hazardous Waste Exchange Component

All of the alternatives chosen for the short-term planning period will be continued into the medium-term planning period. Additional source reduction options will be explored in the medium-term planning period.

## 5.2 TYPES AND QUANTITIES OF HHW ANTICIPATED TO BE COLLECTED RECYCLED, AND/OR DISPOSED

The amount of HHW to be collected, recycled or disposed from 1991 to 2000 in the City is dependent on several factors: convenience, accessibility, and efficiency of the collection services; funding available to operate the services, and the success of source reduction efforts. It is anticipated that demand for HHW services will grow as more residents become aware of proper disposal procedures and as the population of the City increases. Projections prepared by the Association of Bay Area Governments indicate that the population of the City is expected to remain essentially constant through 2005. At the same time, public education efforts should result in changes in buying habits that result in a decrease in HHW generation. Using 1990 as the baseline year, the City anticipates that implementation of the programs described in this element will result in annually increasing diversion of HHW from the municipal waste stream in the City.

Each year, the City will evaluate participation rates and demand for services. In addition, the amount of HHW diverted and the amount of HHW remaining in the municipal waste stream will be monitored periodically by waste characterization studies. Based on these evaluations, additional HHW services may be provided as

funds become available. Potential sources of additional funds include surcharges on garbage collection fees and advanced disposal fees added to product purchase prices.

Table 5.2 below shows the estimated amounts of HHW to be collected, recycled and/or disposed through the existing and proposed programs in the 1991-92 fiscal year in the City.

**Table 5.2 Estimated Pounds of HHW To Be Collected In FY 1991-92**

| Category | Recycled | Blended Fuel | Incinerated Disposed |
|---|---|---|---|
| Flammables | 2,090 | 570[1] | 6,600 |
| Pesticides | | | 640 |
| Corrosives | | | 120 |
| Oxidizers | | | 45 |
| Misc. | | | 1,160 |
| TOTAL | 2,090 | 570 | 8,565 |

The City estimates that HHW to be collected, recycled, and disposed in 1991-1992 through periodic drop-off events will be approximately three times the HHW collected, recycled, and disposed from these events in 1990. The increase is estimated based on a budgeted participation of 110 households versus the actual participation of 36 households in 1990. Curbside collection of motor oil is expected to increase about five per cent.

The end uses for diverted materials are described in this Element in Chapter 4, Sections 4.5, 4.7, 4.8, 4.9 and 5.6.

At present, it is not possible to determine the amount of HHW that will be diverted by source reduction education efforts. Methods for evaluating the success of source reduction activities are currently under development. Possible methods include

[1]Curbside Oil Collection

monitoring of changes in purchasing habits using industry marketing data; random telephone surveys; and questionnaires at collection events. Programs should not be evaluated using only self-reported data from surveys, since survey results can be easily biased by the wording of the questions, respondents' inability to recall details about past purchasing habits, and a tendency to report the desired behavior. The linguistic and cultural diversity of the community would further complicate use of survey tools to accurately measure source reduction.

The City intends to support legislative efforts, as described in the County Hazardous Waste Management (Tanner) Plan, to encourage the development of less- or non-hazardous products. As such products become available to replace currently marketed products that generate HHW, it may be possible to quantify the resulting reduction in HHW generation for specific products or materials.

## 5.3 FACILITIES NEEDED FOR IMPLEMENTATION

The permanent facility could be a lower cost operation utilizing roll-off bins, fencing, and spill/run-off containment structures. Other options include the use of a modified existing structure or a specially designed and constructed building. A permanent facility should have separate storage bays or bins, explosion proofing, ground columns, proper containment, sufficient ventilation and adequate emergency response and safety equipment. It should be situated on an impervious surface and be fenced for security.

## 5.4 HANDLING AND DISPOSAL METHODS

Handling and disposal methods are regulated by local, state, and federal agencies. The mobile unit and permanent facility will be staffed by professionals trained to handle hazardous materials. Regulations will be monitored for changes and HHW programs will be modified accordingly.

Contractors who will haul and dispose of waste collected by the program must be licensed hazardous waste haulers. Environmental compliance of treatment, storage and disposal facilities will be monitored by the Santa Clara County Department of Environmental Health Services. To the maximum extent feasible, collected HHW will be diverted from disposal for recycling or reuse.

## 5.5 MULTI-JURISDICTIONAL HHW EFFORTS

As described in Part 1, Chapter 2.2, the City intends to participate in the countywide HHW Program for collection services. Multi-jurisdictional public education programs are described in detail in Chapter 8. This multi-jurisdictional effort is expected to provide convenient, accessible, and cost-effective services for residents of the City. The Agreement for Services between Santa Clara County and the City (Attachment #5) delineates the collection and monitoring procedure, as well as the costs for the scheduled events.

Representatives from all cities and the County participated in the Household Hazardous Materials Working Group planning process which developed the countywide HHW Program. The program has been reviewed and endorsed by the Solid Waste Technical Advisory Committee (TAC), the Inter-governmental Council (IGC) Solid Waste Committees, and the IGC. County departments have received the approval to administer the program from the Board of Supervisors on 2/26/91. The Board Transmittal authorizing the program is included as Attachment 4.

Implementing the countywide program will promote regional cooperation and expand services available to residents of all participating jurisdictions. Providing convenient, year-round access to service on a countywide basis will maximize the amount of HHW diverted from the municipal waste stream and meet the demands for ongoing HHW disposal services.

## 5.6 REUSE, RECYCLING, AND END USES FOR DIVERTED MATERIALS

In 1990, 70 per cent of the HHW collected in the City was sent for incineration or disposal, 13 per cent was reprocessed as blended fuel and 17 per cent was sent for recycling. This includes 2 tons of oil and paint collected at the 1990 HHW event. Although no data is available on the pounds or number of items taken home by residents, the waste exchange was well received.

It is anticipated that the countywide HHW Program will continue to recycle about 17 per cent of the total HHW collected in the City. New recycling options may become available for materials such as oil-based paints and solvents in the future and should result in a greater percentage of HHW sent for recycling. For recycling methods for specific wastes, see Chapter 4, Section 8 of this Element.

A HHW waste exchange component will be included at the mobile collection unit and permanent facility to further divert reusable materials from disposal. The material should be in its original container, and, if opened, the program staff must judge the contents to be sound and uncontaminated. The party accepting material for reuse should be required to sign a liability waiver releasing the facility operation from responsibility.

End uses for materials diverted through HHW recycling or reuse efforts were described in Chapter 4, Evaluation of HHW Management Alternatives under the "End Uses" criteria.

# CHAPTER 6

# PROGRAM IMPLEMENTATION

This section describes the responsible parties, necessary tasks, estimated costs, and sources of funding for the implementation of the selected HHW program.

## 6.1 GOVERNMENT AGENCIES RESPONSIBLE FOR IMPLEMENTATION

The Administrative Department is responsible for oversight of the HHW management in the City. The Chief Administrative Officer will be the liaison between the City and the countywide HHW Program and will participate in planning and evaluating the HHW collection and education activities as they pertain to the City.

The countywide HHW Program will be implemented by the County of Santa Clara Division of Environmental Health Services and the Department of Planning and Development. The Division of Environmental Health Services will serve as the lead agency for the administration and implementation of the HHW collection program. Hazardous materials specialists and environmental health specialists will be utilized for development and initial implementation of the collection program. Health Department in-house support services include an industrial hygienist, a toxicologist, and a chemist. A public health laboratory is available. Health Department staff will contract for transportation and disposal of the HHW in compliance with federal, state, and local regulations.

The County's Department of Planning and Development will serve as the lead agency for public education. The County Planning Department will coordinate the educational efforts with participating cities, County Environmental Health, Santa Clara Valley Water District, the wastewater treatment facilities, schools, and non-profit agencies.

## 6.2 IMPLEMENTATION TASKS AND SCHEDULE FOR SHORT-TERM AND MEDIUM-TERM PLANNING PERIODS

The schedules for implementation for the selected HHW programs are included in Table 6.1. Once established, it is anticipated that these programs will continue during the short- and medium-term planning periods. However, each program will undergo an annual evaluation and may be modified to meet the needs of the residents. The completion dates included in Table 6.1 are estimates and may be modified.

**TABLE 6.1 IMPLEMENTATION TASKS AND SCHEDULES FOR SHORT- AND MEDIUM-TERM PLANNING PERIODS**

| TASK | COMPLETION DATE |
|---|---|
| **Mobile Collection Unit** | |
| o Formalize Interjurisdictional Relationships for HHW Services | 1991 |
| o Select Mobile Sites | 1991 |
| o Obtain Permits | 1991-1992 |
| o Purchase Equipment and Supplies | 1991 |
| o Recruit and Train Staff | 1991, ongoing |
| o Develop Collection Program Schedule | 1991, annually |
| o Develop Recordkeeping System | 1991 |
| o Evaluate Environmental Compliance of Contractors | 1991, ongoing |
| o Contract for Waste Transportation, Recycling, and Disposal Services | 1991 |
| o Advertise Mobile Unit Schedule | 1991, ongoing |
| o Conduct Mobile Collection Events | 1991, ongoing |
| o Conduct Annual Evaluation of Mobile Unit Program | 1992, annually |
| o Adjust Program and Service Based on Cities' Desired Level of Participation and Feedback from Cities and Residents | 1992, annually |
| **Permanent Facility** | |
| o Identify Potential Sites | 1991-1992 |
| o Evaluate Staffing and Operational Alternatives | 1991-1992 |
| o Identify Permit Requirements | 1991-1992 |
| o Select Site | 1992 |
| o Obtain Permits, Variances | 1992-1993 |
| o Develop Agreement Between County and Site Location | 1992-1993 |
| o Construct/Modify the Facility | 1992-1993 |
| o Obtain Equipment and Supplies | 1992-1993 |
| o Evaluate Environmental Compliance of Contractors | 1992-1993 |
| o Contract for Waste Transportation, Recycling, and Disposal Service | 1992-1993 |
| o Recruit and Train Staff | 1992-1993, ongoing |
| o Develop Recordkeeping System | 1992-1993 |
| o Advertise Permanent Site Location and Hours | 1992-1993, ongoing |
| o Open Permanent Facility | 1992-1993 |
| o Conduct Annual Evaluation of Permanent Facility | annually |
| o Adjust Program and Service Based on Cities' Desired Level of Participation and Feedback From Cities and Residents | annually |
| **Curbside Motor Oil Collection** | |
| o Continue operations of curbside motor oil collection | 1991, ongoing |
| **Hazardous Waste Exclusion Program** | |
| o Continue Operation of Hazardous Waste Exclusion Program | 1991, ongoing |
| o Include Report on Hazardous Waste Exclusion Program in Annual Evaluations | annually |
| **HHW Recycling Component** | |
| o Evaluate Environmental Compliance Records of HHW Recycling Contractors | 1991, ongoing |
| o Contract for Recycling Services for collected HHW | 1991, ongoing |
| o Re-evaluate and Update Recycling Options Annually | 1991, annually |
| **HHW Waste Exchange Component** | |
| o Include HHW Waste Exchange Procedures in Staff Training | 1991-1992, ongoing |
| o Develop Waiver for Residents to Sign Before Accepting Materials | 1991 |
| o Include Additional Table and Storage at Mobile Unit and Permanent Facility | 1991-1992, ongoing |

**Monitoring and Evaluation of HHW Program**

| | |
|---|---|
| o Obtain Records from Mobile Unit and Permanent Facility Administrator | 1992, annually |
| o Obtain Records from Hazardous Waste Exclusion Programs | 1992, annually |
| o Obtain Records from City-sponsored HHW Programs | 1992, annually |
| o Conduct Survey of Participating City HHW Program Administrators | 1992, annually |
| o Conduct Survey of Residents | 1992, annually |
| o Analyze Participation Data for under-representation | 1992, annually |
| o Analyze Adequacy of Services | 1992, annually |
| o Write and Distribute Annual Report | 1992, annually |
| o Modify Programs as Necessary | 1992, annually |

## 6.3 COST OF PROGRAMS

The City's estimated annual costs for 1991 for HHW programs are summarized in Table 6.2 below. Each year, the City will review its HHW services, including both services provided through the countywide HHW Program as well as the City-sponsored programs such as curbside oil collection and waste acceptance control at the landfill. Based on this review, approved costs for these services will be recovered from the refuse rate fees assessed by the City.

**Table 6.2 Costs for Selected Programs, 1991**

| Program | Estimated Annual Costs | Source of Funding |
|---|---|---|
| Alternative 4<br>Combination:<br>Mobile Plus Permanent | $1,000,000 | *All participating Cities |
| City of Monte Sereno | $ 11,000** for 110 vehicles | General Fund |
| Alternative 5<br>Curbside Oil Collection(existing) | Included in residential service | General Fund |
| Alternative 7<br>Hazardous Waste Exclusion Program | (Not available) | General Fund |

This program (Alternative 7) is funded through landfill tipping fees at no additional cost to the City. Program administration/enforcement is part of the County Department of Environmental Health Services budget.

| | | |
|---|---|---|
| Alternative 8<br>HHW Recycling | Included in $100 per vehicle cost for Alternative 4 | |
| Alternative 9<br>HHW Waste Exchange Program | No additional cost anticipated | |

*The above estimate was derived by multiplying the anticipated 10,000 vehicles to be served countywide by an estimated $100 per vehicle cost. The 10,000 vehicles figure is based on participating cities' commitment as of March 15, 1990.

**The $100 per car is the estimated cost for operating the pilot program in fiscal '91-'92. The $100 per vehicle cost can be estimated as follows: Labor: $24, Disposal/Hauling: $39, Supplies: $7, Training, Advertising, Equipment and Administrative: $30.

## 6.4 SOURCES OF FUNDING FOR IMPLEMENTATION OF HHW PROGRAM

The countywide HHW Program has several sources of funding, as described below.

- Each city participating in the program will pay for services of the countywide program on a per-car basis.
- Funds for serving county unincorporated residents will come from garbage surcharge fees.
- The County Solid Waste Program staff may assist in preparation of annual reports.

The City's HHW programs (curbside oil collection, etc.) are already and will continue to be funded by user fees. These fees are charged to all users of garbage and refuse services in the City.

# CHAPTER 7

# MONITORING AND EVALUATION

## 7.1 METHODS TO QUANTIFY AND MONITOR ACHIEVEMENT OF SHORT-TERM PLANNING PERIOD OBJECTIVES

### OBJECTIVE #1 PROVIDE RESIDENTS WITH ACCESS TO CONVENIENT HOUSEHOLD HAZARDOUS WASTE COLLECTION SERVICES

EVALUATION METHOD 1 - Participation records will be kept at all events and programs. Results will be compiled for inclusion in annual reports.

EVALUATION METHOD 2 - Analyses will be done of the geographical distribution of collection event participants. If communities or neighborhoods are found to be under-represented, the causes of the under-representation will be analyzed and appropriate steps will be taken to address this problem. This data will be included in annual reports.

EVALUATION METHOD 3 - Progress on siting, permitting, and constructing a permanent HHW collection facility will be monitored by the County Health Services Administrator every three months to ensure that the project is progressing on schedule. A progress report on the development and operation of the permanent facility will be included in annual reports.

EVALUATION METHOD 4 - A survey of participants will be done annually to determine level of satisfaction and identify problems. Participants will be queried regarding: ease in obtaining information about the program; length of wait for appointment; convenience of location; length of wait at collection site; the service provided by the collection event staff; convenience of operating hours.

EVALUATION METHOD 5 - The amount (tonnage) of material collected by all HHW programs will be recorded. This data will be compiled and included in annual reports.

It should be noted that the <u>total waste collected</u> figures can be misleading for use as a program evaluation criterion. A number of factors can affect these figures, making year-to-year comparisons difficult. For example, successful source reduction efforts will reduce the amount of HHW generated per household. Furthermore, many households' first drop-off is likely to be larger than subsequent drop-offs because it includes the items that have been stored for extended periods of time. Therefore,

while HHW collection programs will become more accessible and efficient, the amount of HHW collected per household may actually decline over time. These effects may be particularly noticeable during the medium-term planning period (1995-2000).

Despite these limitations, the total amount collected is an important element in evaluating the success of the program. Every effort will be made to collect accurate data on amounts of HHW collected. The countywide HHW Program's efforts to standardize HHW measurement methods will increase the accuracy of these evaluation efforts.

EVALUATION METHOD 6 - The baseline waste characterization study data will be compared to subsequent waste characterization studies to evaluate the amount of HHW entering the landfill.

This type of comparison should be used with caution. In addition to the limitations described above, the percentage of the waste stream that is HHW in future waste characterization studies may not be an accurate means of evaluating the HHW program. The solid waste recycling, composting and source reduction programs will substantially reduce the overall amount of solid waste in the short-term planning period. The amount of HHW entering the landfill is expected to decline, but may not decline at the same rate as solid waste. This may result in an increase in the percentage of HHW in the solid waste stream, while the amount of HHW may actually be decreasing. Adjustments should be made to account for these factors.

**OBJECTIVE #2 - CONTINUE CURBSIDE MOTOR OIL COLLECTION PROGRAM, TO THE MAXIMUM EXTENT POSSIBLE, TO INCLUDE ALL SINGLE FAMILY DWELLINGS IN THE CITY**

EVALUATION METHOD 1 - The amount of motor oil collected by the curbside collection program will be included in the annual report. The number of households eligible and number of households participating in curbside oil collection will also be included.

EVALUATION METHOD 2 - As noted in Part II, Chapter 1, Section 1.1, the existing curbside motor oil collection program serves all dwelling units. Since the City has only single-family units and no multi-family dwelling units are anticipated, expanding these services for the latter dwelling type do not appear likely.

**OBJECTIVE #3 - MINIMIZE DISPOSAL OF COLLECTED HHW THROUGH DISTRIBUTION OF REUSABLE MATERIALS AND HHW RECYCLING**

EVALUATION METHOD 1 -Each type of HHW diverted for recycling will be tracked to determine the total amount of waste recycled. The data will be included in annual reports.

EVALUATION METHOD 2 - The types and amounts of HHW redistributed to non-profit groups and public agencies will be recorded for inclusion in annual reports.

EVALUATION METHOD 3 - The amount of HHW redistributed to residents at HHW events will be recorded for inclusion in annual reports.

**OBJECTIVE #4 - IMPROVE MONITORING AND EVALUATION OF HHW PROGRAM**

EVALUATION METHOD 1 - At the end of the first year of operation, the new measurement method will be evaluated by participating cities and agencies.

**OBJECTIVE #5 - LIMIT IMPROPER DISPOSAL OF HAZARDOUS WASTE AT SOLID WASTE LANDFILLS BY CONTINUING STATE-MANDATED HAZARDOUS WASTE EXCLUSION PROGRAMS**

EVALUATION METHOD 1 - The Department of Environmental Health Services' annual reports on the hazardous waste exclusion program will be included in the annual HHW program reports.

EVALUATION METHOD 2 - The quantities of HHW discovered in the load checking program will be charted in order to monitor increases or decreases from previous years.

**OBJECTIVE #6 INCREASE EFFICIENCY AND EFFECTIVENESS OF HHW COLLECTION SERVICES AND PUBLIC EDUCATION BY COORDINATING PROGRAMS WITH OTHER JURISDICTIONS AND AGENCIES WHENEVER FEASIBLE**

EVALUATION METHOD 1 - Annual surveys of participating City officials will be done to determine overall level of satisfaction and to identify problems in the collection and public education programs.

EVALUATION METHOD 2 - Annual surveys of agencies and organizations involved in the Countywide HHW Program will be done to assess satisfaction with the cooperative HHW collection and public education efforts.

**OBJECTIVE #7 - DECREASE POTENTIAL SHORT- AND LONG-TERM LIABILITY RISKS BY MONITORING ENVIRONMENTAL COMPLIANCE RECORDS AND PROOF OF INSURANCE OF CONTRACT WASTE HAULERS AND CONTRACT TREATMENT, STORAGE AND DISPOSAL FACILITIES**

EVALUATION METHOD 1 - An environmental compliance file will be maintained for each hazardous waste management and recycling firm utilized by the program. The file will be reviewed and updated annually to include environmental compliance records, results of on-site audits; and proof of liability insurance. A summary of these activities will be included in the annual reports.

**OBJECTIVE #8 INCREASE SOURCE REDUCTION OPTIONS FOR RESIDENTS BY SUPPORTING LEGISLATIVE EFFORTS AIMED AT DEVELOPMENT OF SAFER PRODUCTS AND SAFER HHW MANAGEMENT METHODS**

EVALUATION METHOD 1 - The annual HHW management report will include a summary of legislative efforts sponsored or endorsed by participating cities and the County for the unincorporated area.

## 7.2 METHODS TO QUANTIFY AND MONITOR ACHIEVEMENT OF MEDIUM-TERM PLANNING PERIOD OBJECTIVES

**OBJECTIVE #1 - CONTINUE THE OBJECTIVES DEVELOPED FOR THE SHORT-TERM PLANNING PERIOD INTO THE MEDIUM-TERM PLANNING PERIOD**

EVALUATION METHOD 1 - The evaluation methods described above for the short-term planning period objectives will be continued into the medium-term planning period.

**OBJECTIVE #2 - INCREASE SOURCE REDUCTION EFFORTS**

EVALUATION METHOD 1 - At the beginning of the medium-term planning period, additional strategies for promoting source reduction will be considered.

## 7.3 WRITTEN CRITERIA FOR EVALUATING PROGRAM'S EFFECTIVENESS

The county HHW Program will prepare annual reports describing the findings of the evaluation outlined above. Also included in the reports will be jurisdiction-specific data indicating the total amount of HHW diverted; amount recycled; number of residents utilizing the programs; and cost per ton, yard, or drum to divert HHW. When future waste characterization studies are done, the amount of HHW remaining in the waste stream will be included.

Additional information describing the markets for recyclable HHW materials will be included in the annual report. The markets for

recyclable materials will be monitored to determine if additional markets are necessary or if additional materials can be sent for recycling.

The annual report will also include an overall evaluation of the adequacy of the HHW collection services. Increases in demand for services and increases in population will warrant adjustments in the operating schedule of the mobile collection unit and the permanent facility. In addition, under-utilization in specific communities or neighborhoods will be examined and addressed.

## 7.4 RESPONSIBLE PARTIES FOR MONITORING, EVALUATION, AND REPORTING

The City's Administrative Department, the Santa Clara County Solid Waste Program and the County Department of Environmental Health Services will monitor and evaluate the HHW Program described above. The City's Administrative Department will participate in the countywide HHW planning, implementation, monitoring, and reporting activities. The County Solid Waste Program intends to assist in preparation of annual reports on the countywide HHW Program. The Department of Environmental Health Services will implement and monitor the mobile and permanent facility collection activities as well as the landfill load checking programs.

## 7.5 FUNDING REQUIREMENTS FOR MONITORING AND EVALUATION

Monitoring and evaluation of HHW management in the City will be funded through existing and future franchise fees. The County Solid Waste Program budget includes funding for administrative activities such as recordkeeping, monitoring recyclable materials markets, tracking the demographics of participants utilizing the program, and annual report-writing. The County Environmental Health Department's HHW and landfill load checking programs includes recording keeping and reporting procedures.

## 7.6 CONTINGENCY MEASURES

If the programs described above fail to meet the goal of diverting HHW from landfill disposal, the following tasks can be implemented:

- Analyze existing programs for obstacles to successful implementation
- Increase or improve education and advertising efforts

- Increase the number of sites for the mobile collection unit
- Increase the hours of operation at the permanent facility and mobile collection unit
- Increase funding and staff
- Modify objectives
- Revise the implementation schedule for the permanent facility
- Increase enforcement efforts
- Increase penalties for improper disposal
- Increase frequency of program monitoring and review

# CHAPTER 8

# EDUCATION AND PUBLIC INFORMATION

## 8.1 OBJECTIVES FOR SHORT- AND MEDIUM-TERM PLANNING PERIOD

### OBJECTIVE #1 - INCREASE RESIDENTS' AWARENESS OF SOURCE REDUCTION, SAFER USE AND PROPER DISPOSAL OF HHW

Multi-jurisdictional Education and Public Information Program

The City will participate in public education programs which will be coordinated by the countywide HHW Program. The countywide HHW Program will coordinate public education efforts with the Nonpoint Source Pollution Control Program, the wastewater treatment plants' source reduction programs, the school science education curriculums, and non-profit educational organizations.

City Public Education and Information Programs

The City will continue to provide information to residents regarding the City-sponsored HHW programs (egs., curbside oil collection and waste acceptance control at the landfill) and the countywide HHW program for residents in immediate need of services.

Source Reduction

Residents will be informed of the availability of less or non-hazardous substitutes. The need for public support for development of products which do not result in the generation of household hazardous waste will be included in public education materials.

Use and Storage

Residents will continue to be informed about the hazardous nature of some products and methods for proper use and storage of such products.

Proper Disposal

Residents will continue to be informed of the environmental hazards associated with improper disposal of HHW, and will receive guidance on proper disposal methods.

**OBJECTIVE #2 - INCREASE THE ACCURACY AND UNIFORMITY OF HHW SOURCE REDUCTION AND DISPOSAL PUBLIC INFORMATION DISSEMINATED BY PUBLIC AGENCIES**

Training for Use of Guidebook

Employees of public agencies and organizations in Santa Clara County who respond to public inquiries regarding HHW will be eligible to participate in training on the use of the "Guidebook for Proper Management of Household Waste for the Protection of Our Local Environment". The Guidebook was distributed to approximately 250 agencies and organizations in the spring of 1991.

Guidebook Updates

The County Hazardous Waste Planning staff will oversee updates/supplements of the manual as necessary.

## 8.2 EXISTING EDUCATION AND PUBLIC INFORMATION PROGRAM

City-sponsored Education Efforts

The City has sponsored educational efforts to inform residents of proper disposal methods of HHW. In addition, residents have received guidance on how to generate less hazardous waste by using less- and non-hazardous alternatives. These efforts include:

- Publication and distribution of the "Take Me Shopping-A Consumer Guide to Safer Alternatives For Household Hazardous Products". Copies were provided to the school for distribution to residents in 1990.
- Publication of the "Your Home and Hazardous Materials" brochure which was available for pick up at City Hall in 1990 and 1991.
- Phone inquiries from residents regarding HHW disposal and alternative products are answered by City staff. In 1990, approximately 100 calls were handled.
- Distribution via U.S. mail of a notice to all households advising them of the upcoming event and HHW accepted for collection.
- Newspaper articles in the City-government paper or other local newspapers.

## Non-profit and Volunteer Organization Efforts

### League of Women Voters

In 1990, the League of Women Voters sponsored the production and distribution of a video entitled "Cleaning Up Toxics at Home". The League distributed copies of the video to 16 libraries, 15 city governments, the County Hazardous Waste Management Program, 7 junior colleges, 3 universities, and 8 perinatal education groups in Santa Clara County.

The League also printed and distributed 4,000 copies of "Take Me Shopping", as well as a flyer entitled "Cleaning Up Toxics", in 1990.

## Public Agency-Sponsored Programs with Participation of City

### Nonpoint Source Pollution Control Program

In 1988, the City joined the Nonpoint Source Pollution Control Program, a project of the Santa Clara Valley Water District. Nonpoint source water pollution refers to pollutants which run-off from broad areas of land rather than enter the water through a discrete pipe or conduit. The purpose of the Nonpoint Source Program is to reduce stormwater-borne pollutants entering the southern San Francisco Bay. Specific pollutants of concern, in order of priority, are heavy metals (cadmium, copper, lead, mercury, nickel, silver, and selenium); hydrocarbons (contained in oil and grease): pesticides and herbicides; suspended sediments; and organic pollutants.

The Nonpoint Source Program Public Information/Participation Plan aims to inform the public about the causes and origins of nonpoint source pollution, explain the correct practices for controlling pollutants at their source, and involve the active support of the public in implementing these practices. The Nonpoint Source Program aims to reduce improper disposal of HHW into nonpoint pathways and, at the same time, discourage disposal of HHW into the solid waste stream.

In 1991, the Nonpoint Source Program began its public educational efforts with publication of a brochure entitled "The Bay Begins at Your Front Door!" The brochure explains how residents can prevent pollution of the San Francisco Bay by keeping hazardous materials from entering the storm drain system. The Nonpoint Source Control Program plans to distribute this brochure and several pollutant specific brochures focusing on motor oil and pesticides. Additional educational programs are under development.

Wastewater Treatment Plants

The San Jose/Santa Clara Water Pollution Control Plant serves the Cities of San Jose, Santa Clara, and Milpitas; the Cupertino Sanitary District, County Sanitation District No. 2-3, and the West Valley Sanitation District serving the Cities of Campbell, Los Gatos, Monte Sereno and Saratoga; and the Sunol Sanitary District and the Burbank Sanitary District in the unincorporated area. The plant sponsors a public education effort aimed at reducing the discharge of hazardous wastes into the sanitary sewer system. Residents are informed of proper disposal methods for hazardous materials and urged to use the HHW collection days for household-generated wastes. The San Jose/Santa Clara plant is planning a public education and waste minimization program, scheduled to begin in 1992.

Santa Clara County Office of Education

The County Office of Education oversees the implementation of the State Department of Education's mandated Science Framework in the 37 school districts in Santa Clara County. A revised science curriculum is being phased into the schools in 1990 and 1991 and contains lessons on hazardous materials for grades K-12.

Santa Clara County Hazardous Waste Management Plan (Tanner Plan)

The Santa Clara County Tanner Committee developed the following three public education policies for management of HHW. The Plan was formally approved by the City and will be adopted by the City upon approval of the Plan by the State Department of Health Services.

Public Education Policy #1

"The County and Cities shall coordinate the development of a program for the proper management and disposal of household hazardous waste on a countywide basis in accordance with the waste management hierarchy and considering existing programs and conditions."

This policy resulted in the formation of the Household Hazardous Materials Working Group. The Working Group is composed of representatives from each of the cities; County hazardous waste, solid waste and environmental health staff; private solid waste contractors; and community advisory members. The Working Group conducted a thorough evaluation of HHW management alternatives. This evaluation resulted in a decision to implement a pilot countywide HHW collection and public education program in fiscal

year 1991-1992. The evaluation of HHW management alternatives and a description of the selected program are included in this document.

Public Education Policy #2

"The County, in coordination with the Cities, shall initiate a public education campaign which will inform all county residents about the potential hazards associated with household products, how to dispose of them safely, and safe substitute products and practices that can be used in place of hazardous substances."

Several educational publications have been produced: "Take Me Shopping - A Consumer Guide To Safer Alternatives For Household Hazardous Products" and "The Guidebook for Proper Management of Hazardous Wastes". Additional countywide educational activities are currently under development and are described in detail in this document.

Public Education Policy #3

"The County, in coordination with the Cities and industry, shall engage in direct public education concerning hazardous waste reduction and management such as workshops, utilization of the media, school programs, and information dissemination."

As a result of this policy, industry-specific waste minimization workshops have been held in the county. Workshops for the metal finishing industry and the automotive service industry provided up-to-date waste minimization and regulatory compliance information to over 500 local businesses as of March 15, 1991. In addition, one jurisdiction is working with its local industry in developing a pilot educational program to provide waste minimization information to all types of hazardous waste generators. Business and industry associations are also participating in these efforts. In addition, an effort to coordinate hazardous waste public education programs with local schools is underway, and includes the participation of several local community colleges.

## 8.3 IMPLEMENTATION OF EDUCATION AND PUBLIC INFORMATION PROGRAM IN THE SHORT- AND MEDIUM-TERM PLANNING PERIODS

### 8.3.1 PROGRAM DESCRIPTION

Countywide Efforts

The City plans to participate in the educational efforts coordinated by the countywide HHW Program. Residents will be informed about how to use, store, and dispose of household hazardous waste properly. An aggressive source reduction component will be included to promote less hazardous alternatives and thereby reduce generation of HHW.

The countywide HHW Program will coordinate educational efforts with participating cities, non-profit organizations, and public agencies such as the Nonpoint Source Control Program, wastewater treatment plants, and local schools.

City Efforts

The public education efforts currently underway in the City are described in Chapter 2, Existing Conditions. It is anticipated that these City-sponsored programs will be continued into the short-term and medium-term planning periods. A summary of public education activities to be carried out in the short-term and medium-term planning period follows:

- HHW appointment/information telephone line
- Printing and distribution of "Take Me Shopping" at HHW events and upon request
- Reproduced "Your Home and Hazardous Materials" brochure which was available for pick up at City Hall in 1990 and 1991.
- Use of "The Guidebook for Proper Management of Hazardous Wastes"
- Advertising in local papers and on the radio, public service announcements
- School Programs
- Nonpoint Source Public Education brochures
- Dissemination by the contracted hauler of advisories which address proper preparation of used oil for curbside collection
- Exclusion measures taken by the franchised waste hauler, including mailing a packet of information to all new customers and posting notices on dumpsters.

## 8.3.2 COMMUNITY AUDIENCES TO BE TARGETED

The City intends to provide HHW collection services and source reduction public information for all residents. However, in order to achieve this goal, it may be useful to identify the various "publics" or audiences that exist within the population of the City. When preparing and disseminating educational materials designed to promote source reduction and proper disposal factors such as potential language barriers will be taken into account. When preparing and disseminating educational materials designed to promote source reduction and proper disposal, factors such as potential language barriers will be taken into account.

## 8.3.3 AGENCIES RESPONSIBLE FOR IMPLEMENTATION OF EDUCATION AND PUBLIC INFORMATION PROGRAM

The Administrative Department is responsible for oversight of the HHW education and public information programs in the City. The Chief Administrative Officer will be the liaison between the City and the countywide HHW Program and will participate in education and public information activities as they pertain to the City.

The County Department of Planning and Development will serve as the lead agency for public education. The Planning Department will coordinate the educational efforts with participating cities, County Environmental Health, Santa Clara Valley Water District, the wastewater treatment facilities, schools, and non-profit agencies.

## 8.3.4 IMPLEMENTATION TASKS

**Public Education**

| | |
|---|---|
| o Develop and Distribute Event Advertising Notices | 1991, ongoing |
| o Develop and Distribute "The Guidebook" to Public Agencies | 1991 |
| o Provide Training for Staff Using the Guidebook | 1991-1992 |
| o Review and, If Needed, Update "The Guidebook" | annually |
| o Reproduce and Distribute the "Take Me Shopping" booklet | 1991, ongoing |
| o Reproduced "Your Home and Hazardous Materials" which was available to all residents for pick up at City Hall | 1990-1991 |
| o Establish County HHW Telephone Information/Appointment Line | 1991 |
| o Establish City HHW Telephone Information Line | 1991 |
| o Participate in Ongoing Multi-agency HHW Public Education Efforts | 1991, ongoing |
| o Develop and Disseminate Source Reduction and Product-Specific Information Messages | 1991, ongoing |

### 8.3.5 COSTS AND SOURCES OF FUNDING FOR IMPLEMENTATION OF EDUCATION AND PUBLIC INFORMATION PROGRAMS

PUBLIC INFORMATION

Each city participating in the countywide HHW Program will pay for services on a per-vehicle basis. The cost of publicizing the mobile and permanent facility services was included in the $90 to $100 per vehicle cost. Funds for serving county unincorporated residents will come from garbage surcharge fees.

EDUCATION

The budget for implementing education programs is currently under development. The countywide HHW Program is coordinating its educational efforts with participating cities, public agencies, and non-profit organizations.

The City's HHW education and public information programs are anticipated to cost between $200 and $350 each year. These funds will be obtained through fees on refuse collection and disposal. Actual costs incurred will be monitored for possible increase in FY 93 to pay for specific advertising tasks to be implemented.

## 8.4 MONITORING AND EVALUATIONS

### 8.4.1 EVALUATION METHODS

The methods described below will be used to measure achievement of the education and public information objectives.

**OBJECTIVE #1 - INCREASE RESIDENTS' AWARENESS OF SOURCE REDUCTION, SAFER USE, AND PROPER DISPOSAL OF HHW**

EVALUATION METHOD 1 - Annual surveys of residents will be done to determine the extent to which buying habits have changed to reduce generation of HHW; and the per cent of residents aware of safe use and disposal practices. Results of the surveys will be included in the annual reports. When possible, changes in purchasing behavior may also be monitored using locally-obtained retail sales data or regional marketing data.

EVALUATION METHOD 2 - The evaluations of number of participants and geographic distribution of participants will be analyzed to determine the adequacy of HHW program advertising efforts.

EVALUATION METHOD 3 - An annual survey of retail businesses will be done to monitor availability of less-hazardous alternatives to specific products.

**OBJECTIVE #2 - INCREASE THE ACCURACY AND UNIFORMITY OF HHW SOURCE REDUCTION AND DISPOSAL PUBLIC INFORMATION DISSEMINATED BY PUBLIC AGENCIES**

EVALUATION METHOD 1 - Annual surveys of public and non-profit agencies using the "Guidebook for Proper Management of Household Waste for the Protection of Our Local Environment" will be done to determine level of satisfaction and need for changes.

EVALUATION METHOD 2 - Periodic updates of the Guidebook will be done to accommodate changes in HHW management.

### 8.4.2 WRITTEN CRITERIA FOR EVALUATING PROGRAM EFFECTIVENESS

The county HHW Program, in conjunction with the City will prepare annual reports describing the findings of the evaluation outlined above. Education and public information programs will be evaluated to determine changes in purchasing habits, level of awareness of proper use and disposal, level and distribution of participation, and changes in availability of less-hazardous products. Criteria for evaluating the Guidebook include level of satisfaction among users and a determination regarding the need for revision.

### 8.4.3 AGENCIES RESPONSIBLE FOR MONITORING, EVALUATION AND REPORTING

The agencies responsible for monitoring, evaluation and reporting include the Administrative Department of the City, the County Division of Environmental Health Services, and the County Department of Planning and Development.

### 8.4.4 FUNDING REQUIREMENTS AND SOURCES FOR MONITORING AND EVALUATION

Monitoring and evaluation of HHW management in the City will be funded through the General Fund. The County Solid Waste Program budget includes funding for administrative activities such as recordkeeping, monitoring recyclable materials markets, tracking the demographics of participants utilizing the program, and annual report-writing. The County Environmental Health Department's HHW include recordkeeping and reporting procedures.

### 8.4.5 CONTINGENCY MEASURES

In the event that the annual evaluations indicate a shortfall in attainment of the education and public information objectives, the following measures may be implemented.

- Analyze existing programs for obstacles to successful implementation
- Increase or improve education and advertising efforts
- Increase funding and staff
- Modify objectives
- Increase frequency of program monitoring and review

### 8.4.6 PROGRAM MONITORING AND REPORTING SCHEDULE

Annual reports will be written and distributed at the end of each 12 months of operation. It is anticipated that the first annual report will be written in October 1992.

# CHAPTER 9

# FUNDING

## 9.1 PROGRAM COSTS AND ALLOCATION OF RESOURCES

The City must demonstrate that there is sufficient funding and allocation of resources for program planning and development and implementation of required programs.

Cost estimates for programs scheduled for implementation, as well as revenue sources to support these programs, are contained in Table 6.2 in Chapter 6 of this Element. In addition, more detailed descriptions of estimated program costs are contained in Chapter 4, Evaluation of Household Hazardous Waste Management Alternatives.

## 9.2 CONTINGENCY FUNDING

In the event that adequate funding is not available from the revenue sources identified in Table 6.2, the City may consider new or additional garbage surcharge fees, landfill tipping fees, or advance disposal fees.

permit or operated a hazardous waste facility under interim status pursuant to Section 25200 or 25200.5 since January 1, 1984.
(Added by Stats. 1989, Ch. 1257.)

25113. (a) "Disposal" means either of the following:
(1) The discharge, deposit, injection, dumping, spilling, leaking, or placing of any waste so that the waste or any constituent of the waste is or may be emitted into the air or discharged into or on any land or waters, including groundwaters, or may otherwise enter the environment.
(2) The abandonment of any waste.
(b) The amendment of the section made at the 1989-90 Regular Session of the Legislature does not constitute a change in, but is declaratory of, the existing law.
(Amended by Stats. 1989, Ch. 1436.)

25114. "Disposal site" means the location where any final deposition of hazardous waste occurs.
(Amended by Stats. 1977, Ch. 1039.)

25115. "Extremely hazardous waste" means any hazardous waste or mixture of hazardous wastes which, if human exposure should occur, may likely result in death, disabling personal injury or serious illness caused by the hazardous waste or mixture of hazardous wastes because of its quantity, concentration, or chemical characteristics.
(Amended by Stats. 1977, Ch. 1039.)

25115.1. "Federal act" means the Resource Conservation and Recovery Act of 1976, as amended (42 U.S.C. Sec. 6901 et seq.).
(Added by Stats. 1988, Ch. 1061.)

25116. "Handling" means the transporting or transferring from one place to another, or pumping, processing, storing, or packaging of hazardous waste, but does not include the handling of any substance before it becomes a waste.
(Amended by Stats. 1980, Ch. 878.)

25116.5. (Repealed by Stats. 1986, Ch. 1187.)

25117. (a) "Hazardous waste" means either of the following:
(1) A waste, or combination of wastes, which because of its quantity, concentration, or physical, chemical, or infectious characteristics may either:
(A) Cause, or significantly contribute to an increase in mortality or an increase in serious irreversible, or incapacitating reversible, illness.
(B) Pose a substantial present or potential hazard to human health or environment when improperly treated, stored, transported, or disposed of, or otherwise managed.
(2) A waste which meets any of the criteria for the identification of a hazardous waste adopted by the department pursuant to Section 25141.
(b) "Hazardous waste" includes, but is not limited to, RCRA hazardous waste.

Attachment #2

State of California

California Integrated Waste Management Board

# HOUSEHOLD HAZARDOUS WASTE COLLECTION INFORMATION

Calendar Year 1990

CIWMB-303 (1/90)

| Name of Local Agency: | | | | Phone: |
|---|---|---|---|---|
| Chief Administrative Office, City of Monte Sereno | | | | (408)354-7635 |
| **Address:** | **City:** | **County:** | **State:** | **Zip:** |
| 18041 Sunnyvale-Los Gatos Road | Monte Sereno | Santa Clara | CA | 95030 |

(Please Use Applicable Units of Measurement)

| Waste Category | Gallons | Pounds | Number of Containers | Number of Drums (55 gal) | Management Method |
|---|---|---|---|---|---|
| **A. Flammable** | | | | | |
| 1. Used Oil | 37 | 285 | | | Rc |
| (Curb Prog.) | 72 | 547 | | | Bf |
| 2. Paints | | | | | |
| a. Latex | 48 | 412 | | | Rc |
| | | 1,267 | | 3 | T-1 |
| b. Oil Base | | 469 | | 1 | T-1 |
| 3. Solvents, thinners, and stains | | 89 | | 0.5 | T-1 |
| 4. Gasoline and oil (mixed) | | | | | |
| 5. Aerosols (excluding pesticides/ herbicides) | | 79 | | 0.5 | T-1 |
| 6. Other | | 297 | | 2 | T-1 |
| **FLAMMABLE SUBTOTAL** | 157 | 3,445 | | 7 | |

| Management Methods | | | | | |
|---|---|---|---|---|---|
| Re Re-used | TR | Transfer Station | T-3 | Stabilization | |
| Rc Recycled | T-1 | Incinerator | D | Land Disposal | |
| Bf Blended Fuel | T-2 | Aqueous Treatment | Other | | |

| Waste Category | Gallons | Pounds | Number of Containers | Number of Drums (55 gal) | Management Method |
|---|---|---|---|---|---|
| **B. Pesticides** | | | | | |
| Such as herbicides, insecticides, fungicides, etc. | | 213 | | 1 | D |
| PESTICIDE SUBTOTAL | | 213 | | 1 | D |
| **C. Corrosives** | | | | | |
| 1. Acids a. Oxidizing | | 25 | | 0.1 | D |
| b. Non-Oxidizing | | | | | |
| 2. Alkaline | | 15 | | 0.1 | D |
| CORROSIVES SUBTOTAL | | 40 | | 0.2 | |
| **D. Oxidizers** | | | | | |
| Excluding acids | | 15 | | 0.1 | D |
| OXIDIZERS SUBTOTAL | | 15 | | 0.1 | |
| **E. Miscellaneous** | | | | | |
| 1. Car Batteries | | | | | |
| 2. Dry Cells | | | | | |
| 3. Mercury | | | | | |
| 4. Other | | 386 | | 2 | D |
| MISC. SUBTOTAL | | 386 | | 2 | |
| TOTAL WASTE COLLECTED | 157 | 4,099 | | 10.3 | |

**Attachment #3**

**Table 4.1 Summary of HHW Management Alternatives Evaluation (Page 1 of 2)**

| Program Alternatives | Waste Diversion Potential | Absence of Hazard | Flexibility | Availability of Service | Provides Immediate Need Services | Limited Shift in Waste Type Prod. |
|---|---|---|---|---|---|---|
| Alt 1: Periodic Drop-off Events | high | medium | medium | medium | low | N/A |
| Alt 2: Five Permanent Facilities | high | high | high | high | high | N/A |
| Alt 3: Mobile Collection | high | medium | high | high | high | N/A |
| Alt. 4: Mobile Unit + Permanent | high | med./ high | high | high | high | N/A |
| Alt. 5: Curbside Motor Oil Collection | high | medium | high | high | high | N/A |
| Alt. 6: Door-to-Door Elderly/Disabled | high | medium | high | medium | medium | N/A |
| Alt. 7: HW Exclusion Program | medium | medium | medium | N/A | N/A | medium |
| Alt. 8: HHW Recycling Component | high | medium | high | high | high | N/A |
| Alt. 9: Waste Exchange Component | high | medium | high | high | N/A | N/A |

N/A = Not Applicable

**Table 4.1 Summary of HHW Management Alternatives Evaluation (Page 2 of 2)**

| Program Alternatives | Ease of Implementation | Facility Needs | Consistency with Local Policies | Absence of Institutional Barriers | Estimated Cost | End Uses |
|---|---|---|---|---|---|---|
| Alt 1: Periodic Drop-off Events | high | high | medium | high | $90-110 per car | medium |
| Alt 2: Five Permanent Facilities | medium | low | medium | high | $90-110 per car | high |
| Alt 3: Mobile Collection | high | high | high | high | $90-110 per car | medium |
| Alt. 4: Mobile Unit + Permanent | high | medium | medium | high | $90-110 per car | high |
| Alt. 5: Curbside Motor Oil Collection | high | medium | high | high | Not Available | high |
| Alt. 6: Door-to-Door Elderly/Disabled | high | medium | high | high | $40 per hshld [2] | medium |
| Alt. 7: HW Exclusion Program | high | high | high | high | N/A | low |
| Alt. 8: HHW Recycling Component | high | high | high | high | N/A | high |
| Alt. 9: Waste Exchange Component | high | high | high | high | $0 | high |

N/A = Not Applicable

[2]Includes collection costs only; total estimated costs (including handling and disposal) may be as high as $130-150/household.

**Attachment 4 Board Transmittal Authorizing Countywide HHW Program**

**County of Santa Clara**
Health Department

2220 Moorpark Avenue
San Jose, California 95128

RECEIVED
FEB 11 1991
COUNTY OF SANTA CLARA
OFFICE OF TOXICS AND SOLID WASTE
MANAGEMENT

Prepared by: Isao Kobashi (15)
Erwin Koehler

Reviewed by: Lee Esquibel
Delia B. Alvarez

Submitted by: J. Kennedy Bartholet

February 7, 1991

TO: Sally Reed, County Executive

FROM: J. Kennedy Bartholet, Health Services Administrator

SUBJECT: Countywide Household Hazardous Waste Collection Program

## RECOMMENDED ACTION

It is recommended that the Board of Supervisors:

Approve the concept of a Countywide Household Hazardous Waste Collection Program, including provision of services to unincorporated residents.

Authorize the County Division of Environmental Health Services to administer a Countywide Household Hazardous Waste (HHW) Pilot Collection Program for the first year of operations and to administer any on-going Program resulting from the Pilot Countywide HHW Program.

## FISCAL IMPLICATIONS

- No monies from the County General Fund would be required.
- Participating cities would pay their proportional share of Program costs based on the services provided to their residents.
- Funds for serving county unincorporated residents would come from garbage surcharge fees.

Board of Supervisors: Susanne Wilson, Zoe Lofgren, Ron Gonzales, Rod Diridon, Dianne McKenna
County Executive: Sally R. Reed

Attachment #5

# AGENCY AGREEMENT FOR COUNTYWIDE HOUSEHOLD HAZARDOUS WASTE COLLECTION PROGRAM

This Agreement is made by and between the City of Monte Sereno (City) and County of Santa Clara (County) on the 15th day of October, 1991.

## RECITALS

A. The County Board of Supervisors has approved a one year pilot Countywide Household Hazardous Waste Collection Program whereby residents of the county and participating jurisdictions will have an opportunity to safely dispose of household hazardous wastes on an appointment or emergency basis regardless of the specific location at which an event has been scheduled.

B. The participating jurisdictions desire to provide residents with convenient opportunities to safely dispose of their household hazardous waste in order to encourage the proper disposal of toxic products and avoid unauthorized or improper disposal in the garbage, sanitary sewer, storm drain system, or on the ground, in a manner which creates a health or environmental hazard.

C. The participating jurisdictions desire to provide a safe, convenient, and economical means for the residents of Monte Sereno, and residents of unincorporated County areas to dispose of household hazardous wastes. These wastes include, but are not limited to, common household products such as household cleaning products, spot remover, furniture polish, solvents, oven cleaner, insecticides, oil base paints, motor oil, antifreeze and car batteries. Residents of the areas listed above will be eligible to bring household hazardous wastes to a household hazardous waste collection event where these wastes will be accepted for proper disposal as described below.

D. The participating jurisdictions desire to schedule Household Hazardous Waste Collection Events during fiscal year 91-92.

NOW, THEREFORE, CITY OF MONTE SERENO and COUNTY OF SANTA CLARA AGREE AS FOLLOWS:

1. PURPOSE

The purpose of this Agreement is to state the terms and conditions under which each of the jurisdictions will participate in the Household Hazardous Waste Collection Program (Program) available to the residents of the City of Monte Sereno, residents of County unincorporated areas, and residents of other participating jurisdictions.

2. SERVICES PROVIDED BY COUNTY

The County shall conduct Household Hazardous Waste Collection Events (Events) at various sites located in Santa Clara County. The County shall obtain all necessary permits and licenses and shall provide or secure the services of properly trained personnel, hazardous waste haulers, equipment, and supplies to properly receive, package, label, haul, recycle and dispose of the residential hazardous wastes collected at Events. Insurance requirements for transporters and hazardous waste treatment or disposal services shall have the following minimum limits: General Comprehensive--$1 million per occurrence, $2 million aggregate; Auto--$1 million; workers comp.--statutory limits established by law; and environmental impairment liability --$1 million per occurrence, $2 million aggregate. Other services to be provided by the County include establishing and operating a telephone hotline to schedule appointments for the Events and to provide information about household hazardous materials. The telephone hotline shall be operated 5 days a week, Monday through Friday, from the hours of 8:30 a.m. to 4:30 p.m., excluding holidays.

County intends to schedule Events during four collection periods as indicated in Attachment A, "Preliminary Schedule For Mobile HHW Collection Events".

3. ROLE OF CITY

A. Scheduling: The City shall work with the County to determine the date(s) of the Events. Although every effort will be made to accommodate City requests to schedule an Event on specified dates, County shall determine the final dates if there are conflicting requests from Cities participating in the Program.

B. Site Selection: The City shall coordinate with the County in locating and securing sites for the Events. It is recognized that

some of the cities participating in the Program may not have appropriate sites available.

4. WASTES NOT ACCEPTED

Certain hazardous waste materials shall not be accepted for collection and disposal. These include compressed gas cylinders, radioactive materials, and explosives. Other wastes not accepted are wastes produced in the course of operating a business, including a business operated out of a house.

5. TRACKING OF WASTES ACCEPTED

Following each collection period, the County will provide a report to the City regarding the types and quantities of Household Hazardous Waste accepted by the Program. The report will include the amount of waste diverted for reuse or recycling, the waste management method for each waste stream and associated costs for transportation and disposal.

It will be assumed for billing and reporting purposes that each city is contributing to the waste stream proportional to the number of residents served. The County will sample the types and quantities of waste contributed by residents of each jurisdiction to study the equity of sharing program costs based on an average per vehicle fee. A report on the results of the sampling will be provided to each city as part of a final Program report.

6. ADVERTISING/PUBLIC INFORMATION

The parties shall cooperate to inform the public of the Program and schedule. Each party shall be primarily responsible for advertising the availability of the Program within its jurisdiction.

7. COLLECTION APPOINTMENT SYSTEM

A. Scheduling Options: The County shall establish a "Hotline" to schedule appointments for Events. Three options are available for scheduling:

1. All applicants screened by city representatives prior to scheduling a Program appointment;

2. Allotted appointment evenly distributed throughout the year and County makes all appointments;

3. Appointment scheduled as residents call "Hotline", City notified when indicated participation limit is approached.

City elects option 3 as its choice in utilizing the "Hotline" services for scheduling appointments.

B. Reservation of Appointments for City residents: Each city or combination of cities that have previously sponsored household hazardous waste collection events shall have 75% of the planned appointments reserved for residents of the area in which the Event is scheduled. The appointments will be reserved by the County for up to three (3) weeks before the Event. After this time all remaining appointments may be filled by residents of other jurisdictions.

8. CITY FUNDING COMMITMENT

City agrees to commit up to $ 11,000.00 ( Eleven Thousand Dollars ) to the Program during FY91-92 to enable the County to serve 110 households from City at an average cost of $100 per car.

9. COST OF PROGRAM

A. Start-Up Costs: Start Up Costs are defined as the cost of equipment purchases needed to begin the Program. Start-Up Costs to each of the participating jurisdictions shall be a one time fee of $.025 per-household within its jurisdiction. For non-census years, household population shall be determined by the State Department of Finance, Demographic Research Unit. Any city that joins the Program after the first year shall be required to pay a start-up cost of $.025 (annually adjusted for inflation) per household within the city. The Start-Up cost per household shall be adjusted as of July 1, 1992 and annually thereafter to reflect changes in the San Francisco-Oakland-San Jose Metropolitan Area Consumer Price Index (All Urban Consumers; 1982-84 = 100) compiled and published by the United States Department of Labor, Bureau of Labor Statistics.

City Start-Up Costs are $ 60.00 .

B. Event Costs (permits, licenses, service and supplies, transportation and disposal): The Event Costs shall be initially set at a flat per vehicle fee of $100 per household that shows up at an event regardless of the quantity, volume, quality, or character of the hazardous waste collected from a resident, within the limits set forth herein. The Program will accept household hazardous wastes, within the limits set forth herein, from households who come to an

event without an appointment. The jurisdiction from which the households who come to an event without an appointment will be charged the same per vehicle rate as regular appointments.

C. Actual Average Cost: The County will provide City with interim cost reports following each collection period (October-December, January-February, March-April, May-June). If the interim cost reports show Event Costs are greater than projected, future Event Costs shall be adjusted to reflect this higher cost and fewer households will be served or City may elect to increase it financial commitment to the Program. If costs are less than projected, the City may elect to receive credit for a continuing program or a refund after final program costs have been computed. At the end of the fiscal year, actual costs of providing service will be used to calculate the final average per vehicle cost.

10. PAYMENT TO COUNTY

The City shall pay County for Start-up Costs and Event Costs as follows:

A. Start-Up Costs: County will compute each participating city's Start-Up Costs. Start-Up Costs are due within 30 days from the date of this Agreement.

B. Event Costs: Payments for Event Costs are due in four (4) equal installments. Each jurisdiction will be billed 25% of its total financial commitment to the Program as identified in Paragraph 8 (A) of this document. Payment for the first collection period is due within 30 days from the date of this Agreement. The County will invoice the City 30 days before each of the subsequent collection periods. Payment for subsequent collection periods will be due on January 1, 1992, March 1, 1992, and May 1, 1992.

11. ACCOUNTING

The County shall employ means to verify the place of residence of all participants in the Program and provide a record to the City of its participating residents within two weeks following the collection period.

12. TERM OF AGREEMENT

This Agreement shall be effective upon signing by both City and County and shall remain in full force and effect until terminated by any party hereto upon thirty (30) days written notice to each of the other parties or until midnight June 30, 1992, whichever comes

first. This Agreement may be extended from year to year upon written agreement of County and City.

13. HOLD HARMLESS AND INDEMNIFICATION

County shall indemnify, hold harmless, and defend City, its officers, agents, and employees with respect to any loss, damage, liability, cost or expenses, including attorney's fees, arising from failure to comply with any provision of this Agreement by County and/or its subcontractors or arising from performance of any of the work or providing any of the services under this Agreement, including negligent acts, except as required by the special provisions in the following paragraph.

City shall indemnify County for its apportioned share of any liability incurred and attributed to the Program for the transportation, treatment, or disposal of the household hazardous waste, once the waste has been accepted by a licensed hazardous waste hauler. Apportionment for disposal liability shall be determined by the City's pro rata proportion of household participation in the Program. Apportionment for transportation and treatment liability shall be determined by the City's pro rata household participation at the event where the waste was generated. Unless there is no primarily responsible party, no liability shall be apportioned to the City unless the resources (including insurance) of any primary responsible hauler or responsible disposal facility operator are insufficient or unavailable to pay the necessary cost of remediation.

14. NOTICES

All notices and communications herein required shall be in writing to the other party as follows, unless expressly changed in writing:

City of Monte Sereno

City Manager
City of Monte Sereno

Santa Clara County

Lee Esquibel, Director
Environmental Health
Department of Public Health
County of Santa Clara
2220 Moorpark Avenue
San Jose, CA 95128

IN WITNESS WHEREOF, the parties have executed this Agreement.

"CITY"

CITY OF Monte Sereno, a municipal corporation.

By:

Mayor/City Manager

Attest:

City Clerk

APPROVED AS TO FORM:

City Attorney

"COUNTY"

COUNTY OF SANTA CLARA, a political subdivision of the State of California.

Chairperson, Board of Supervisor
Dianne McKenna

Attest:

Clerk, Board of Supervisors
DONALD M. RAINS

APPROVED AS TO FORM AND LEGALITY:

Deputy County Counsel

hhw:8/91:ik

ATTACHMENT A

# ENVIRONMENTAL HEALTH OFFICE OF TOXICS ENFORCEMENT
# PRELIMINARY SCHEDULE FOR MOBILE HHW COLLECTION EVENTS*

| JURISDICTION | (400 CAR EVENTS) Oct-Dec | (400 CAR EVENTS) Jan-Feb | (600 CAR EVENTS) Mar-Apr | (600 CAR EVENTS) May-Jun | Total |
|---|---|---|---|---|---|
| West Valley (1260)<br>Campbell (250)<br>Los Gatos (400)<br>Monte Sereno (110)<br>Saratoga (500) | 1 | 1 | 1 | 0 | 3 |
| North County (2000)<br>Cupertino (300)<br>Los Altos (600)<br>Los Altos Hills (100)<br>Mountain View (1000) | 1 | 1 | 1 | 1 | 4 |
| San Jose (3900) | 1 | 2 | 2 | 3 | 8 |
| Milpitas, Sunnyvale, Santa Clara (1200)<br>Milpitas (500)<br>Santa Clara (100)<br>Sunnyvale (600) | 0 | 1 | 1 | 1 | 3 |
| Unincorporated (1000) | 0 | 0 | 0 | 1 | 1 |
| TOTAL EVENTS | 3 | 5 | 5 | 6 | 19 |
| CARS X EVENTS | (400 X 3) + (400 X 5) + (600 X 5) + (600 X 6) = 9,800 | | | | |

* A mobile collection event may be have appointments scheduled for two consecutive days in accordance with the proposed Permit by Rule Regulations.

9/4/91smd

Reso 1357

# FIRST AMENDMENT TO AGREEMENT

This is the first amendment to that certain agreement between the MONTE SERENO (City) and County of Santa Clara (County) entitled AGENCY AGREEMENT FOR COUNTYWIDE HOUSEHOLD WASTE COLLECTION PROGRAM, entered into on the 3rd day of December, 1991.

The parties agree that:

1. Section 2, SERVICES PROVIDED BY COUNTY, is amended in full to read:

SERVICES PROVIDED BY THE COUNTY

The County shall conduct Household Hazardous Waste Collection Events (Events) at various sites located in Santa Clara County. The County shall obtain all necessary permits and licenses required for the Events and shall provide or contract for the services of properly trained, qualified personnel and/or hazardous waste haulers, and shall provide or secure suitable equipment, and supplies to properly receive, package, label, haul, recycle and dispose of the household hazardous wastes collected at Events. Contractors who provide hazardous waste transportation, treatment, or disposal services shall have insurance with the following minimum limits: General Comprehensive-- $1 million per occurrence, $2 million aggregate; Auto--$1 million; workers comp.--statutory limits established by law; and environmental impairment liability --$1 million per occurrence, $2 million aggregate. Other contractors shall have insurance in amounts to be determined by the County Insurance Manager, after consultation with City. All insurance certificates shall name the City, its officers and employees as additional insureds. Other services to be provided by the County include establishing and operating a telephone hotline to schedule appointments for the Events and to provide information about household hazardous materials. The telephone hotline shall be operated 5 days a week, Monday through Friday, from the hours of 8:30 a.m. to 4:30 p.m., excluding holidays.

County intends to schedule Events during four collection periods as indicated in Attachment A, "Preliminary Schedule For Mobile HHW

. Collection Events".

2. Section 5, TRACKING OF WASTES ACCEPTED, is amended in full to read:

TRACKING OF WASTES ACCEPTED

Following each collection period, the County will provide a report to the City regarding the types and quantities of Household Hazardous Waste accepted by the Program. The report will include the amount of waste diverted for reuse or recycling, the waste management method for each waste stream and associated costs for transportation and disposal.

It will be assumed for billing and reporting purposes that each city is contributing to the waste stream proportional to the number of residents served. For purposes of any potential disposal liability, each participating jurisdiction shall be deemed a discharger of only its pro rata proportion of household participation in the Program.

The County will sample the types and quantities of waste contributed by residents of each jurisdiction to study the equity of sharing program costs based on an average per vehicle fee. A report on the results of the sampling will be provided to each city as part of a final Program report.

3. Section 9B, EVENT COSTS, is amended fully to read:

Event Costs (permits, licenses, service and supplies, transportation, disposal, and costs of providing insurance as required by Program): The Event Costs shall be initially set at a flat per vehicle fee of $100 per household that shows up at an event regardless of the quantity, volume, quality, or character of the hazardous waste collected from a resident, within the limits set forth herein. The Program will accept household hazardous wastes, within the limits set forth herein, from households who come to an event without an appointment. The jurisdiction of the households who come to an event without an appointment will be charged the same per vehicle rate as regular appointments.

4. Except as amended herein, all terms and conditions of said agreement shall remain in full force and effect.

WHEREFORE the parties have entered into this amendment to agreement on the dates shown below:

| "CITY" | "COUNTY" |
|---|---|
| CITY OF Monte Sereno, a municipal corporation. | COUNTY OF SANTA CLARA, a political subdivision of the State of California. |
| DATE 12/3/91 | DATE DEC 17 1991 |
| By: | |
| Mayor/City Manager | Chairperson, Board of Supervisor<br>Dianne McKenna |
| Attest: | Attest: |
| City Clerk | Clerk, Board of Supervisors<br>DONALD M. RAINS |
| APPROVED AS TO FORM: | APPROVED AS TO FORM AND LEGALITY: |
| City Attorney | Deputy County Counsel |

hhw:11/26/91:ik

## SECOND AMENDMENT TO AGREEMENT

THIS SECOND AMENDMENT TO AGREEMENT entered into by and between the City of Monte Sereno, a Municipal Corporation, herein called "CITY", and County of Santa Clara, a Political Subdivision of the State of California, herein called "COUNTY",

**W I T N E S S E T H:**

WHEREAS, on or about October 15, 1991 CITY and COUNTY entered into an Agreement entitled "AGENCY AGREEMENT FOR COUNTYWIDE HOUSEHOLD WASTE COLLECTION PROGRAM"; and

WHEREAS, on or about December 3, 1991 CITY and COUNTY approved the First Amendment to Agreement; and

WHEREAS, the parties now desire to enter into a Second Amendment to the Agreement,

NOW, THEREFORE, CITY and COUNTY agree as follows:

1. Section 12 entitled "TERM OF AGREEMENT" is amended in full to read:

> "This agreement shall be effective upon signing by both City and County and shall remain in full force and effect until terminated by any party hereto upon thirty (30) days written notice to each of the other parties or until midnight September 30, 1992, whichever comes first. This Agreement may be extended from year to year upon written

agreement of County and City."

2. Except as hereinabove modified and as modified in the First Amendment to Agreement, the Agreement between CITY and COUNTY together with the terms and provisions contained therein, hereby is ratified and confirmed and shall remain in full force and effect.

IN WITNESS WHEREOF, the parties have entered into this Second Amendment to Agreement on the dates shown below:

"CITY"

CITY OF MONTE SERENO,
a municipal corporation

DATE 6/9/92

BY:

MAYOR

ATTEST:

FAY FURTADO, CITY CLERK

BY

APPROVED AS TO FORM:

CITY ATTORNEY

"COUNTY"

COUNTY OF SANTA CLARA, a political subdivision of the State of California

DATE

CHAIRPERSON, BOARD OF SUPERVISORS

ATTEST:

CLERK, BOARD OF SUPERVISORS

APPROVED AS TO FORM AND LEGALITY:

DEPUTY COUNTY COUNSEL