COUNTY OF SANTA CLARA UNINCORPORATED AREA

SOURCE REDUCTION AND RECYCLING ELEMENT

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County of Santa Clara
Environmental Resources Agency

Integrated Waste Management Program

1735 North First Street, Suite 275
San Jose, CA 95112

408 441-1198

COUNTY OF SANTA CLARA

ENVIRONMENTAL RESOURCES AGENCY

Leode G. Franklin, Director

INTEGRATED WASTE MANAGEMENT PROGRAM

Margaret J. Rands, Program Manager

Michael D. Perry, Analyst

Paula F. Stoner, Analyst

Barbara G. Hall, Associate Analyst

with special thanks to the following former staff members:
Nicole Headley-Edwards, Analyst
Nancy Reutlinger, Associate Analyst

BOARD OF SUPERVISORS

Michael M. Honda	District 1
Zoe Lofgren	District 2
Ron Gonzales	District 3
Rod Diridon	District 4
Dianne McKenna	District 5

Source Reduction and Recycling Element

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Section I

Introduction

INTRODUCTION

The California Integrated Waste Management Act of 1989, AB 939, became law on January 1, 1990. AB 939 shifted the statewide planning focus from development of *landfill capacity* to development and implementation of *alternatives to landfill disposal*. Under AB 939, cities and counties are required to develop Source Reduction and Recycling Elements (SRREs) describing specific programs they will implement to reduce waste by 25 percent by 1995 and 50 percent by the year 2000. The law provides for the California Integrated Waste Management Board (CIWMB) to assess penalties of up to $10,000 per day for a jurisdiction's failure to develop or implement a plan.

The "integrated waste management hierarchy" established in the new law specifies that waste management efforts shall focus on:

- Source reduction, to reduce the generation of wastes,
- Recycling and composting of materials,
- Transformation of wastes, such as waste-to-energy processes, and
- Landfilling, as a last resort, for management of the remaining materials.

This document, the County of Santa Clara's SRRE for the unincorporated area, describes the integrated waste management system for the unincorporated area of Santa Clara County and sets forth goals, recommends programs, and presents implementation and funding plans for waste reduction and recycling. The SRRE was developed to meet the requirements of AB 939 and amending legislation, as codified in the Public Resources Code of the State of California, Section 40950 et. seq. This SRRE will:

- Provide a planning and policy document to guide solid waste management in the unincorporated area of the county
- Move the county forward to meet the specific requirements of State law.

As required by AB 939, this SRRE includes 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 disposal facility capacity component,
- an integration component,
- a funding component.

State law also requires cities and counties to develop Household Hazardous Waste Elements (HHWEs) to describe specific programs that they will implement to divert hazardous materials from the solid waste stream. The HHWE for the unincorporated area of Santa Clara County is located at the end of this document.

OVERVIEW OF THE SRRE

SRRE Goals

The following goals helped to guide the development of the County'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 County;
- 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;
- minimize adverse environmental impacts and ensure public health and safety.

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 County of Santa Clara (unincorporated area) generated an estimated 120,005 tons of solid waste in calendar year 1990 of which 111,804 tons were landfilled. In 1990, about 6.83 percent of the total solid waste stream was diverted. This diversion occurred in several ways, including programs sponsored by the County, the State, private recycling services, and non-profit groups. Some diversion also occurred as a result of individual decisions. Estimated quantities generated, diverted and disposed are presented in Table II - 1 (See II - Appendix) of Section II, Waste Characterization. Each table lists 36 waste types which have been grouped into the following eight categories:

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

The recommended diversion programs for source reduction, recycling, composting and, special wastes are summarized below.

The State-mandated diversion rates of 25 percent in 1995 and 50 percent in 2000 will be based on the refuse generation rates in 1995 and 2000. Monitoring of refuse disposed and diverted is necessary to meet the requirement for documentation of the achievement of these goals.

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 backyard composting and producing products that are more durable.

It is difficult to assess the total volume of waste reduction resulting from current source reduction activities in the unincorporated area of the County, because unincorporated area residents use stores and other businesses throughout the

county, and businesses do not keep records which document the jurisdiction of residence of their patrons. Although unincorporated area residents donate goods to thrift shops, Goodwill, the Salvation Army and other such organizations, these donations may have been counted as diversion by the cities in which the facilities are located. It should also be noted that, although source reduction is often the least expensive form of diversion, it is difficult to measure and effectiveness may only be seen over time.

Some examples of existing source reduction activities in the County include:

- junk mail reduction,
- bulk purchasing,
- diaper services instead of disposable diapers,
- reusing canvas, paper or plastic grocery bags instead of new ones,
- donating used articles to charitable organizations and purchasing used articles,
- home composting of yard wastes,
- two sided copying.

Some of the programs selected for implementation between 1992 and 1995 to increase source reduction diversion rates include:

- implementing a variable rate structure for residential garbage collection services;
- providing technical assistance to homeowners and businesses;
- conducting periodic surveys to monitor source reduction.

Recycling

Recycling includes returning recovered materials to the marketplace in the form of new products. Recyclable commodities are often referred to as a "secondary material" or "secondary feedstock".

In 1990, the estimated quantity diverted as a result of recycling activities in the unincorporated area was 6.3 percent of the total waste stream, excluding yard waste and household hazardous waste. With the implementation of the selected programs, the SRRE estimates that 20.5percent, excluding yard waste and household hazardous waste, will be diverted by January 1, 1995 and another 16.3 percent will be diverted between January 1, 1995 and January 1, 2000. Total diversion through recycling is, therefore, estimated to reach 36.8 per cent by January 1, 2000, excluding yard waste and household hazardous waste.

Existing recycling activities in the County include:

- curbside and multi-unit recycling,
- drop-off recycling,
- commercial/industrial recycling,
- landfill salvaging.

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. Initially, a glut of secondary materials is expected due to the implementation of programs throughout California. Therefore, to avoid rejection of collected materials due to minor contamination, the recommendations focus on collection of source-separated or minimally commingled materials for the short-term planning period. In some areas, collection of lower value recyclables (eg: mixed paper) is deferred until the medium-term planning period, when it is anticipated that markets for such materials will be more stable and prices may have improved.

Some of the recycling activities selected to increase diversion rates in the County include:

- Basic curbside collection for Burbank,
- Expanded curbside collection for San Jose, South Valley, West Valley and North County,
- Multi-unit recycling for San Jose and North County.

Composting

Composting is defined by the CIWMB as the controlled biological decomposition of wastes at a centralized facility (home composting is considered to be "source reduction"). 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 fuel. However, AB 939 specifies that only up to 10 percent of the material that is used as boiler fuel may be counted as diverted after January 1, 1995.

Much of the self-haul yard waste and wood waste is landfilled. In 1990, composting accounted for approximately 0.5 percent diversion of the total waste stream. Zanker Road Resource Recovery and Guadalupe Landfill report the diversion of 94,148 tons

of yard and wood waste but neither landfill kept records of the source of the diverted waste. The SRRE estimates that an additional 8 percent will be diverted through composting and mulching prior to January 1, 1995 and an increase of 12.1 percent will occur between January 1, 1995 and January 1, 2000. Total anticipated diversion through composting is therefore 20.1 percent of the total waste stream by January 1, 2000.

Proposed programs include:

- County facilities yard and wood waste collection,
- Market development for compost end-products,
- Residential curbside collection,
- Permanent drop-off centers.

Special Wastes

Special wastes are solid wastes that require unique handling and disposal methods because of health hazard, environmental impact, or physical characteristics. Typical special wastes include:

- Auto bodies/treated auto shredder waste,
- Asbestos,
- Ash,
- Dead animals,
- Sewage sludge,
- Tires,
- White goods.

The primary purpose of the special waste component is to ensure that special wastes are handled in an environmentally appropriate way.

At present, most auto bodies generated in the County are shredded at LMC Metals in Redwood City. The treated auto shredder waste is landfilled. Asbestos is transported to out-of-county facilities for disposal. No significant quantities of ash or dead animals were identified as being generated in the County unincorporated areas. Wastewater from the unincorporated areas is exported to treatment plants in other jurisdictions. Disposal of sewage sludge is the responsibility of the jurisdiction hosting the treatment plant. Twenty-one percent (1 percent of the total waste stream) of the used tires generated in the County were diverted from disposal. .

Fifty-six percent of the white goods generated in the County in 1990 were diverted from disposal(0.1 percent of the total waste stream).

Some of the programs selected to increase diversion rates include:

- Encourage used tire recycling;
- Encourage white goods and auto body recycling;
- Evaluate the need for programs to minimize illegal disposal.

Education and Public Information

Santa Clara County has a diverse population, so educational programs must meet the needs of each segment of the population. In addition, the unincorporated area is intermingled among the cities and towns, so that the most cost effective approach to general educational and informational efforts is to cooperate in countywide educational efforts and to participate in the programs of adjacent jurisdictions. Only information specific to unincorporated area recycling programs is to be provided through separate program efforts.

Current County-sponsored education programs include information provided to unincorporated area customers as required by County franchise agreements, Information Fair for County Employees, Earth Day, and the activities of the County Recycling Committee for County facilities. In addition, staff participates in countywide projects such as the recycling information booth developed for the County Fair, and countywide recycling of outdated telephone books.

Programs planned for the short and medium terms include:

- Program promotion,
- Countywide educational efforts,
- Regional education efforts,
- County employee campaign.

Disposal Facility Capacity

There were nine permitted landfills in operation in Santa Clara County in 1990: Guadalupe, Kirby Canyon, Mountain View, Newby Island, Pacheco Pass, Palo Alto, Santa Clara, Sunnyvale and Zanker Road. All were Class III facilities. According to the Santa Clara County Solid Waste Management Plan (1989 Revision) approximately 24 to 32 years of disposal capacity remain.

The County's current disposal contracts for the North County area (District 5) with Newby Island Landfill together with the achievement of the projected waste diversion goals, will provide adequate capacity at this site through the year 2015. Additionally, the County uses Pacheco Pass Landfill for waste generated in the southern portion of the County and Guadalupe Landfill for disposal of waste generated in the western portion of the County. Guadalupe Landfill is projected to remain open until 2028. Kirby Canyon Landfill, closest to Pacheco Pass and currently accepting waste from the San Jose unincorporated area (District 1), is expected to remain open until 2022 and Pacheco Pass is projected to remain open until 2002. It is anticipated that this facility will have remaining capacity available if needed by the County for disposal of waste generated in the southern portion of the county.

Integration

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

In developing the County's SRRE, priorities had to be set among the components in those instances where there were several 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:

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

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

Pursuant to AB 939, included in the Waste Characterization Component (Section II) 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 (1990 - 2005). Presented in the Integration Component (Section IX) is a proposed implementation schedule for the short and medium term source reduction, recycling, composting, special wastes, and public education components.

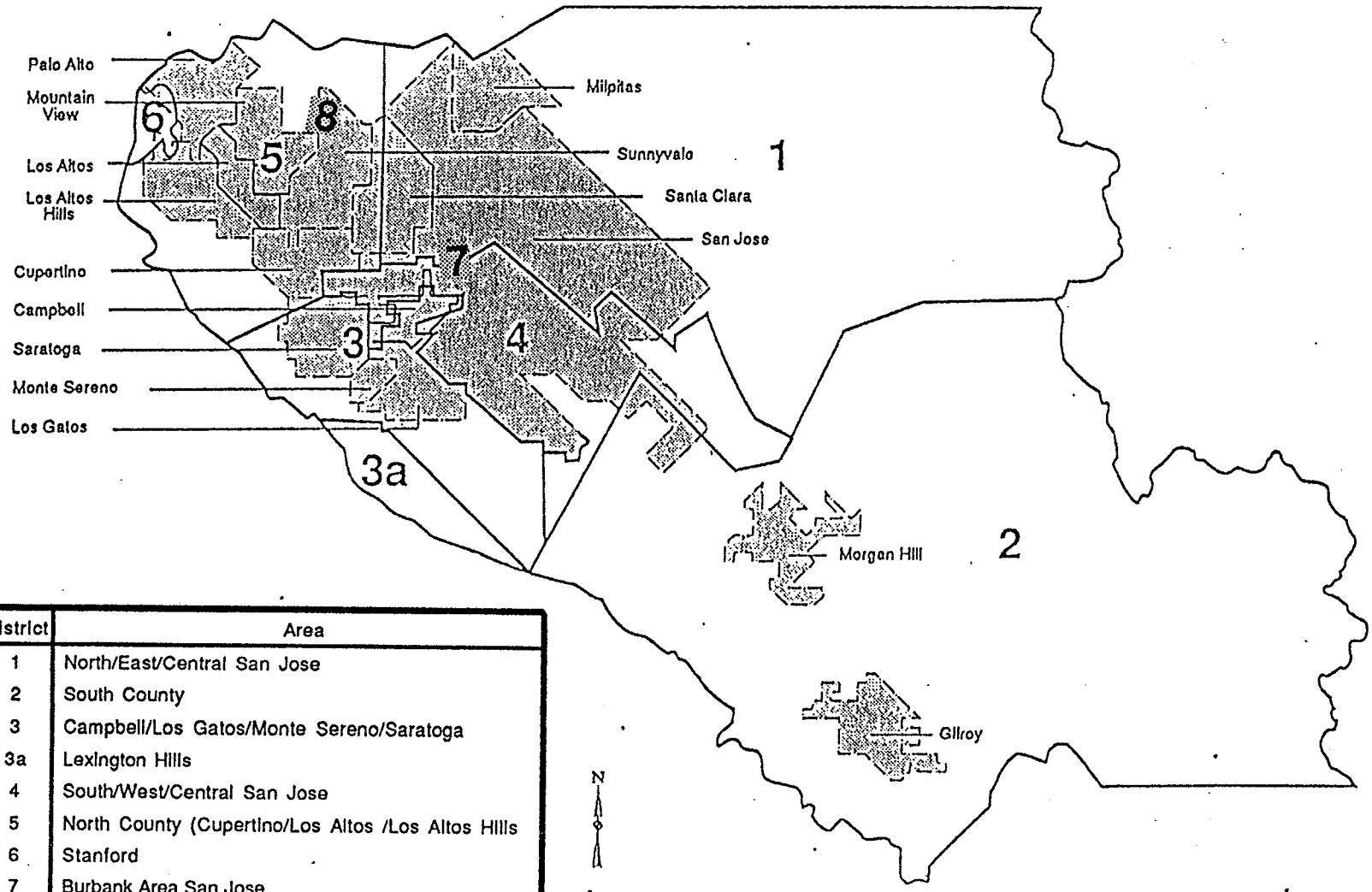
Funding

The estimated annual program costs are listed in Section X for each year from 1991 - 1995. All costs are in 1992 dollars and represent costs for the County of Santa Clara Integrated Waste Management Program staff to plan, evaluate, implement and monitor the specific activities. Funding to cover these costs is estimated at $187,000.

Recycling services will continue to be provided through agreements with private companies and funded through user fees. In addition, the implementation of volume-based user fees in additional areas will be evaluated so that 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 the County to levy fees (either directly on residents or indirectly through the waste hauler) to pay program costs.

GARBAGE COLLECTION DISTRICTS
SANTA CLARA COUNTY - 1993



District	Area
1	North/East/Central San Jose
2	South County
3	Campbell/Los Gatos/Monte Sereno/Saratoga
3a	Lexington Hills
4	South/West/Central San Jose
5	North County (Cupertino/Los Altos /Los Altos Hills
6	Stanford
7	Burbank Area San Jose
8	Moffett Field

Section II

Solid Waste Generation Study

INTRODUCTION

This section presents the results of a waste characterization study performed for the County of Santa Clara. As required by AB 939, the results of two studies are presented in this section, a waste disposal study and a waste diversion study. From the results of the studies current and future solid waste disposal, diversion, and generation quantities were calculated and are presented in Tables II-1 through II-5 (see II - Appendix). As defined by AB 939, the results of the two studies yield the total amount of solid waste generated in the County of Santa Clara according to the following equation:

GENERATION = DISPOSAL + DIVERSION

Where:

GENERATION = the total quantity of solid waste generated within the jurisdiction.

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

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

DISPOSED WASTE ANALYSIS

The objective of the solid waste disposal study is to determine the quantities of materials generated and ultimately landfilled by the residential, commercial, industrial, and self-haul sectors of the County of Santa Clara.

The quantities of waste generated in Santa Clara County and ultimately disposed in landfills has been estimated based upon the results of a Disposed Waste Analysis for Unincorporated Santa Clara County conducted by Cal Recovery, Incorporated.

Cal Recovery, Incorporated was retained to plan and conduct the study for the unincorporated area of Santa Clara County. A copy of the study is presented as Attachment 1 (see II - Appendix).

SOLID WASTE DIVERSION STUDY

In accordance with Title 14, Chapter 9 of the CCR, the objective of the waste diversion characterization is to determine the quantity and types of materials that are currently being diverted from permitted solid waste disposal facilities. The diversion quantities reflect the amount of materials generated in the County of Santa Clara and diverted from the landfill via source reduction, recycling, and composting. By State law, only those materials normally disposed of at permitted solid waste landfills, representing at least 0.001 percent of the waste stream, count towards diversion. It is essential to document the existing level of waste reduction in order to determine what type of programs need to be implemented to reach state mandated diversion rates of 25 percent by 1995 and 50 percent by 2000.

Waste Diversion Flow Process

The flow of materials diverted from the waste stream is more complex than the flow for materials destined for disposal at a landfill. This complexity occurs because the various materials must be separated and processed (contaminants removed, material baled) to meet market specifications, and this is often done in facilities dedicated to one type of material. In this process, several processors may be involved between the generator and the end user. For some items, materials are taken directly to the processor from the generator, who remanufactures these materials into recycled products.

Much of the recycling in the County of Santa Clara follows a similar path, flowing from the generator to a collector, who may sell the material to a dealer. In turn, the dealer processes the material before it is ultimately sold to an end user; in some cases the dealer also acts as a collector.

Methodology

The solid waste diversion characterization used a multi-prong approach to document the quantity and types of materials diverted from disposal in the County in 1990. Waste diversion data were obtained by the following mechanisms: (1) a mail survey of collectors and processors of recyclable materials, utilizing a material flow methodology; (2) a survey of County residential and nonresidential diversion programs; and (3) telephone and fax communications to clarify and supplement, whenever possible, incomplete data collected through the mail survey, as well as to obtain data from additional sources.

Survey of Recyclers. In order to document the quantity and types of materials diverted from disposal in the County in 1990, a survey was conducted of recyclers in the area. The mailing list was developed from the following sources:

- San Jose State University 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
- City of San Jose's "South Bay Recycler's Directory
- Telephone books

Survey forms were mailed to recyclers 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 aggregate form only, to ensure confidentiality. Information requested as part of the survey included:

- 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)

A copy of the survey form is presented in Attachment 2 (see II - Appendix). In a number of cases it was necessary to follow up the mailed survey with phone calls to obtain requested data.

Review of County Programs. Records from collection programs in the County of Santa Clara were reviewed to obtain data on the quantities of wastes diverted from

the residential waste stream (and a portion of the commercial waste stream.) Attachment 3 (see II - Appendix) presents a copy of the survey form used to obtain data on these programs.

Existing residential diversion programs used by County of Santa Clara residents include the following:

- Curbside recycling collection programs
- Drop-off recycling centers
- Buy-back and 20/20 recycling centers
- Drop-off yard waste recycling program

Existing commercial-industrial diversion programs used by businesses located in the County of Santa Clara consist of the following:

- Collection of recyclables from businesses by privately owned recycling firms
- Drop-off recycling centers
- Buy-back and 20/20 recycling centers

Survey of Transfer Station Recycling Programs. The County of Santa Clara conducted a phone survey of the San Martin Transfer Station to obtain information on quantities of wastes generated by the County that are diverted from landfilling. The following waste types generated by the County are salvaged and recycled at the San Martin Transfer Station:

- Appliances
- Cardboard
- Glass food and beverage containers
- Inert solids, including asphalt and concrete
- Mattresses
- Metals, including aluminum, tin, and ferrous metals
- Paper, including white, colored, mixed, newsprint, phone books (seasonal)
- Plastics, including, Polyethylene Terephalate (PET), and High Density Polyethylene (HDPE)
- Tires
- Wood waste, including pallets

Survey of Landfill Recycling Programs. The County surveyed landfill operators by phone to obtain estimates of waste quantities diverted from landfilling. The following facilities were surveyed:

- Guadalupe Landfill
- Newby Island Landfill
- Pacheco Pass Landfill
- Zanker Road Landfill

The following waste types generated in the County of Santa Clara were salvaged and recycled at these landfills in 1990:

- Glass food and beverage containers and other recyclable glass
- Inert solids, including asphalt and concrete
- Mattresses
- Metals, including aluminum, ferrous, and non-ferrous metals
- Plastics, including HDPE and PET.
- Tires
- Wood waste
- Yard waste

Cross Checking. To avoid double counting, the material flow was charted for each waste type. 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 collected 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. 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 the County of Santa Clara.

Conversion Factors. Survey data reported as volumes were converted to weight using conversion factors from The National Recycling Coalition Measurement Standards and Reporting Guidelines, October 31, 1989, as shown in Attachment 4 (see II - Appendix).

Landfill operators and recyclers also reported the following average weights of specific materials:

automobile battery: 44 lbs
mattress: 40 lbs
laser toner cartridge: 4 lbs. (empty)

Survey Response Rate. A total of 138 recyclers, brokers, collectors, end users, and operators of transfer stations and landfills were surveyed as part of the County's waste diversion characterization. Of these, 49 responded, for a response rate of 36 percent. A breakdown of the responses by category is as follows:

- 130 recyclers, brokers, collectors and end users were surveyed; 41 replied, for a response rate of 32 percent
- 8 operators of landfills and transfer stations were surveyed and all responded, for a response rate of 100 percent.

The responses to the diversion survey reflect a comprehensive reporting of solid waste transfer station and disposal facility diversion programs. Data from brokers and collectors, however, are generally underreported because of the unwillingness of businesses in the recycling industry to divulge information they consider proprietary. This is especially true for underreported data on metals and some paper grades because of a lack of information on diversion of these waste materials.

Survey Results

Contributing Programs. In the County of Santa Clara, data from the following recycling programs contributed to the waste diversion study

- Buy-back and 20/20 redemption value recycling centers
- Curbside recycling collection programs
- Drop-off recycling centers
- Non-profit program that collects newspaper, office paper and California redemption value recyclables from County offices
- Office paper collection program for County offices
- Recyclables collection from businesses by privately owned recycling firms

Summary of Diversion Data. Based on the results of the surveys, the County of Santa Clara diverts an estimated 11.1 percent of its total solid waste stream. Given the sample size and the lack of cooperation of some brokers and collectors, the County of Santa Clara did not extrapolate from the diversion survey data. Consequently the actual diversion rates for commercial/industrial and residential recycling in the County is expected to be significantly higher than the percentages measured through this study. During the short-term planning period, the County will be implementing monitoring programs that will enable the County to present a more refined estimate of diversion activity when a revision of the SRRE is submitted to the California Integrated Waste Management Board (CIWMB) in 1996.

The results of the diversion study are presented in Table II-1 for the various sectors of the waste stream (ie, residential, commercial, industrial). The diversion quantities listed are estimates of existing conditions in annual tons for 1990.

Caveats Concerning Data. The following should be noted in reviewing the data presented in Table II-1:

- Where necessary, the data were apportioned based upon the population ratio of those areas for which the data were reported.

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

- 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.

- Data on glass tonnages from some cities were reported as commingled. According to the Department of Conservation (DOC), as of March 1, 1990 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.

- 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.

Breakdown of Data by Program

Source Reduction. Because of the difficulty in documenting and estimating source reduction quantities diverted, no diversion through source reduction is reported.

Residential Recycling. Based on the survey of recyclers and on data from the County's recycling programs, an estimated 4,643 tons of waste were diverted in 1990 through the County of Santa Clara residential recycling programs. These programs include residential curbside recycling, buy-back and drop-off center recycling, and AB 20/20 (California redemption) centers, as well as diversion that occurs at landfills and the San Martin Transfer Station. The estimated amounts by material type are listed in Table II-1.

Commercial/Industrial Recycling. The estimated quantity of solid waste diverted by commercial/industrial recycling in 1990 was 3,821 tons.

Moffett Field Naval Air Station (NAS) and NASA Ames Research Center. The estimated quantity of solid waste diverted by these two facilities (and agencies) was 1,331 tons in 1990. Significant quantities included in this amount diverted were 480 tons of corrugated cardboard and 481 tons of steel recycled at Moffett Field NAS. Since 1990, operations at NAS have been considerably downsized with the transfer of NAS to NAS - ARC. Thus, waste volume generated (as well as the diversion rates) through 1995 and 2000 will be less than the projected figures.

Composting. The estimated quantity of yard waste diverted through composting was 608 tons in 1990. Included in the amount of yard waste diverted was 546 tons by Stanford University programs, 40 tons diverted from the commercial sector, and 22 tons from the residential sector. This diversion is shown in Table II-1.

Calculation of Diversion Rate

Diversion percentages by waste type for the County of Santa Clara are presented in Table II-1. Diversion rates were calculated by:

- summing the tons/year disposed for each waste type
- summing the tons per year for each waste type

- adding up quantities disposed and diverted to determine the total quantity in tons/year generated for each waste type (disposed + diverted = total generated)
- dividing the quantity source reduced, recycled, and composted by the total generated to determine the diversion rate [(source reduction + recycling + composting x 100)/total generated = diversion rate percent]

Materials Targeted for Diversion

The following categories of materials are targeted for diversion through programs identified in the source reduction, recycling, composting, and special waste components of the SRRE. Only those materials that can be counted towards the AB 939 diversion targets are shown:

Paper:
corrugated containers
mixed paper
newspaper
high-grade ledger paper
magazines
phone books
aseptic containers (cartons)

Metals:
aluminum cans
other ferrous metals
non-ferrous metals
bi-metal containers
steel food & beverage cans
white goods

Plastics:
PET containers
HDPE containers
polystyrene
film plastics
other plastics

Other organics:
yard waste
tires/rubber
wood wastes

Glass:
CA Redemption Value
other recyclable glass
refillable beverage containers

Other wastes:
inert solids (e.g., asphalt, concrete, and soil)

Materials Targeted for Disposal

The following list identifies materials that are currently being disposed of in the County of Santa Clara that will not be diverted from disposal by all of the programs identified in this SRRE. Some of the unincorporated areas of the County plan for more comprehensive recycling programs than others. Some of these materials are not targeted for diversion because (1) the materials are nonrecyclable, (2) the

quantity being disposed of is insignificant, (3) there is no market for the material, or, (4) the depressed market price makes recycling cost-prohibitive. Only those materials that qualify as solid waste under AB 939 are shown.

Paper:
other paper
aseptic containers
mixed paper
high grade ledger paper
magazines
phone books

Plastics:
film plastics
other plastics
polystyrene

Glass:
other non-recyclable glass

Other organics:
food waste
textiles and leather

Table II - 1 Existing Conditions by Sector, 1990

		RESIDENTIAL				COMMERCIAL				INDUSTRIAL		
MATERIAL TYPE	DIVERTED	DISPOSED	GENERATED	PERCENT DIVERTED	DIVERTED	DISPOSED	GENERATED	PERCENT DIVERTED	DIVERTED	DISPOSED	GENERATED	PERCENT DIVERTED
1) TOTAL PAPER	355	12025	12380	2.87%	7	9796	9803	0.07%	0	5957	5957	0.00%
OCC/Kraft	13	2079	2092	0.62%	2	3437	3439	0.06%		2130	2130	0.00%
Newspaper	323	2203	2526	12.79%		922	922	0.00%		359	359	0.00%
High Grade		192	192	0.00%	5	436	441	1.13%		660	660	
Mixed Paper	9	4406	4415	0.20%		2827	2827	0.00%		1643	1643	0.00%
Other Paper	10	3145	3155	0.32%		2174	2174	0.00%		1165	1165	0.00%
2) TOTAL PLASTIC	51	2727	2778	1.84%	0	2255	2255	0.00%	0	2415	2415	0.00%
HDPE containers	1	286	287	0.35%		246	246	0.00%		162	162	0.00%
PET containers	50	132	182	27.47%		26	26	0.00%		10	10	0.00%
Film Plastics		1148	1148	0.00%		899	899	0.00%		389	389	0.00%
Other Plastics		1161	1161	0.00%		1084	1084	0.00%		1854	1854	0.00%
3) TOTAL GLASS	1852	1377	3229	57.36%	0	829	829	0.00%	0	324	324	0.00%
Refillable Beverage	8	292	300	2.67%		160	160	0.00%		32	32	
CA Redemption Value	971	429	1400	69.36%		338	338	0.00%		70	70	0.00%
Other Recyclable	873	533	1406	62.09%		258	258	0.00%		161	161	0.00%
Other Non-Recyclable		123	123	0.00%		73	73	0.00%		61	61	
4) TOTAL METAL	1787	1417	3204	55.77%	5	1075	1080	0.46%	0	2111	2111	0.00%
Aluminum Cans	434	151	585	74.19%		71	71	0.00%		67	67	0.00%
Bi-metal			0				0				0	
Tin	12	510	522	2.30%		398	398	0.00%		128	128	0.00%
Other Ferrous		360	360	0.00%	4	500	504	0.79%		1797	1797	0.00%
Other Non-Ferrous	3	379	382	0.79%		106	106	0.00%		96	96	0.00%
White Goods	1338	17	1355	98.75%	1		1	100.00%		23	23	
5) YARD WASTE	22	10541	10563	0.21%	40	1641	1681	2.38%		2348	2348	0.00%
6) OTHER ORGANIC	296	6236	6532	4.53%	1249	4745	5994	20.84%	0	5788	5788	0.00%
Food Waste		3381	3381	0.00%		3430	3430	0.00%		743	743	0.00%
Tires/Rubber	296	285	581	50.95%		385	385	0.00%		367	367	0.00%
Wood Wastes		514	514	0.00%	49	200	249	19.68%		3480	3480	0.00%
Agric Crop Residue			0				0				0	
Manure			0		1200		1200	100.00%			0	
Textiles/Leather		697	697	0.00%		355	355	0.00%		522	522	0.00%
Other Misc		1359	1359	0.00%		375	375	0.00%		676	676	0.00%
7) OTHER WASTE	280	597	877	31.93%	0	306	306	0.00%	0	3125	3125	0.00%
Inert Solids	256	526	782	32.74%		68	68	0.00%		2953	2953	0.00%
Hazardous Waste	24	71	95	25.26%		238	238	0.00%		172	172	0.00%
8) SPECIAL WASTE	0	79	79	0.00%	2520	29	2549	98.86%	0	4	4	0.00%
ash			0				0				0	
sewage sludge			0				0				0	
industrial sludge			0				0				0	
asbestos			0				0				0	
auto shredder waste			0				0				0	
auto bodies			0		2520		2520	100.00%			0	
mattresses			0			19	19	0.00%			0	
other special waste			0				0				0	
9) UNIDENTIFIED WASTE			0				0				0	
TOTALS	4643	34999	39642	11.71%	3821	20676	24497	15.60%	0	22072	22072	0.00%

Table II - 1 Existing Conditions by Sector, 1990

		SELF HAUL				STANFORD				MOFFETT		
MATERIAL TYPE	DIVERTED	DISPOSED	GENERATED	PERCENT DIVERTED	DIVERTED	DISPOSED	GENERATED	PERCENT DIVERTED	DIVERTED	DISPOSED	GENERATED	PERCENT DIVERTED
1) TOTAL PAPER	0	1891	1891	0.00%	2395	5682	8077	29.65%	780	3040	3820	20.42%
OCC/Kraft		698	698	0.00%	490	907	1397	35.08%	480		480	
Newspaper		89	89	0.00%	505	692	1197	42.19%	60		60	
High Grade		147	147	0.00%	286	278	564	50.71%	124		124	
Mixed Paper		132	132	0.00%	1114	1626	2740	40.66%	116		116	
Other Paper		825	825	0.00%		2179	2179	0.00%			0	
2) TOTAL PLASTIC	0	816	816	0.00%	2	889	891	0.22%	3	592	595	0.50%
HDPE containers		15	15	0.00%		84	84	0.00%			0	
PET containers		23	23	0.00%	2	22	24	8.33%	3		3	
Film Plastics		395	395	0.00%		408	408	0.00%			0	
Other Plastics		383	383	0.00%		375	375	0.00%			0	
3) TOTAL GLASS	0	93	93	0.00%	478	616	1094	43.69%	16	204	220	7.27%
Refillable Beverage		4	4	0.00%			0				0	
CA Redemption Value		8	8	0.00%	197	221	418	47.13%	16		16	
Other Recyclable		12	12	0.00%	281	318	599	46.91%			0	
Other Non-Recyclable		69	69	0.00%		77	77	0.00%			0	
4) TOTAL METAL	432	1167	1599	27.01%	88	480	568	15.49%	532	389	921	57.76%
Aluminum Cans		3	3	0.00%	12	53	65	18.46%	6		6	
Bi-metal		28	28	0.00%		132	132	0.00%			0	
Tin		96	96	0.00%	10		10	100.00%			0	
Other Ferrous	216	483	699	30.90%	42	227	269	15.61%	481		481	
Other Non-Ferrous		431	431	0.00%	24	66	90	26.67%	45		45	
White Goods	216	126	342	63.08%		2	2	0.00%			0	
5) YARD WASTE		3520	3520	0.00%	546	215	761	71.75%		699	699	0.00%
6) OTHER ORGANIC	700	3527	4227	16.56%	106	2828	2934	3.61%		1383	1383	0.00%
Food Waste		154	154	0.00%		2008	2008	0.00%		785	785	
Tires/Rubber		23	23	0.00%		19	19	0.00%		130	130	
Wood Wastes	700	2622	3322	21.07%	106	660	766	13.84%		392	392	
Agric Crop Residue		244	244	0.00%			0				0	
Manure			0				0				0	
Textiles/Leather		254	254	0.00%		127	127	0.00%		76	76	
Other Misc		230	230	0.00%	0	14	14	0.00%			0	
7) OTHER WASTE	0	4518	4518	0.00%		361	361	0.00%		776	776	0.00%
Inert Solids		4273	4273	0.00%		327	327	0.00%			0	
Hazardous Waste		244	244	0.00%		34	34				0	
8) SPECIAL WASTE	3	3	6	49.18%	0	368	368	0.00%			0	
ash			0				0				0	
sewage sludge			0				0				0	
industrial sludge			0				0				0	
asbestos			0				0				0	
auto shredder waste			0				0				0	
auto bodies			0				0				0	
mattresses	3		3	100.00%			0				0	
other special waste			0			368	368				0	
9) UNIDENTIFIED WASTE			0				0				0	
TOTALS	1135	15535	16670	6.81%	3615	11439	15054	24.01%	1331	7083	8414	15.82%

Table II - 1 Existing Conditions by Sector, 1990

MATERIAL TYPE	TOTAL DIVERTED	TOTAL DISPOSED	TOTAL GENERATED	PERCENT DIVERTED
1) TOTAL PAPER	3537	38391	41928	8.4%
OCC/Kraft	985	9251	10236	9.6%
Newspaper	868	4285	5153	17.2%
High Grade	415	1713	2128	19.5%
Mixed Paper	1239	10634	11873	10.4%
Other Paper	10	9488	9498	0.1%
2) TOTAL PLASTIC	56	9694	9750	0.6%
HDPE containers	1	793	794	0.1%
PET containers	55	213	268	20.5%
Film Plastics	0	3239	3239	0.0%
Other Plastics	0	4857	4857	0.0%
3) TOTAL GLASS	2346	3443	5789	40.5%
Refillable Beverage	8	488	496	1.6%
CA Redemption Value	1184	1066	2250	52.6%
Other Recyclable	1154	1282	2436	47.4%
Other Non-Recyclable	0	403	403	0.0%
4) TOTAL METAL	2844	6639	9483	30.0%
Aluminum Cans	452	345	797	56.7%
Bi-metal	0	160	160	0.0%
Tin	22	1132	1154	1.9%
Other Ferrous	743	3367	4110	18.1%
Other Non-Ferrous	72	1078	1150	6.3%
White Goods	1555	168	1723	90.2%
5) YARD WASTE	608	18964	19572	3.1%
6) OTHER ORGANIC	2351	24507	26858	8.8%
Food Waste	0	10501	10501	0.0%
Tires/Rubber	296	1209	1505	19.7%
Wood Wastes	855	7868	8723	9.8%
Agric Crop Residue	0	244	244	0.0%
Manure	1200	0	1200	100.0%
Textiles/Leather	0	2031	2031	0.0%
Other Misc	0	2654	2654	0.0%
7) OTHER WASTE	280	9683	9963	2.8%
Inert Solids	256	8147	8403	3.0%
Hazardous Waste	24	759	783	3.1%
8) SPECIAL WASTE	2523	483	3006	83.9%
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	2520	0	2520	100.0%
mattresses	3	19	22	13.6%
other special waste	0	368	368	0.0%
9) UNIDENTIFIED WASTE	0	0	0	0.0%
TOTALS	14545	111804	126349	11.5%

Table II - 1a Existing Conditions without restricted materials, 1990

MATERIAL TYPE	TOTAL DIVERTED	TOTAL DISPOSED	TOTAL GENERATED	PERCENT DIVERTED
1) TOTAL PAPER	3537	38391	41928	8.4%
OCC/Kraft	985	9251	10236	9.6%
Newspaper	888	4265	5153	17.2%
High Grade	415	1713	2128	19.5%
Mixed Paper	1239	10634	11873	10.4%
Other Paper	10	9488	9498	0.1%
2) TOTAL PLASTIC	56	9694	9750	0.6%
HDPE containers	1	793	794	0.1%
PET containers	55	213	268	20.5%
Film Plastics	0	3239	3239	0.0%
Other Plastics	0	4857	4857	0.0%
3) TOTAL GLASS	2348	3443	5789	40.5%
Refillable Beverage	8	488	496	1.6%
CA Redemption Value	1184	1066	2250	52.6%
Other Recyclable	1154	1282	2436	47.4%
Other Non-Recyclable	0	403	403	0.0%
4) TOTAL METAL	474	6639	7113	6.7%
Aluminum Cans	452	345	797	56.7%
Bi-metal	0	160	160	0.0%
Tin	22	1132	1154	1.9%
Other Ferrous		3367	3367	0.0%
Other Non-Ferrous		1078	1078	0.0%
White Goods		168	168	0.0%
5) YARD WASTE	608	18964	19572	3.1%
6) OTHER ORGANIC	1151	24507	25658	4.5%
Food Waste	0	10501	10501	0.0%
Tires/Rubber	296	1209	1505	19.7%
Wood Wastes	855	7868	8723	9.8%
Agric Crop Residue	0	244	244	0.0%
Manure		0	0	0.0%
Textiles/Leather	0	2031	2031	0.0%
Other Misc	0	2654	2654	0.0%
7) OTHER WASTE	26	9683	9709	0.3%
Inert Solids		8147	8147	0.0%
Hazardous Waste	26	759	785	3.3%
8) SPECIAL WASTE	3	483	486	0.6%
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%
mattresses	3	19	22	13.6%
other special waste	0	368	368	0.0%
9) UNIDENTIFIED WAST	0	0	0	0.0%
TOTALS	8201	111804	120005	6.8%

Table II - 2 Fifteen Year Diversion Projection without SRRE Restricted Materials Eliminated

	1990 UNINCORPORATED AREA TOTALS				1991 UNINCORPORATED AREA TOTALS				1992 UNINCORPORATED AREA TOTALS			
MATERIAL TYPE	DISPOSED	DIVERTED	GENERATED	% DIVERTED	DISPOSED	DIVERTED	GENERATED	% DIVERTED	DISPOSED	DIVERTED	GENERATED	% DIVERTED
1) TOTAL PAPER	38391	3537	41928	8.44%	38783	3573	42356	8.44%	39178	3610	42788	8.44%
OCC/Kraft	9251	985	10236	9.62%	9345	995	10340	9.62%	9441	1005	10446	9.62%
Newspaper	4265	888	5153	17.23%	4309	897	5206	17.23%	4352	906	5259	17.23%
High Grade	1713	415	2128	19.50%	1730	419	2150	19.50%	1748	424	2172	19.50%
Mixed Paper	10634	1239	11873	10.44%	10742	1252	11994	10.44%	10852	1264	12116	10.44%
Other Paper	9488	10	9498	0.11%	9585	10	9595	0.11%	9683	10	9693	0.11%
2) TOTAL PLASTIC	9694	56	9750	0.57%	9793	57	9849	0.57%	9893	57	9950	0.57%
HDPE containers	793	1	794	0.13%	801	1	802	0.13%	809	1	810	0.13%
PET containers	213	55	268	20.52%	215	56	271	20.52%	217	56	273	20.52%
Film Plastics	3239	0	3239	0.00%	3272	0	3272	0.00%	3305	0	3305	0.00%
Other Plastics	4857	0	4857	0.00%	4907	0	4907	0.00%	4957	0	4957	0.00%
3) TOTAL GLASS	3443	2346	5789	40.53%	3478	2370	5848	40.53%	3514	2394	5908	40.53%
Refillable Beverage	488	8	496	1.61%	493	8	501	1.61%	498	8	506	1.61%
CA Redemption Value	1066	1184	2250	52.62%	1077	1196	2273	52.62%	1088	1208	2296	52.62%
Other Recyclable	1282	1154	2436	47.37%	1295	1166	2461	47.37%	1308	1178	2486	47.37%
Other Non-Recyclable	403	0	403	0.00%	407	0	407	0.00%	411	0	411	0.00%
4) TOTAL METAL	6639	474	7113	6.66%	6707	479	7186	6.66%	6775	484	7259	6.66%
Aluminum Cans	345	452	797	56.71%	349	457	805	56.71%	352	461	813	56.71%
Bi-metal	160	0	160	0.00%	162	0	162	0.00%	163	0	163	0.00%
Tin	1132	22	1154	1.91%	1144	22	1166	1.91%	1155	22	1178	1.91%
Other Ferrous	3367		3367	0.00%	3401	0	3401	0.00%	3436	0	3436	0.00%
Other Non-Ferrous	1078		1078	0.00%	1089	0	1089	0.00%	1100	0	1100	0.00%
White Goods	168		168	0.00%	170	0	170	0.00%	171	0	171	0.00%
5) YARD WASTE	18964	608	19572	3.11%	19157	614	19772	3.11%	19353	620	19973	3.11%
6) OTHER ORGANIC	24507	1151	25658	4.49%	24757	1163	25920	4.49%	25009	1175	26184	4.49%
Food Waste	10501	0	10501	0.00%	10608	0	10608	0.00%	10716	0	10716	0.00%
Tires/Rubber	1209	296	1505	19.67%	1221	299	1520	19.67%	1234	302	1536	19.67%
Wood Wastes	7868	855	8723	9.80%	7948	864	8812	9.80%	8029	873	8902	9.80%
Agric Crop Residue	244	0	244	0.00%	246	0	246	0.00%	249	0	249	0.00%
Manure	0	0	0	0.00%	0	0	0	0.00%	0	0	0	0.00%
Textiles/Leather	2031	0	2031	0.00%	2052	0	2052	0.00%	2073	0	2073	0.00%
Other Misc	2654	0	2654	0.00%	2681	0	2681	0.00%	2708	0	2708	0.00%
7) OTHER WASTE	9683	26	9709	0.27%	9782	26	9808	0.27%	9882	27	9908	0.27%
Inert Solids	8147	0	8147	0.00%	8230	0	8230	0.00%	8314	0	8314	0.00%
Hazardous Waste	759	26	785	3.31%	767	26	793	3.31%	775	27	801	3.31%
8) SPECIAL WASTE	483	3	486	0.62%	488	3	491	0.62%	493	3	496	0.62%
ash	0	0	0	0.00%	0	0	0	0.00%	0	0	0	0.00%
sewage sludge	0	0	0	0.00%	0	0	0	0.00%	0	0	0	0.00%
Industrial sludge	0	0	0	0.00%	0	0	0	0.00%	0	0	0	0.00%
asbestos	0	0	0	0.00%	0	0	0	0.00%	0	0	0	0.00%
auto shredder waste	0	0	0	0.00%	0	0	0	0.00%	0	0	0	0.00%
auto bodies	0	0	0	0.00%	0	0	0	0.00%	0	0	0	0.00%
mattresses	19	3	22	13.64%	19	3	22	13.64%	19	3	22	13.64%
other special waste	368	0	368	0.00%	372	0	372	0.00%	376	0	376	0.00%
9) UNIDENTIFIED WASTE	0	0	0	0.00%	0	0	0	0.00%	0	0	0	0.00%
TOTALS	111804	8201	120005	6.83%	112944	8285	121229	6.83%	114098	8369	122466	6.83%

Table II - 2 Fifteen Year Diversion Projection without SRRE Restricted Materials Eliminated

	1993 UNINCORPORATED AREA TOTALS				1994 UNINCORPORATED AREA TOTALS				1995 UNINCORPORATED AREA TOTALS			
MATERIAL TYPE	DISPOSED	DIVERTED	GENERATED	% DIVERTED	DISPOSED	DIVERTED	GENERATED	% DIVERTED	DISPOSED	DIVERTED	GENERATED	% DIVERTED
1) TOTAL PAPER	39578	3646	43224	8.44%	39981	3684	43665	8.44%	40361	3719	44080	8.44%
OCC/Kraft	9537	1015	10552	9.62%	9634	1026	10660	9.62%	9728	1036	10761	9.62%
Newspaper	4397	915	5312	17.23%	4442	925	5366	17.23%	4484	934	5417	17.23%
High Grade	1766	428	2194	19.50%	1784	432	2216	19.50%	1801	436	2237	19.50%
Mixed Paper	10963	1277	12240	10.44%	11075	1290	12365	10.44%	11180	1303	12482	10.44%
Other Paper	9781	10	9792	0.11%	9881	10	9891	0.11%	9975	11	9985	0.11%
2) TOTAL PLASTIC	9994	58	10051	0.57%	10096	58	10154	0.57%	10192	59	10250	0.57%
HDPE containers	818	1	819	0.13%	826	1	827	0.13%	834	1	835	0.13%
PET containers	220	57	276	20.52%	222	57	279	20.52%	224	58	282	20.52%
Film Plastics	3339	0	3339	0.00%	3373	0	3373	0.00%	3405	0	3405	0.00%
Other Plastics	5007	0	5007	0.00%	5058	0	5058	0.00%	5106	0	5106	0.00%
3) TOTAL GLASS	3549	2419	5968	40.53%	3586	2443	6029	40.53%	3620	2466	6086	40.53%
Refillable Beverage	503	8	511	1.61%	508	8	517	1.61%	513	8	521	1.61%
CA Redemption Value	1099	1221	2320	52.62%	1110	1233	2343	52.62%	1121	1245	2365	52.62%
Other Recyclable	1322	1190	2511	47.37%	1335	1202	2537	47.37%	1348	1213	2561	47.37%
Other Non-Recyclable	415	0	415	0.00%	420	0	420	0.00%	424	0	424	0.00%
4) TOTAL METAL	6844	489	7333	6.66%	6914	494	7408	6.66%	6980	498	7478	6.66%
Aluminum Cans	356	466	822	56.71%	359	471	830	56.71%	363	475	838	56.71%
Bi-metal	165	0	165	0.00%	167	0	167	0.00%	168	0	168	0.00%
Tin	1167	23	1190	1.91%	1179	23	1202	1.91%	1190	23	1213	1.91%
Other Ferrous	3471	0	3471	0.00%	3506	0	3506	0.00%	3540	0	3540	0.00%
Other Non-Ferrous	1111	0	1111	0.00%	1123	0	1123	0.00%	1133	0	1133	0.00%
White Goods	173	0	173	0.00%	175	0	175	0.00%	177	0	177	0.00%
5) YARD WASTE	19550	627	20177	3.11%	19750	633	20383	3.11%	19937	639	20576	3.11%
6) OTHER ORGANIC	25265	1187	26451	4.49%	25522	1199	26721	4.49%	25765	1210	26975	4.49%
Food Waste	10826	0	10826	0.00%	10936	0	10936	0.00%	11040	0	11040	0.00%
Tires/Rubber	1246	305	1552	19.67%	1259	308	1567	19.67%	1271	311	1582	19.67%
Wood Wastes	8111	881	8993	9.80%	8194	890	9084	9.80%	8272	899	9171	9.80%
Agric Crop Residue	252	0	252	0.00%	254	0	254	0.00%	257	0	257	0.00%
Manure	0	0	0	0.00%	0	0	0	0.00%	0	0	0	0.00%
Textiles/Leather	2094	0	2094	0.00%	2115	0	2115	0.00%	2135	0	2135	0.00%
Other Misc	2736	0	2736	0.00%	2764	0	2764	0.00%	2790	0	2790	0.00%
7) OTHER WASTE	9982	27	10009	0.27%	10084	27	10111	0.27%	10180	27	10207	0.27%
Inert Solids	8399	0	8399	0.00%	8485	0	8485	0.00%	8565	0	8565	0.00%
Hazardous Waste	782	27	809	3.31%	790	27	818	3.31%	798	27	825	3.31%
8) SPECIAL WASTE	498	3	501	0.62%	503	3	506	0.62%	508	3	511	0.62%
ash	0	0	0	0.00%	0	0	0	0.00%	0	0	0	0.00%
sewage sludge	0	0	0	0.00%	0	0	0	0.00%	0	0	0	0.00%
industrial sludge	0	0	0	0.00%	0	0	0	0.00%	0	0	0	0.00%
asbestos	0	0	0	0.00%	0	0	0	0.00%	0	0	0	0.00%
auto shredder waste	0	0	0	0.00%	0	0	0	0.00%	0	0	0	0.00%
auto bodies	0	0	0	0.00%	0	0	0	0.00%	0	0	0	0.00%
mattresses	20	3	23	13.64%	20	3	23	13.64%	20	3	23	13.64%
other special waste	379	0	379	0.00%	383	0	383	0.00%	387	0	387	0.00%
9) UNIDENTIFIED WASTE	0	0	0	0.00%	0	0	0	0.00%	0	0	0	0.00%
TOTALS	115260	8455	123715	6.83%	116436	8541	124977	6.83%	117542	8622	126164	6.83%

Table II - 2 Fifteen Year Diversion Projection without SRRE Restricted Materials Eliminated

	1996 UNINCORPORATED AREA TOTALS				1997 UNINCORPORATED AREA TOTALS				1998 UNINCORPORATED AREA TOTALS			
MATERIAL TYPE	DISPOSED	DIVERTED	GENERATED	% DIVERTED	DISPOSED	DIVERTED	GENERATED	% DIVERTED	DISPOSED	DIVERTED	GENERATED	% DIVERTED
1) TOTAL PAPER	40745	3754	44499	8.44%	41132	3790	44921	8.44%	41523	3826	45348	8.44%
OCC/Kraft	9818	1045	10864	9.62%	9911	1055	10967	9.62%	10006	1065	11071	9.62%
Newspaper	4526	942	5469	17.23%	4569	951	5521	17.23%	4613	960	5573	17.23%
High Grade	1818	440	2258	19.50%	1835	445	2280	19.50%	1853	449	2302	19.50%
Mixed Paper	11286	1315	12601	10.44%	11393	1327	12721	10.44%	11501	1340	12841	10.44%
Other Paper	10070	11	10080	0.11%	10165	11	10176	0.11%	10262	11	10273	0.11%
2) TOTAL PLASTIC	10288	59	10348	0.57%	10386	60	10446	0.57%	10485	61	10545	0.57%
HDPE containers	842	1	843	0.13%	850	1	851	0.13%	858	1	859	0.13%
PET containers	226	58	284	20.52%	228	59	287	20.52%	230	59	290	20.52%
Film Plastics	3438	0	3438	0.00%	3470	0	3470	0.00%	3503	0	3503	0.00%
Other Plastics	5155	0	5155	0.00%	5204	0	5204	0.00%	5253	0	5253	0.00%
3) TOTAL GLASS	3654	2490	6144	40.53%	3689	2513	6202	40.53%	3724	2537	6261	40.53%
Refillable Beverage	518	8	526	1.61%	523	9	531	1.61%	528	9	536	1.61%
CA Redemption Value	1131	1257	2388	52.62%	1142	1269	2411	52.62%	1153	1281	2434	52.62%
Other Recyclable	1361	1225	2585	47.37%	1374	1236	2610	47.37%	1387	1248	2635	47.37%
Other Non-Recyclable	428	0	428	0.00%	432	0	432	0.00%	436	0	436	0.00%
4) TOTAL METAL	7046	503	7549	6.66%	7113	508	7621	6.66%	7181	513	7693	6.66%
Aluminum Cans	366	480	846	56.71%	370	484	854	56.71%	373	489	862	56.71%
Bi-metal	170	0	170	0.00%	171	0	171	0.00%	173	0	173	0.00%
Tin	1201	23	1225	1.91%	1213	24	1236	1.91%	1224	24	1248	1.91%
Other Ferrous	3573	0	3573	0.00%	3607	0	3607	0.00%	3642	0	3642	0.00%
Other Non-Ferrous	1144	0	1144	0.00%	1155	0	1155	0.00%	1166	0	1166	0.00%
White Goods	178	0	178	0.00%	180	0	180	0.00%	182	0	182	0.00%
5) YARD WASTE	20127	645	20772	3.11%	20318	651	20969	3.11%	20511	658	21168	3.11%
6) OTHER ORGANIC	26010	1222	27231	4.49%	26257	1233	27490	4.49%	26506	1245	27751	4.49%
Food Waste	11145	0	11145	0.00%	11251	0	11251	0.00%	11358	0	11358	0.00%
Tires/Rubber	1283	314	1597	19.67%	1295	317	1612	19.67%	1308	320	1628	19.67%
Wood Wastes	8350	907	9258	9.80%	8430	916	9346	9.80%	8510	925	9435	9.80%
Agric Crop Residue	259	0	259	0.00%	261	0	261	0.00%	264	0	264	0.00%
Manure	0	0	0	0.00%	0	0	0	0.00%	0	0	0	0.00%
Textiles/Leather	2156	0	2156	0.00%	2176	0	2176	0.00%	2197	0	2197	0.00%
Other Misc	2817	0	2817	0.00%	2843	0	2843	0.00%	2870	0	2870	0.00%
7) OTHER WASTE	10277	28	10304	0.27%	10374	28	10402	0.27%	10473	28	10501	0.27%
Inert Solids	8646	0	8646	0.00%	8729	0	8729	0.00%	8812	0	8812	0.00%
Hazardous Waste	806	28	833	3.31%	813	28	841	3.31%	821	28	849	3.31%
8) SPECIAL WASTE	513	3	516	0.62%	517	3	521	0.62%	522	3	526	0.62%
ash	0	0	0	0.00%	0	0	0	0.00%	0	0	0	0.00%
sewage sludge	0	0	0	0.00%	0	0	0	0.00%	0	0	0	0.00%
Industrial sludge	0	0	0	0.00%	0	0	0	0.00%	0	0	0	0.00%
asbestos	0	0	0	0.00%	0	0	0	0.00%	0	0	0	0.00%
auto shredder waste	0	0	0	0.00%	0	0	0	0.00%	0	0	0	0.00%
auto bodies	0	0	0	0.00%	0	0	0	0.00%	0	0	0	0.00%
mattresses	20	3	23	13.64%	20	3	24	13.64%	21	3	24	13.64%
other special waste	391	0	391	0.00%	394	0	394	0.00%	398	0	398	0.00%
9) UNIDENTIFIED WASTE	0	0	0	0.00%	0	0	0	0.00%	0	0	0	0.00%
TOTALS	118659	8704	127362	6.83%	119786	8786	128572	6.83%	120924	8870	129794	6.83%

Table II - 2 Fifteen Year Diversion Projection without SRRE Restricted Materials Eliminated

	1999 UNINCORPORATED AREA TOTALS				2000 UNINCORPORATED AREA TOTALS				2001 UNINCORPORATED AREA TOTALS			
MATERIAL TYPE	DISPOSED	DIVERTED	GENERATED	% DIVERTED	DISPOSED	DIVERTED	GENERATED	% DIVERTED	DISPOSED	DIVERTED	GENERATED	% DIVERTED
1) TOTAL PAPER	41917	3862	45779	8.44%	42139	3882	46022	8.44%	42363	3903	46265	8.44%
OCC/Kraft	10101	1075	11176	9.62%	10154	1081	11235	9.62%	10208	1087	11295	9.62%
Newspaper	4657	970	5626	17.23%	4681	975	5656	17.23%	4706	980	5686	17.23%
High Grade	1870	453	2323	19.50%	1880	456	2336	19.50%	1890	458	2348	19.50%
Mixed Paper	11611	1353	12963	10.44%	11672	1360	13032	10.44%	11734	1367	13101	10.44%
Other Paper	10359	11	10370	0.11%	10414	11	10425	0.11%	10470	11	10481	0.11%
2) TOTAL PLASTIC	10584	61	10645	0.57%	10640	61	10702	0.57%	10697	62	10759	0.57%
HDPE containers	866	1	867	0.13%	870	1	872	0.13%	875	1	876	0.13%
PET containers	233	60	293	20.52%	234	60	294	20.52%	235	61	296	20.52%
Film Plastics	3536	0	3536	0.00%	3555	0	3555	0.00%	3574	0	3574	0.00%
Other Plastics	5303	0	5303	0.00%	5331	0	5331	0.00%	5359	0	5359	0.00%
3) TOTAL GLASS	3759	2561	6321	40.53%	3779	2575	6354	40.53%	3799	2589	6388	40.53%
Refillable Beverage	533	9	542	1.61%	536	9	544	1.61%	538	9	547	1.61%
CA Redemption Value	1164	1293	2457	52.62%	1170	1300	2470	52.62%	1176	1306	2483	52.62%
Other Recyclable	1400	1260	2660	47.37%	1407	1267	2674	47.37%	1415	1273	2688	47.37%
Other Non-Recyclable	440	0	440	0.00%	442	0	442	0.00%	445	0	445	0.00%
4) TOTAL METAL	7249	518	7766	6.66%	7287	520	7807	6.66%	7326	523	7849	6.66%
Aluminum Cans	377	494	870	56.71%	379	496	875	56.71%	381	499	879	56.71%
Bi-metal	175	0	175	0.00%	176	0	176	0.00%	177	0	177	0.00%
Tin	1236	24	1260	1.91%	1243	24	1267	1.91%	1249	24	1273	1.91%
Other Ferrous	3676	0	3676	0.00%	3696	0	3696	0.00%	3715	0	3715	0.00%
Other Non-Ferrous	1177	0	1177	0.00%	1183	0	1183	0.00%	1190	0	1190	0.00%
White Goods	183	0	183	0.00%	184	0	184	0.00%	185	0	185	0.00%
5) YARD WASTE	20706	664	21370	3.11%	20815	667	21483	3.11%	20926	671	21597	3.11%
6) OTHER ORGANIC	26758	1257	28015	4.49%	26900	1263	28163	4.49%	27042	1270	28312	4.49%
Food Waste	11465	0	11465	0.00%	11526	0	11526	0.00%	11587	0	11587	0.00%
Tires/Rubber	1320	323	1643	19.67%	1327	325	1652	19.67%	1334	327	1661	19.67%
Wood Wastes	8591	934	9524	9.80%	8636	938	9575	9.80%	8682	943	9625	9.80%
Agric Crop Residue	266	0	266	0.00%	268	0	268	0.00%	269	0	269	0.00%
Manure	0	0	0	0.00%	0	0	0	0.00%	0	0	0	0.00%
Textiles/Leather	2218	0	2218	0.00%	2229	0	2229	0.00%	2241	0	2241	0.00%
Other Misc	2898	0	2898	0.00%	2913	0	2913	0.00%	2929	0	2929	0.00%
7) OTHER WASTE	10572	28	10601	0.27%	10628	29	10657	0.27%	10685	29	10713	0.27%
Inert Solids	8895	0	8895	0.00%	8942	0	8942	0.00%	8990	0	8990	0.00%
Hazardous Waste	829	28	857	3.31%	833	29	862	3.31%	838	29	866	3.31%
8) SPECIAL WASTE	527	3	531	0.62%	530	3	533	0.62%	533	3	536	0.62%
ash	0	0	0	0.00%	0	0	0	0.00%	0	0	0	0.00%
sewage sludge	0	0	0	0.00%	0	0	0	0.00%	0	0	0	0.00%
industrial sludge	0	0	0	0.00%	0	0	0	0.00%	0	0	0	0.00%
asbestos	0	0	0	0.00%	0	0	0	0.00%	0	0	0	0.00%
auto shredder waste	0	0	0	0.00%	0	0	0	0.00%	0	0	0	0.00%
auto bodies	0	0	0	0.00%	0	0	0	0.00%	0	0	0	0.00%
mattresses	21	3	24	13.64%	21	3	24	13.64%	21	3	24	13.64%
other special waste	402	0	402	0.00%	404	0	404	0.00%	406	0	406	0.00%
9) UNIDENTIFIED WASTE	0	0	0	0.00%	0	0	0	0.00%	0	0	0	0.00%
TOTALS	122073	8954	131027	6.83%	122720	9002	131721	6.83%	123370	9049	132419	6.83%

Table II - 2 Fifteen Year Diversion Projection without SRRE Restricted Materials Eliminated

	2002 UNINCORPORATED AREA TOTALS				2003 UNINCORPORATED AREA TOTALS				2004 UNINCORPORATED AREA TOTALS			
MATERIAL TYPE	DISPOSED	DIVERTED	GENERATED	% DIVERTED	DISPOSED	DIVERTED	GENERATED	% DIVERTED	DISPOSED	DIVERTED	GENERATED	% DIVERTED
1) TOTAL PAPER	42587	3924	46511	8.44%	42813	3944	46757	8.44%	43040	3965	47005	8.44%
OCC/Kraft	10262	1093	11355	9.62%	10317	1098	11415	9.62%	10371	1104	11475	9.62%
Newspaper	4731	985	5716	17.23%	4756	990	5747	17.23%	4781	996	5777	17.23%
High Grade	1900	460	2361	19.50%	1910	463	2373	19.50%	1920	465	2386	19.50%
Mixed Paper	11796	1374	13171	10.44%	11859	1382	13240	10.44%	11922	1389	13311	10.44%
Other Paper	10525	11	10536	0.11%	10581	11	10592	0.11%	10637	11	10648	0.11%
2) TOTAL PLASTIC	10754	62	10816	0.57%	10811	62	10873	0.57%	10868	63	10931	0.57%
HDPE containers	880	1	881	0.13%	884	1	885	0.13%	889	1	890	0.13%
PET containers	236	61	297	20.52%	238	61	299	20.52%	239	62	300	20.52%
Film Plastics	3593	0	3593	0.00%	3612	0	3612	0.00%	3631	0	3631	0.00%
Other Plastics	5388	0	5388	0.00%	5416	0	5416	0.00%	5445	0	5445	0.00%
3) TOTAL GLASS	3819	2602	6422	40.53%	3840	2616	6456	40.53%	3860	2630	6490	40.53%
Refillable Beverage	541	9	550	1.61%	544	9	553	1.61%	547	9	556	1.61%
CA Redemption Value	1183	1313	2496	52.62%	1189	1320	2509	52.62%	1195	1327	2522	52.62%
Other Recyclable	1422	1280	2702	47.37%	1430	1287	2717	47.37%	1437	1294	2731	47.37%
Other Non-Recyclable	447	0	447	0.00%	449	0	449	0.00%	452	0	452	0.00%
4) TOTAL METAL	7365	526	7890	6.66%	7404	529	7932	6.66%	7443	531	7974	6.66%
Aluminum Cans	383	501	884	56.71%	385	504	889	56.71%	387	507	894	56.71%
Bi-metal	177	0	177	0.00%	178	0	178	0.00%	179	0	179	0.00%
Tin	1256	24	1280	1.91%	1262	25	1287	1.91%	1269	25	1294	1.91%
Other Ferrous	3735	0	3735	0.00%	3755	0	3755	0.00%	3775	0	3775	0.00%
Other Non-Ferrous	1196	0	1196	0.00%	1202	0	1202	0.00%	1209	0	1209	0.00%
White Goods	186	0	186	0.00%	187	0	187	0.00%	188	0	188	0.00%
5) YARD WASTE	21037	674	21711	3.11%	21148	678	21826	3.11%	21260	682	21942	3.11%
6) OTHER ORGANIC	27186	1277	28462	4.49%	27330	1284	28613	4.49%	27474	1290	28765	4.49%
Food Waste	11649	0	11649	0.00%	11710	0	11710	0.00%	11773	0	11773	0.00%
Tires/Rubber	1341	328	1669	19.67%	1348	330	1678	19.67%	1355	332	1687	19.67%
Wood Wastes	8728	948	9676	9.80%	8774	953	9728	9.80%	8821	959	9779	9.80%
Agric Crop Residue	271	0	271	0.00%	272	0	272	0.00%	274	0	274	0.00%
Manure	0	0	0	0.00%	0	0	0	0.00%	0	0	0	0.00%
Textiles/Leather	2253	0	2253	0.00%	2265	0	2265	0.00%	2277	0	2277	0.00%
Other Misc	2944	0	2944	0.00%	2960	0	2960	0.00%	2975	0	2975	0.00%
7) OTHER WASTE	10741	29	10770	0.27%	10798	29	10827	0.27%	10855	29	10885	0.27%
Inert Solids	9037	0	9037	0.00%	9085	0	9085	0.00%	9133	0	9133	0.00%
Hazardous Waste	842	29	871	3.31%	846	29	875	3.31%	851	29	880	3.31%
8) SPECIAL WASTE	536	3	539	0.62%	539	3	542	0.62%	541	3	545	0.62%
ash	0	0	0	0.00%	0	0	0	0.00%	0	0	0	0.00%
sewage sludge	0	0	0	0.00%	0	0	0	0.00%	0	0	0	0.00%
Industrial sludge	0	0	0	0.00%	0	0	0	0.00%	0	0	0	0.00%
asbestos	0	0	0	0.00%	0	0	0	0.00%	0	0	0	0.00%
auto shredder waste	0	0	0	0.00%	0	0	0	0.00%	0	0	0	0.00%
auto bodies	0	0	0	0.00%	0	0	0	0.00%	0	0	0	0.00%
mattresses	21	3	24	13.64%	21	3	25	13.64%	21	3	25	13.64%
other special waste	408	0	408	0.00%	410	0	410	0.00%	413	0	413	0.00%
9) UNIDENTIFIED WASTE	0	0	0	0.00%	0	0	0	0.00%	0	0	0	0.00%
TOTALS	124024	9097	133121	6.83%	124681	9146	133827	6.83%	125342	9194	134536	6.83%

Table II - 2 Fifteen Year Diversion Projection without SRRE Restricted Materials Eliminated

	2005 UNINCORPORATED AREA TOTALS			
MATERIAL TYPE	DISPOSED	DIVERTED	GENERATED	% DIVERTED
1) TOTAL PAPER	43268	3986	47254	8.44%
OCC/Kraft	10426	1110	11536	9.62%
Newspaper	4807	1001	5808	17.23%
High Grade	1931	468	2398	19.50%
Mixed Paper	11985	1396	13381	10.44%
Other Paper	10693	11	10705	0.11%
2) TOTAL PLASTIC	10925	63	10989	0.57%
HDPE containers	894	1	895	0.13%
PET containers	240	62	302	20.52%
Film Plastics	3650	0	3650	0.00%
Other Plastics	5474	0	5474	0.00%
3) TOTAL GLASS	3880	2644	6524	40.53%
Refillable Beverage	550	9	559	1.61%
CA Redemption Value	1201	1334	2536	52.62%
Other Recyclable	1445	1301	2745	47.37%
Other Non-Recyclable	454	0	454	0.00%
4) TOTAL METAL	7482	534	8017	6.66%
Aluminum Cans	389	509	898	56.71%
Bi-metal	180	0	180	0.00%
Tin	1276	25	1301	1.91%
Other Ferrous	3795	0	3795	0.00%
Other Non-Ferrous	1215	0	1215	0.00%
White Goods	189	0	189	0.00%
5) YARD WASTE	21373	685	22058	3.11%
6) OTHER ORGANIC	27620	1297	28917	4.49%
Food Waste	11835	0	11835	0.00%
Tires/Rubber	1363	334	1696	19.67%
Wood Wastes	8867	964	9831	9.80%
Agric Crop Residue	275	0	275	0.00%
Manure	0	0	0	0.00%
Textiles/Leather	2289	0	2289	0.00%
Other Misc	2991	0	2991	0.00%
7) OTHER WASTE	10913	29	10942	0.27%
Inert Solids	9182	0	9182	0.00%
Hazardous Waste	855	29	885	3.31%
8) SPECIAL WASTE	544	3	548	0.62%
ash	0	0	0	0.00%
sewage sludge	0	0	0	0.00%
industrial sludge	0	0	0	0.00%
asbestos	0	0	0	0.00%
auto shredder waste	0	0	0	0.00%
auto bodies	0	0	0	0.00%
mattresses	21	3	25	13.64%
other special waste	415	0	415	0.00%
9) UNIDENTIFIED WASTE	0	0	0	0.00%
TOTALS	126006	9243	135249	6.83%

Table II - 3 1995 Diversion by Sector with SRRE (Restricted Materials Eliminated)

MATERIAL TYPE	RESIDENTIAL	COMMERCIAL	INDUSTRIAL	SELF-HAUL	STANFORD	MOFFETT/NAS	TOTAL DIVERTED	TOTAL GENERATED	TOTAL DISPOSED	PERCENT DIVERTED
1) TOTAL PAPER	4039	4331	2695	241	2811	1746	15863	44080	28217	35.99%
OCC/Kraft	804	2269	1113	85	511	1450	6232	10761	4529	57.91%
Newspaper	1716	304	106	42	541	143	2852	5417	2565	52.65%
High Grade	29	147	330	15	298	153	972	2237	1265	43.45%
Mixed Paper	786	1042	643	14	1461		3946	12482	8536	31.61%
Other Paper	704	569	503	85			1861	9985	8124	18.64%
2) TOTAL PLASTIC	117	147	76	18	2	15	375	10250	9875	3.66%
HDPE containers	6	70	26	7		5	114	835	721	13.65%
PET containers	94	4	3	11	2	10	124	282	158	43.97%
Film Plastics	17	73	47				137	3405	3268	4.02%
Other Plastics							0	5106	5106	0.00%
3) TOTAL GLASS	1938	442	106	4	498	47	3035	6086	3051	49.87%
Refillable Beverage	16						16	521	505	3.07%
CA Redemption Value	1050	197	29	2	205	47	1530	2365	835	64.69%
Other Recyclable	858	188	77	2	293		1418	2561	1143	55.37%
Other Non-Recyclable	14	57					71	424	353	16.75%
4) TOTAL METAL	638	95	91	18	23	14	879	7478	6599	11.75%
Aluminum Cans	497	56	58	1	13	14	639	838	199	76.25%
Bi-metal							0	168	168	0.00%
Tin	141	39	33	17	10		240	1213	973	19.79%
Other Ferrous							0	3540	3540	0.00%
Other Non-Ferrous							0	1133	1133	0.00%
White Goods							0	177	177	0.00%
5) YARD WASTE	4436	403	141	615			5595	20576	14981	27.19%
6) OTHER ORGANIC	970	583	2299	1601	198	118	5769	26975	21206	21.39%
Food Waste	364						364	11040	10676	3.30%
Tires/Rubber	488	354	294	17		29	1182	1582	400	74.72%
Wood Wastes	71	202	2005	1584	198	89	4149	9171	5022	45.24%
Agric Crop Residue							0	257	257	0.00%
Manure							0	0	0	0.00%
Textiles/Leather	47	27					74	2135	2061	3.47%
Other Misc							0	2790	2790	0.00%
7) OTHER WASTE	38	128	91				257	10207	9950	2.52%
Inert Solids							0	8565	8565	0.00%
Hazardous Waste	38	128	91				257	825	568	31.15%
8) SPECIAL WASTE	7	17		3			27	511	484	5.28%
ash							0	0	0	0.00%
sewage sludge							0	0	0	0.00%
industrial sludge							0	0	0	0.00%
asbestos							0	0	0	0.00%
auto shredder waste							0	0	0	0.00%
auto bodies							0	0	0	0.00%
mattresses		8		3			11	23	12	47.83%
other special waste							0	387	387	0.00%
9) UNIDENTIFIED WASTE							0	0	0	0.00%
TOTALS	12183	6146	5499	2500	3532	1940	31800	126163	94363	25.21%

Table II - 4 2000 Diversion by Sector with SRRE (Restricted Materials Eliminated)

MATERIAL TYPE	RESIDENTIAL	COMMERCIAL	INDUSTRIAL	SELF-HAUL	STANFORD	MOFFETT/NAS	TOTAL DIVERTED	TOTAL GENERATED	TOTAL DISPOSED	PERCENT DIVERTED
1) TOTAL PAPER	7682	7884	4691	860	6741	3221	31079	46022	14943	67.53%
OCC/Kraft	1468	2974	1842	404	1133	2726	10547	11235	688	93.88%
Newspaper	1393	842	272	67	2476	288	5338	5656	318	94.38%
High Grade	76	350	527	45	457	71	1526	2336	810	65.33%
Mixed Paper	3541	2211	1403	77	2675	92	9999	13032	3033	76.73%
Other Paper	1204	1507	647	267		44	3669	10425	6756	35.19%
2) TOTAL PLASTIC	477	862	320	15	56	18	1748	10702	8954	16.33%
HDPE containers	159	143	78	9	37	15	441	872	431	50.57%
PET containers	103	11	13	6	19	3	155	294	139	52.72%
Film Plastics	138	389	156				683	3555	2872	19.21%
Other Plastics	77	319	73				469	5331	4862	8.80%
3) TOTAL GLASS	2287	596	209	8	823	13	3936	6354	2418	61.95%
Refillable Beverage	44	27	17				88	544	456	16.18%
CA Redemption Value	1236	276	54	3	386	13	1968	2470	502	79.68%
Other Recyclable	970	224	117	5	437		1753	2674	921	65.56%
Other Non-Recyclable	37	69	21				127	442	315	28.73%
4) TOTAL METAL	816	166	146	49	67	4	1248	7807	6559	15.99%
Aluminum Cans	591	69	68	2	59	4	793	875	82	90.63%
Bi-metal							0	176	176	0.00%
Tin	225	97	78	47	8		455	1267	812	35.91%
Other Ferrous							0	3696	3696	0.00%
Other Non-Ferrous							0	1183	1183	0.00%
White Goods							0	184	184	0.00%
5) YARD WASTE	9546	1534	1541	3001	1783	402	17807	21483	3676	82.89%
6) OTHER ORGANIC	1612	1884	3437	2721	478	421	10553	28163	17610	37.47%
Food Waste	728	1121					1849	11526	9677	16.04%
Tires/Rubber	601	378	328	22	58	96	1483	1652	169	89.77%
Wood Wastes	232	215	3109	2631	420	325	6932	9575	2643	72.40%
Agric Crop Residue							0	268	268	0.00%
Manure							0	0	0	0.00%
Textiles/Leather	51	76		68			195	2229	2034	8.75%
Other Misc		94					94	2913	2819	3.23%
7) OTHER WASTE	79	203	135	202	47	0	666	10657	9991	6.25%
Inert Solids							0	8942	8942	0.00%
Hazardous Waste	79	203	135	202	47	0	666	862	196	77.26%
8) SPECIAL WASTE	9	18		3			30	533	503	5.63%
ash							0	0	0	0.00%
sewage sludge							0	0	0	0.00%
industrial sludge							0	0	0	0.00%
asbestos							0	0	0	0.00%
auto shredder waste							0	0	0	0.00%
auto bodies							0	0	0	0.00%
mattresses		18		3			21	24	3	87.50%
other special waste							0	404	404	0.00%
9) UNIDENTIFIED WASTE							0	0	0	0.00%
TOTALS	22508	13147	10479	6859	9995	4079	67067	131721	64654	50.92%

1990 - 2005 Diversion with Implementation of the SRRE (Restricted Materials Eliminated)

Year	Population*	Generated	Diverted	Disposed	% Diversion
1990	106100	120005	8201	111804	6.8%
1991	107182	121229	12346	108883	10.2%
1992	108275	122466	16547	105919	13.5%
1993	109380	123715	23124	100591	18.7%
1994	110496	124977	27526	97451	22.0%
1995	111545	126164	31800	94363	25.2%
1996	112605	127362	36680	90682	28.8%
1997	113675	128572	41425	87147	32.2%
1998	114755	129794	55752	74042	43.0%
1999	115845	131027	61408	69619	46.9%
2000	116459	131721	67067	64654	50.9%
2001	117076	132419	67634	64785	51.1%
2002	117696	133121	68435	64686	51.4%
2003	118320	133827	69225	64602	51.7%
2004	118947	134536	70628	63908	52.5%
2005	119578	135249	71436	63813	52.8%

*1990 Population from State Department of Finance.

Population projections extrapolated from Projection '90: Association of Bay Area Governments.

Attachment 1

Disposed Waste Analysis for the Unincorporated Area of Santa Clara County

Report 1324

Draft

DISPOSED WASTE ANALYSIS FOR THE UNINCORPORATED AREA OF SANTA CLARA COUNTY

Submitted to:

Santa Clara County
1735 North First Street, Suite 275
San Jose, CA 95112

by:

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

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DISPOSED WASTE ANALYSIS

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. The information presented in this study defines the existing conditions regarding disposed waste quantities. The results of the study establish the baseline data for future integrated waste management practices in unincorporated Santa Clara County. The data presented herein will be used along with diversion data collected in other studies to compute waste generation. Subsequently, the baseline waste generation data will be used to assist in the monitoring and documentation of the progress of programs implemented to achieve the mandated 25% and 50% diversion goals.

CalRecovery was retained by Santa Clara County to prepare an aggregated characterization of the disposed waste stream in certain unincorporated areas of the County utilizing existing data from those areas. A number of areas comprise unincorporated Santa Clara County. Five of the unincorporated areas -- South, North, West, San Jose, and Lexington Hills -- are included in this analysis. These areas will be referred to as Unincorporated Santa Clara County.

The five unincorporated areas of Santa Clara County are defined as:

Unincorporated South County - unincorporated areas in southern Santa Clara County, including areas within the sphere of influence of the Cities of Gilroy and Morgan Hill

Unincorporated North County - unincorporated areas in northern Santa Clara County, including areas within the sphere of influence of the City of Los Altos, Town of Los Altos Hills, and City of Cupertino

Unincorporated West County - unincorporated areas in the west valley area of Santa Clara County, including areas within the sphere of influence of the City of Saratoga, City of Campbell, Town of Los Gatos, and City of Monte Sereno, as well as adjacent unincorporated areas in the western portion of the City of San Jose

Unincorporated San Jose Area - unincorporated areas within the sphere of influence of the City of San Jose, including east/central San Jose, Burbank Sanitary District, central San Jose, and Cambrian/South San Jose (excludes unincorporated areas in the western portion of San Jose)

Unincorporated Lexington Hills Area - a sparsely populated unincorporated area in the mountains of western Santa Clara County

CURRENT SOLID WASTE DISPOSAL PRACTICES

South County

With a few minor exceptions, the permitted solid waste facilities that receive solid waste from South Santa Clara County are the San Martin Transfer Station and Recycling Center in unincorporated San Martin and the Pacheco Pass Sanitary Landfill. The San Martin Transfer Station receives compacted wastes from the unincorporated South County and from the City of Morgan Hill. The transfer station also accepts self-haul wastes from all of the South County area. Solid wastes received at the transfer station are then compacted and transferred to trailers. Thereafter, the wastes are hauled approximately 10 miles to the Pacheco Pass Sanitary Landfill for disposal. The Pacheco Pass Sanitary Landfill receives compacted wastes directly from the City of Gilroy, but does not accept public self-haul waste.

North County

The City, of Cupertino, City of Los Altos, and Town of Los Altos Hills have long-term (30-year) disposal contracts with BFI for disposal at Newby Island Landfill. Each of the disposal agreements provides for disposal of wastes generated in the unincorporated areas within the sphere-of-influence of the City. The County is a party to each agreement. The four jurisdictions have also executed an agreement allocating the contracted capacity among the jurisdictions.

West County

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. Weekly residential collection services are provided in all communities. Residential wastes are collected at the curb or from backyards. The refuse is disposed at the Guadalupe Landfill, located in San Jose, which 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.

San Jose Area

The unincorporated San Jose area is serviced by three haulers: BFI, Waste Management of Santa Clara, and Mission Trails Garbage. The wastes collected in this area are disposed at Newby Island Landfill.

Lexington Hills Area

The Lexington Hills Area is serviced by the Lexington Hills Disposal Company. Two trucks supply service to approximately 900 housing units, many of which are in hard-to-serve locations. The waste collected in this area is disposed of at Guadalupe Landfill.

METHODOLOGY

The purpose of the study is to aggregate data on the quantity and composition of the disposed waste stream in the five unincorporated areas to characterize the disposed waste stream in Unincorporated Santa Clara County. Field sampling studies to characterize the disposed waste stream were conducted previously for the unincorporated South County, North County, and West County areas. The methodology used was similar for all three areas, and is discussed in detail below. Available data on the quantity and composition of disposed waste in the unincorporated San Jose and Lexington areas were compiled to use in the study. The methodologies used for each of these areas are discussed below. The data were then aggregated to calculate disposed quantities and to develop an average composition for the disposed waste stream.

South, North, and West County Areas

Quantitative field sampling programs were conducted for the South County, North County, and West County areas as follows:

Study Area	Date
South County	April 1-7, 1991
North County	June 3-12, 1991
West County	July 16-25, 1991

The field sampling program for South County was conducted at the San Martin Transfer Station and Recycling Center. Assistance in the study was provided by South Valley Refuse Disposal, Inc.

The North County field sampling program was conducted at the Zanker Road Landfill and Recycling Center. Assistance in the study was provided by Los Altos Garbage Company (LAGCO). To facilitate the sampling and sorting procedure, LAGCO routed solid waste collection vehicles, which generally go to Newby Island, directly to the Zanker Road facility.

The West County field sampling study was conducted at the Guadalupe Landfill. Assistance in the study was provided by Green Valley Disposal Company and Guadalupe Rubbish Disposal Company.

The programs were designed to: 1) determine the composition of the residential, commercial, and industrial waste streams for each area by manually sorting samples of refuse from

collection vehicles into prescribed waste types; and 2) estimate through visual observation the composition of self-haul waste.

Sample Methodology for Collection Vehicle Waste

A Test Plan which outlines the field and sorting activities for the South County area and lists the disposed waste components for sorting is included as Appendix A. Similar test plans were developed for the North County and West County studies. The California Integrated Waste Management Board (CIWMB) has developed the list of waste categories and types, which ~~that~~ are used in this report, to reflect the common practices of solid waste management and recycling industries in California and to 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 typically was received for sampling in rear-loading vehicles, and apartment waste 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 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. Loads were 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.

Accuracy Statement

The sampling programs for disposed waste in the North County, South County, and West County areas were 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 the field studies, 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 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) 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.

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

Number of Vehicles Sampled

The actual total number of solid waste collection vehicles sampled for each area for the disposed waste analysis is presented in Table 1. The table also shows the number of vehicles sampled by waste type.

For unincorporated South County, a total of 19 loads were sampled -- 7 residential, 6 commercial, and 6 industrial.

For unincorporated North County, a total of 16 loads were sampled -- 10 residential and 6 industrial. No discrete commercial loads were available for sampling. A weighted average of the compositions for the commercial waste source from the jurisdictions in North County was used to estimate the composition for the unincorporated area.

For unincorporated West County, a total of 5 residential loads were sampled. The 5 residential loads represent most of the discrete loads of residential waste disposed by the unincorporated area. Commercial wastes in the unincorporated West County are collected commingled with commercial waste from the adjacent cities. Debris boxes from the unincorporated area are not tracked separately from the adjacent cities. Consequently, no discrete commercial loads or debris boxes were available for sampling. A weighted average of the compositions for each of those waste sources from the jurisdictions in West County was used to estimate the composition for the unincorporated area.

The combined total number of loads sampled for the three unincorporated portions of Santa Clara County was 40 -- 22 residential, 6 commercial, and 12 industrial.

Sampling Methodology for Self-Haul Waste

Visual surveys of self-haul waste were conducted for each of the unincorporated South County, North County, and West County areas. Self-haul surveys were also conducted on Saturday and Sunday to account for increased public usage and potential variation in composition of the waste compared to that delivered Monday through Friday.

The South County self-haul survey was conducted from April 1 to 7, 1991, at the San Martin Transfer Station.

For North County, the visual survey was conducted during the week of June 3, 1991, at the Mountain View Landfill. This landfill was chosen as the location for the self-haul waste characterization because of its proximity to the North County jurisdictions. Because the number of self-haul loads disposed at the site was low, information was also obtained from the Zanker Road Landfill and Recycling Center, Browning-Ferris Industries (Newby Island Landfill), and Guadalupe Landfill regarding the disposal of self-haul wastes from the North Santa Clara County area.

The West County visual survey was conducted from July 16 to 22, 1991, at the Guadalupe Landfill.

Table 1. Number of Vehicles Sampled in Unincorporated South County, North County, and West County Areas

Waste Source	Unincorporated South County	Unincorporated North County	Unincorporated West County
Residential	7	10	5
Commercial	6	a)	a)
Industrial	6	6	a)
TOTALS	**19**	**16**	**5**

a) Composition based on data from neighboring jurisdictions.

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.

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 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. 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.

Concurrent with the visual sampling, scalehouse personnel recorded the origin (jurisdiction), volume, and type 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 in each sampling program.

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 results of the waste characterization field studies for the South County, North County, and West County areas are presented in Tables 2, 3, and 4, respectively. The tables present the quantity and composition of disposed waste by waste source. For each unincorporated area,

Table 2. Average Composition (%Weight) and Quantities (Tons/Year) of Disposed Waste for Unincorporated South Santa Clara County a)

Material	Waste Source: Residential N = 7 %	Residential N = 7 TPY	Commercial N = 6 %	Commercial N = 6 TPY	Industrial N = 6 %	Industrial N = 6 TPY	Self Haul (Visual) %	Self Haul (Visual) TPY	Total Disposed %	Total Disposed TPY
1) TOTAL PAPER	32.9	1220	37.2	1322	12.5	418	14.3	960	22.6	3920
OCC/Kraft	6.4	237	9.6	340	4.1	137	5.9	394	6.4	1108
Mixed Paper	10.2	379	11.7	417	5.2	174	1.8	118	6.3	1085
Newsprint	5.8	215	1.9	66	0.7	25	1.1	72	2.2	378
High-Grade	0.1	3	2.3	83	0.0	0	0.3	18	0.6	104
Other Paper	10.4	386	11.7	417	2.6	86	5.3	357	7.2	1245
2) TOTAL PLASTICS	8.5	317	10.5	374	4.7	158	4.9	330	6.8	1179
HDPE	0.8	28	0.7	24	0.6	19	0.2	14	0.5	84
PET	0.7	25	0.1	3	0.2	6	0.0	1	0.2	35
Film	4.0	149	5.6	198	1.1	37	3.4	231	3.6	616
Other Plastics	3.1	114	4.2	150	2.8	95	1.3	85	2.6	443
3) TOTAL GLASS	5.1	189	5.3	189	1.0	35	1.2	81	2.8	493
Refillable Glass Bev.	0.0	0	0.6	22	0.0	0	0.1	4	0.1	26
Calif. Redemption Value	2.2	81	1.9	69	0.1	3	0.1	7	0.9	160
Other Recyclable	2.7	99	2.4	86	1.0	32	0.1	7	1.3	223
Other Non-Recyclable	0.2	9	0.3	12	0.0	0	0.9	63	0.5	84
4) TOTAL METALS	9.8	361	9.0	319	17.3	579	10.1	680	11.2	1940
Aluminum Cans	0.4	14	0.5	18	1.0	35	0.0	3	0.4	70
Bimetal Cans	0.0	0	0.0	0	0.0	0	0.4	26	0.1	26
Tin F&B Cans	1.9	72	3.5	123	0.5	16	1.3	88	1.7	299
Non-Ferrous	6.1	227	2.4	86	0.3	12	0.2	13	1.9	337
White Goods	0.0	0	0.0	0	0.0	0	1.7	113	0.7	113
Other	1.3	49	2.6	92	15.5	517	6.5	438	6.3	1096
5) YARD WASTES	26.5	983	8.0	284	8.2	273	33.1	2225	21.7	3764
6) OTHER ORGANICS	15.3	568	24.0	853	33.7	1128	26.9	1804	25.1	4353
Food	6.6	243	11.1	394	0.7	24	1.8	121	4.5	782
Tires/Rubber	0.3	10	1.2	42	2.1	71	0.3	20	0.8	143
Wood	2.2	81	1.7	59	26.6	889	19.1	1281	13.3	2310
Ag. Crop Residue	0.0	0	0.0	0	0.0	0	3.4	225	1.3	225
Manure	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0
Textiles/Leather	3.0	111	5.3	188	1.2	41	0.0	0	2.0	340
Other Misc. Organics	3.3	122	4.8	170	3.1	103	2.3	157	3.2	552
7) OTHER WASTES	1.8	67	5.5	195	22.5	754	9.4	631	9.5	1647
Inert Solids	1.6	60	0.3	10	22.5	753	9.4	630	8.4	1454
HHW	0.2	7	5.2	185	0.0	0	0.0	1	1.1	193
8) OTHER SPECIAL WASTES b)	0.0	1	0.5	19	0.0	0	0.0	3	0.1	23
Total	100.0	3706	100.0	3554	100.0	3344	100.0	6714	100.0	17318

Totals will not sum exactly due to rounding

a) Based on quantitative field sampling program conducted April 1-7, 1991.

b) Small Household Appliances

Table 3. Average Composition (%Weight) and Quantities (Tons/Year) of Disposed Waste for Unincorporated North Santa Clara County a)

Material	Waste Source: Residential N = 10 %	Residential TPY	Commercial N = 0 %	Commercial TPY	Industrial N = 7 %	Industrial TPY	Self Haul (Visual) %	Self Haul (Visual) TPY	Total Disposed %	Total Disposed TPY
1) TOTAL PAPER	30.2	1503	44.4	1986	4.5	188	4.0	2	26.8	3679
OCC/Kraft	5.3	262	17.6	785	4.4	186	2.1	1	9.0	1234
Mixed	13.6	678	12.5	558	0.0	0	1.6	1	9.0	1237
Newspaper	4.2	211	5.5	247	0.0	0	0.2	0	3.3	459
High-Grade	0.6	31	1.5	66	0.0	2	0.0	0	0.7	98
Other	6.5	321	7.4	331	0.0	0	0.0	0	4.8	652
2) TOTAL PLASTICS	9.1	455	8.1	363	1.3	54	1.4	1	6.4	872
HDPE	1.2	58	0.8	34	0.3	12	0.0	0	0.8	103
PET	0.3	16	0.2	11	0.0	0	0.0	0	0.2	27
Film	4.8	238	4.1	184	0.1	6	0.7	0	3.1	428
Other	2.9	143	3.0	134	0.9	36	0.7	0	2.3	313
3) TOTAL GLASS	3.8	192	4.6	206	0.0	0	0.3	0	2.9	398
Refillable Glass Bev.	0.2	12	0.0	1	0.0	0	0.0	0	0.1	12
Cal Redemption Value	0.6	31	1.6	72	0.0	0	0.0	0	0.8	103
Other Recyclable	2.8	140	2.7	119	0.0	0	0.0	0	1.9	258
Other Non-Recyclable	0.2	10	0.3	14	0.0	0	0.3	0	0.2	24
4) TOTAL METALS	3.4	171	3.9	177	9.1	384	5.7	3	5.4	735
Aluminum Cans	0.3	13	0.4	17	0.0	0	0.0	0	0.2	29
Bimetal	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0
Tin F/B	1.8	91	1.8	78	0.0	0	0.0	0	1.2	170
Non-Fe	0.2	9	0.2	7	0.6	24	0.4	0	0.3	40
White Goods	0.0	0	0.0	0	0.0	0	1.7	1	0.0	1
Other	1.2	58	1.7	74	8.6	360	3.6	2	3.6	495
5) YARD WASTE	28.0	1394	14.2	635	16.7	703	10.5	6	20.0	2739
6) OTHER ORGANICS	20.8	1037	23.3	1042	34.2	1437	25.1	15	25.7	3530
Food	11.7	584	16.1	719	0.0	0	0.2	0	9.5	1303
Tires/Rubber	0.1	5	3.9	174	5.1	216	0.3	0	2.9	395
Wood	1.5	74	1.3	57	21.2	890	21.3	13	7.5	1034
Ag. Crop Residue	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
Textile/Leather	2.1	103	0.6	27	0.6	24	2.3	1	1.1	155
Other Misc Org.	5.5	272	1.4	64	7.3	306	0.9	1	4.7	643
7) OTHER WASTES	4.3	213	1.3	58	34.2	1438	52.8	32	12.7	1740
Inerts	3.8	189	0.4	19	34.2	1438	52.7	32	12.2	1678
HHW	0.5	23	0.9	39	0.0	0	0.1	0	0.4	62
8) SPECIAL WASTES b)	0.3	14	0.1	5	0.0	0	0.2	0	0.1	19
Total	100.0	4978	100.0	4470	100.0	4204	100.0	60	100.0	13712

Totals will not sum exactly due to rounding

a) Based on quantitative field sampling program conducted June 3-12, 1991.

b) Small Household Appliances

Table 4. Average Composition (%Weight) and Quantities (Tons/Year) of Disposed Waste for Unincorporated West Santa Clara County a)

	Waste Source								Total Disposed	
	Residential N = 5		Commercial N = 0		Industrial N = 0		Self Haul (Visual)			
Material	%	TPY	%	TPY	%	TPY	%	TPY	%	TPY
1) TOTAL PAPER	23.2	1740	45.9	576	27.9	1844	2.1	6.7	26.5	4166
OCC/Kraft	6.2	465	15.1	190	14.0	927	1.2	3.9	10.1	1585
Mixed	5.8	436	17.6	221	7.7	510	0.8	2.7	7.5	1169
Newspaper	3.6	268	5.8	73	0.9	57	0.1	0.2	2.5	399
High-Grade	0.0	0	1.0	13	1.2	79	0.0	0.0	0.6	92
Other	7.6	571	6.4	80	4.1	270	0.0	0.0	5.9	921
2) TOTAL PLASTICS	6.9	516	8.2	102	6.0	397	0.8	2.4	6.5	1018
HDPE	0.7	50	0.5	6	0.5	36	0.0	0.0	0.6	92
PET	0.2	12	0.1	1	0.1	4	0.0	0.0	0.1	17
Film	2.5	184	3.9	49	1.6	108	0.4	1.3	2.2	342
Other	3.6	270	3.7	47	3.8	249	0.3	1.0	3.6	567
3) TOTAL GLASS	2.1	159	2.8	35	1.6	107	0.2	0.6	1.9	301
Refillable Glass Bev.	0.0	0	0.0	0	0.0	0	0.0	0.0	0.0	0
Cal Redemption Value	0.3	26	1.2	15	0.5	35	0.0	0.1	0.5	76
Other Recyclable	1.6	119	1.5	19	0.5	34	0.0	0.0	1.1	171
Other Non-Recyclable	0.2	14	0.1	1	0.6	37	0.2	0.5	0.3	54
4) TOTAL METALS	1.7	127	6.3	79	7.9	519	2.6	8.3	4.7	734
Aluminum Cans	0.2	14	0.1	2	0.2	16	0.0	0.1	0.2	31
Bimetal	0.0	0	0.0	0	0.0	0	0.0	0.0	0.0	0
Tin F/B	1.0	77	1.2	15	1.0	64	0.0	0.0	1.0	156
Non-Fe	0.1	11	0.1	2	0.4	28	0.2	0.7	0.3	41
White Goods	0.0	0	0.0	0	0.3	23	0.8	2.4	0.2	26
Other	0.3	26	4.8	60	5.9	389	1.6	5.1	3.1	481
5) YARD	44.7	3359	12.2	152	14.6	968	38.2	121.4	29.3	4601
6) OTHER ORGANICS	19.4	1459	23.6	296	32.7	2162	21.4	68.1	25.4	3985
Food	12.9	965	13.8	173	7.9	521	0.1	0.3	10.6	1659
Tires/Rubber	0.0	4	0.7	9	0.7	48	0.1	0.2	0.4	62
Wood	1.8	138	3.0	38	14.9	988	20.4	64.9	7.8	1229
Ag. Crop Residue	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
Textile/Leather	2.4	182	3.9	49	5.5	362	0.7	2.2	3.8	595
Other Misc Org.	2.3	170	2.1	27	3.7	243	0.2	0.5	2.8	441
7) OTHER WASTES	1.4	103	0.7	9	9.2	609	34.7	110.5	5.3	831
Inerts	1.1	81	0.4	5	7.8	516	34.7	110.3	4.6	712
HHW	0.3	22	0.3	3	1.4	93	0.1	0.2	0.8	119
8) SPECIAL WASTES b)	0.6	47	0.4	5	0.1	4	0.0	0.1	0.4	56
Total	100.0	7510	100.0	1253	100.0	6611	100.0	318	100.0	15692

Totals will not sum exactly due to rounding

a) Based on quantitative field sampling program conducted July 16-25, 1991.

b) Small Household Appliances

the composition for each waste source is an average of the compositions of the respective samples that were hand sorted or visually surveyed during the field study.

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.

San Jose Area

The quantity and composition of the disposed waste stream in the unincorporated San Jose Area is presented in Table 5.

Quantity data, where available, were provided by the respective hauler for each unincorporated area of San Jose -- BFI, Waste Management of Santa Clara, and Mission Trails Garbage. When necessary, CalRecovery extrapolated monthly data to provide yearly estimates of total disposed wastes.

Quantity data was only available for the residential and commercial sectors in the northern and eastern unincorporated areas of San Jose. Quantity data for the industrial and self-haul sectors were calculated based on the quantity of disposed waste by sector for the City of San Jose. Self-haul quantity data was not available for the Burbank and central San Jose unincorporated areas, and was calculated based of the quantity of disposed self-haul data in unincorporated West County.

The composition breakdown of the disposed waste stream in the unincorporated San Jose area is based on the average compositions by waste source for the City of San Jose as reported in the City's Source Reduction and Recycling Element (1991).

In summary, the characterization of the unincorporated San Jose area is based on existing published composition data and reported quantity data. Since all of the areas in the unincorporated San Jose area are within the sphere of influence of a jurisdiction for which a SWGS was conducted, according to CIWMB guidelines (Section 18724(b) of Title 14), the use of data from regional and joint Solid Waste Generation Studies (SWGS) for which a jurisdiction is part may be used.

Lexington Hills Area

The quantity and composition of the disposed waste stream in the unincorporated Lexington Hills area is presented in Table 6.

Quantity data supplied by Lexington Hills Disposal indicates that in 1990, 1309 tons of solid waste were disposed by the residential sector. According to the hauler, there are only one or two commercial accounts and a negligible number of debris boxes serviced. The quantity of self-haul waste in the Lexington Hills area was calculated based on average self-haul quantity data in Unincorporated Santa Clara County.

Because the area is rural in nature and thus most similar to the unincorporated South County area, the composition breakdown of the disposed residential and self-haul waste streams in the

Table 5. Average Composition (%Weight) and Quantities (Tons/Year) of Disposed Waste for the Unincorporated San Jose Area a)

	Waste Source									
	Residential		Commercial		Industrial		Self Haul (Visual)		Total Disposed	
Material	%	TPY	%	TPY	%	TPY	%	TPY	%	TPY
1) TOTAL PAPER	40.8	7132	51.9	5908	44.3	3504	10.7	839	38.9	17383
OCC/Kraft	5.9	1031	18.6	2122	11.1	880	3.4	265	9.6	4297
Mixed	15.9	2779	14.3	1631	12.1	959	0.0	0	12.0	5370
Newspaper	8.2	1433	4.7	536	3.5	277	0.1	11	5.1	2257
High-Grade	0.9	157	2.4	274	7.3	579	1.6	127	2.5	1136
Other	9.9	1731	11.8	1346	10.2	809	5.6	437	9.7	4322
2) TOTAL PLASTICS	7.6	1329	12.4	1414	22.8	1807	5.8	455	11.2	5005
HDPE	0.8	140	1.6	182	1.2	95	0.0	0	0.9	417
PET	0.4	70	0.1	11	0.0	0	0.3	22	0.2	103
Film	3.0	524	4.1	468	3.0	238	1.8	143	3.1	1373
Other	3.4	594	6.6	753	18.6	1474	3.7	290	7.0	3111
3) TOTAL GLASS	4.4	769	3.5	399	2.3	182	0.1	4	3.0	1355
Refillable Glass Bev.	1.6	280	1.2	137	0.4	32	0.0	0	1.0	448
Cal Redemption Value	1.5	262	1.6	182	0.4	32	0.0	0	1.1	476
Other Recyclable	0.8	140	0.3	34	1.2	95	0.1	4	0.6	273
Other Non-Recyclable	0.5	87	0.4	46	0.3	24	0.0	0	0.4	157
4) TOTAL METALS	3.6	629	4.4	502	7.9	626	5.3	416	4.9	2174
Aluminum Cans	0.6	105	0.3	34	0.2	16	0.0	0	0.3	155
Bimetal	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0
Tin F/B	1.4	245	1.6	182	0.6	48	0.0	0	1.1	475
Non-Fe	0.3	52	0.1	11	0.4	32	0.0	0	0.2	96
White Goods	0.1	17	0.0	0	0.0	0	0.0	0	0.0	17
Other	1.2	210	2.4	274	6.7	531	5.3	416	3.2	1431
5) YARD WASTE	25.5	4458	5.0	570	5.1	404	12.4	976	14.3	6408
6) OTHER ORGANICS	17.0	2972	22.4	2555	13.4	1062	18.9	1483	18.1	8072
Food	8.6	1503	18.8	2144	2.5	198	0.3	23	8.7	3869
Tires/Rubber	1.5	262	1.4	160	0.4	32	0.0	1	1.0	454
Wood	1.1	192	0.4	46	9.0	713	14.6	1152	4.7	2103
Ag. Crop Residue	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
Textile/Leather	1.5	262	0.8	91	1.2	95	3.2	251	1.6	699
Other Misc Org.	4.3	752	1.0	114	0.3	24	0.7	57	2.1	946
7) OTHER WASTES	1.1	192	0.4	46	4.1	325	46.9	3690	9.5	4253
Inerts	1.0	175	0.3	34	3.1	246	43.8	3447	8.7	3902
HHW	0.1	17	0.1	11	1.0	79	3.1	243	0.8	351
8) SPECIAL WASTES b)	0.1	17	0.0	0	0.0	0	0.0	0	0.0	17
Total	100.0	17498	100.0	11395	100.0	7911	100.0	7862	100.0	44666

Totals will not sum exactly due to rounding

a) Based on quantity data from area haulers and composition data from 1991 San Jose SRRE.

b) Small Household Appliances

Table 6. Average Composition (%Weight) and Quantities (Tons/Year) of Disposed Waste for the Unincorporated Lexington Hills Area a)

	Waste Source									
	Residential		Commercial b)		Industrial b)		Self Haul			Total Disposed
Material	%	TPY	%	TPY	%	TPY	%	TPY	%	TPY
1) TOTAL PAPER	32.9	431					14.3	83	27.2	514
OCC/Kraft	6.4	84					5.9	34	6.2	118
Mixed	10.2	134					1.8	10	7.6	144
Newspaper	5.8	76					1.1	6	4.3	82
High-Grade	0.1	1					0.3	2	0.1	3
Other	10.4	136					5.3	31	8.8	167
2) TOTAL PLASTICS	8.5	112					4.9	29	7.4	140
HDPE	0.8	10					0.2	1	0.6	11
PET	0.7	9					0.0	0	0.5	9
Film	4.0	53					3.4	20	3.8	73
Other	3.1	40					1.3	7	2.5	48
3) TOTAL GLASS	5.1	67					1.2	7	3.9	74
Refillable Glass Bev.	0.0	0					0.1	0	0.0	0
Cal Redemption Value	2.2	29					0.1	1	1.5	29
Other Recyclable	2.7	35					0.1	1	1.9	36
Other Non-Recyclable	0.2	3					0.9	5	0.5	9
4) TOTAL METALS	9.8	128					10.1	59	9.9	186
Aluminum Cans	0.4	5					0.0	0	0.3	5
Bimetal	0.0	0					0.4	2	0.1	2
Tin F/B	1.9	25					1.3	8	1.7	33
Non-Fe	6.1	80					0.2	1	4.3	81
White Goods	0.0	0					1.7	10	0.5	10
Other	1.3	17					6.5	38	2.9	55
5) YARD	26.5	347					33.1	192	28.6	539
6) OTHER ORGANICS	15.3	201					26.9	156	18.9	356
Food	6.6	86					1.8	10	5.1	96
Tires/Rubber	0.3	4					0.3	2	0.3	5
Wood	2.2	29					19.1	111	7.4	139
Ag. Crop Residue	0.0	0					3.4	19	1.0	19
Manure	0.0	0					0.0	0	0.0	0
Textile/Leather	3.0	39					0.0	0	2.1	39
Other Misc Org.	3.3	43					2.3	14	3.0	57
7) OTHER WASTES	1.8	24					9.4	55	4.1	78
Inerts	1.6	21					9.4	54	4.0	76
HHW	0.2	2					0.0	0	0.1	2
8) SPECIAL WASTES c)	0.0	0					0.0	0	0.0	1
Total	100.0	1309					100.0	580	100.0	1889

Totals will not sum exactly due to rounding

a) Based on quantity data from Lexington Hills Disposal and composition breakdown from Unincorporated South SCC.

b) Not identified

c) Small Household Appliances

unincorporated Lexington Hills area has been based on the composition of the unincorporated South County area.

RESULTS

The average compositions (% weight) and the estimated annual disposed quantities (in tons/year) for residential, commercial, industrial, and self-haul waste in Unincorporated Santa Clara County are shown in Table 7. The disposed quantities for each waste category and type are the sum of the disposed quantities presented in Tables 2 through 6. The percent compositions for each waste source presented in Table 7 are calculated from the quantity data.

The results are presented in accordance with the categories required by the California Integrated Waste Management Board. 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 plastics 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)

Figure 1 shows the percentage (by weight) of the disposed waste stream contributed by each of the five unincorporated areas. As shown in the figure, the unincorporated San Jose area comprises almost one-half (47.9% by weight) of the total disposed waste stream for Unincorporated County.

Figure 2 presents the composition breakdown of the disposed waste stream in Unincorporated Santa Clara County, and shows that residential waste (37.5%) is the largest contributor to disposed waste in Unincorporated County.

The results of the disposed waste characterization for the composite Unincorporated County are discussed below.

Table 7. Average Composition (%Weight) and Quantities (Tons/Year) of Disposed Waste for the Unincorporated Santa Clara County

	Waste Source								Total Disposed	
	Residential		Commercial		Industrial		Self Haul			
Material	%	TPY	%	TPY	%	TPY	%	TPY	%	TPY
1) TOTAL PAPER	34.4	12026	47.4	9792	27.0	5953	12.2	1891	31.8	29662
OCC/Kraft	5.9	2079	16.6	3435	9.6	2130	4.5	698	8.9	8342
Mixed	12.6	4407	13.7	2826	7.4	1643	0.9	132	9.7	9009
Newspaper	6.3	2204	4.5	922	1.6	360	0.6	90	3.8	3575
High-Grade	0.5	192	2.1	435	3.0	660	0.9	147	1.5	1433
Other	9.0	3145	10.5	2173	5.3	1164	5.3	825	7.8	7306
2) TOTAL PLASTICS	7.8	2728	10.9	2253	10.9	2416	5.3	817	8.8	8214
HDPE	0.8	285	1.2	246	0.7	163	0.1	15	0.8	708
PET	0.4	132	0.1	26	0.0	11	0.1	23	0.2	192
Film	3.3	1148	4.3	898	1.8	389	2.6	397	3.0	2831
Other	3.3	1162	5.2	1084	8.4	1855	2.5	383	4.8	4483
3) TOTAL GLASS	3.9	1375	4.0	829	1.5	324	0.6	92	2.8	2620
Refillable Beverage	0.8	291	0.8	159	0.1	32	0.0	4	0.5	486
Cal Redemption	1.2	429	1.6	338	0.3	70	0.0	8	0.9	844
Other Recyclable	1.5	532	1.2	258	0.7	161	0.1	12	1.0	962
Other Non-Recycl	0.4	123	0.4	73	0.3	61	0.4	69	0.4	327
4) TOTAL METALS	4.0	1417	5.2	1076	9.6	2109	7.5	1167	6.2	5769
Aluminum Cans	0.4	149	0.3	71	0.3	66	0.0	3	0.3	290
Bimetal	0.0	0	0.0	0	0.0	0	0.2	28	0.0	28
Tin F/B	1.5	510	1.9	399	0.6	127	0.6	95	1.2	1132
Non-Fe	1.1	380	0.5	106	0.4	95	0.1	15	0.6	595
White Goods	0.0	17	0.0	0	0.1	23	0.5	126	0.2	167
Other	1.0	360	2.4	500	8.1	1797	5.8	900	3.8	3557
5) YARD	30.1	10541	7.9	1642	10.6	2348	22.7	3520	19.4	18051
6) OTHER ORGANICS	17.8	6236	23.0	4746	26.2	5789	22.7	3526	21.8	20297
Food	9.7	3381	16.6	3430	3.4	743	1.0	155	8.3	7709
Tires/Rubber	0.8	285	1.9	385	1.7	367	0.1	22	1.1	1059
Wood	1.5	514	1.0	200	15.8	3480	16.9	2621	7.3	6815
Ag. Crop Residue	0.0	0	0.0	0	0.0	0	1.6	245	0.3	245
Manure	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0
Textile/Leather	2.0	696	1.7	356	2.4	523	1.6	254	2.0	1830
Other Misc Org.	3.9	1360	1.8	375	3.1	676	1.5	228	2.8	2639
7) OTHER WASTES	1.7	599	1.5	306	14.2	3126	29.1	4518	9.2	8549
Inerts	1.5	527	0.3	68	13.4	2953	27.5	4274	8.4	7822
HHW	0.2	72	1.2	238	0.8	173	1.6	244	0.8	727
8) SPECIAL WASTES a)	0.2	80	0.1	28	0.0	4	0.0	3	0.1	116
Total	100.0	35001	100.0	20672	100.0	22073	100.0	15534	100.0	93281

Totals will not sum exactly due to rounding

a) Small Household Appliances

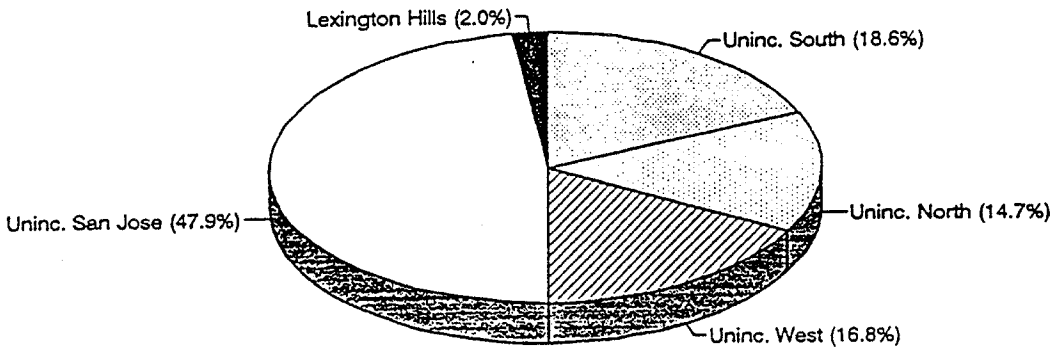

Figure 1. Unincorporated Santa Clara County
Disposed Quantities by Percent Weight

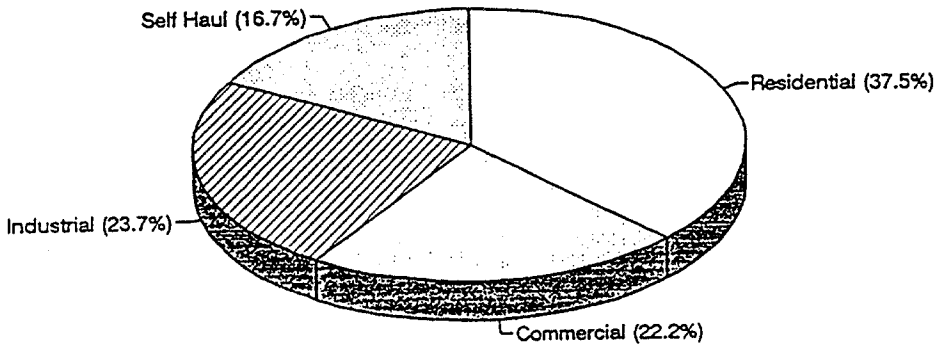

Figure 2. Unincorporated Santa Clara County
Percent of Total Disposed Waste

Residential Wastes

Disposed residential waste is approximately 37.5% (by weight) of the total disposed solid waste stream.

As shown in Table 7, the total paper category is the category with the highest concentration (34.4%) in the disposed residential waste stream. Within this category, mixed paper has the highest concentration with 12.6% of disposed residential wastes.

Yard waste comprises close to one-third (30.1%) of disposed residential waste in the Unincorporated County.

Commercial Wastes

Disposed commercial waste is approximately 22.2% (by weight) of the total disposed solid waste stream.

The data in Table 7 show that the total paper category contributes close to one-half (47.4%) of the disposed commercial waste in the Unincorporated County. OCC/Kraft, mixed paper, and other paper have the highest concentrations within this category, with 16.6%, 13.7%, and 10.5%, respectively, of the disposed commercial waste stream.

Food waste (16.6%) is the only other waste type that comprises greater than 10% of the disposed commercial waste stream.

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. Disposed industrial waste is approximately 23.7% (by weight) of the total disposed solid waste stream.

Table 7 shows that the total paper and other organics categories have the highest concentrations, with 27.0% and 26.2%, respectively, of the disposed industrial waste stream. Wood waste comprises 15.8%, and inerts, 13.4%, of disposed industrial wastes.

Self-Haul Wastes

As shown in Table 7 and Figure 2, disposed self-haul waste is approximately 16.7% (by weight) of the total disposed solid waste stream.

The other waste category has the largest concentration, with 29.1% of the disposed self-haul waste stream. At 27.5% of the disposed self-haul wastes, inerts account for almost all of the waste disposed in this category.

The yard waste (22.7%) and other organics categories (22.7%) also contribute approximately one-fourth of the disposed self-haul wastes. Within the other organics category, wood waste is the largest contributor, at 16.9% of the disposed self-haul waste stream.

SEASONALITY

It has been assumed that four seasons could potentially impact the disposed wastes in the Unincorporated County. This assumption is based on data analyzed as part of the disposed waste studies conducted for the South County, North County, and West County areas. The potential seasonal impacts on the composition of the waste stream were considered in those studies 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. The concentration of yard waste is expected to fluctuate within $\pm$20% of the estimated annual average over the course of a year.

PROJECTED DISPOSED WASTE QUANTITIES

A 15-year projection of the disposed waste stream under existing conditions for Unincorporated Santa Clara County is shown in Table 8. The projected quantities are based on population data and projections published by the Association of Bay Area Governments (ABAG). Because the unincorporated areas are located in various parts of the County, the ABAG projections for the County are used to calculate the escalation rate of the disposed waste quantities.

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.

Table 8. Projected Annual Quantities of Disposed Waste for All of Santa Clara County (Tons/Year)

Material	Year: / Esc. factor a):	1990	1991 1.0102	1992 1.0102	1993 1.0102	1994 1.0102	1995 1.0095	1996 1.0095	1997 1.0095	1998 1.0095	1999 1.0095	2000 1.0053	2001 1.0053	2002 1.0053	2003 1.0053	2004 1.0053	2005 1.0053
1) TOTAL PAPER		29662	29964	30270	30579	30891	31184	31481	31780	32081	32386	32558	32730	32904	33078	33254	33430
OCC/Kraft		8342	8427	8513	8600	8688	8770	8853	8938	9022	9108	9156	9205	9254	9303	9352	9402
Mixed Paper		9009	9101	9194	9287	9382	9471	9561	9652	9744	9836	9888	9941	9994	10046	10100	10153
Newsprint		3575	3612	3648	3686	3723	3759	3794	3830	3867	3903	3924	3945	3966	3987	4008	4029
High-Grade		1433	1448	1463	1478	1493	1507	1521	1536	1550	1565	1573	1582	1590	1599	1607	1616
Other Paper		7306	7380	7456	7532	7609	7681	7754	7828	7902	7977	8019	8062	8104	8147	8191	8234
2) TOTAL PLASTICS		8214	8298	8383	8468	8554	8636	8718	8801	8884	8969	9016	9064	9112	9160	9209	9258
HDPE		708	715	723	730	737	744	751	759	766	773	777	781	785	790	794	798
PET		192	193	195	197	199	201	203	205	207	209	210	211	212	214	215	216
Film		2831	2860	2890	2919	2949	2977	3005	3034	3062	3092	3108	3124	3141	3158	3174	3191
Other Plastics		4483	4529	4575	4622	4669	4713	4758	4803	4849	4895	4921	4947	4973	4999	5026	5053
3) TOTAL GLASS		2620	2647	2674	2701	2729	2754	2781	2807	2834	2861	2876	2891	2906	2922	2937	2953
Refillable Glass Bev.		486	491	496	501	506	511	516	521	526	531	534	537	539	542	545	548
Calif. Redemption Value		844	853	862	871	879	888	896	905	913	922	927	932	937	942	947	952
Other Recyclable		962	972	982	992	1002	1011	1021	1031	1041	1050	1056	1062	1067	1073	1079	1084
Other Non-Recyclable		327	330	334	337	341	344	347	350	354	357	359	361	363	365	367	369
4) TOTAL METALS		5769	5828	5887	5947	6008	6065	6123	6181	6240	6299	6332	6366	6400	6434	6468	6502
Aluminum Cans		290	293	296	299	302	305	308	311	314	317	319	320	322	324	326	327
Bimetal Cans		28	29	29	29	29	30	30	30	31	31	31	31	31	31	32	32
Tin F&B Cans		1132	1143	1155	1167	1179	1190	1201	1212	1224	1236	1242	1249	1255	1262	1269	1275
Non-Fe/Other Alum		595	601	607	614	620	626	632	638	644	650	653	657	660	664	667	671
White Goods		167	168	170	172	173	175	177	178	180	182	183	184	185	186	187	188
Other Metal		3557	3593	3630	3667	3704	3740	3775	3811	3847	3884	3904	3925	3946	3967	3988	4009
5) YARD WASTES		18051	18235	18421	18609	18799	18977	19158	19340	19523	19709	19813	19918	20024	20130	20237	20344
6) OTHER ORGANICS		20297	20504	20713	20924	21138	21338	21541	21746	21952	22161	22278	22396	22515	22634	22754	22875
Food		7709	7788	7867	7948	8029	8105	8182	8260	8338	8417	8462	8507	8552	8597	8643	8689
Tires/Rubber		1059	1070	1081	1092	1103	1114	1124	1135	1146	1157	1163	1169	1175	1181	1188	1194
Wood		6815	6884	6954	7025	7097	7164	7233	7301	7371	7441	7480	7520	7560	7600	7640	7680
Ag. Crop Residue		245	247	250	252	255	257	260	262	265	267	269	270	272	273	275	276
Manure		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Textiles/Leather		1830	1848	1867	1886	1906	1924	1942	1960	1979	1998	2008	2019	2030	2040	2051	2062
Other Misc. Organics		2639	2668	2693	2721	2748	2774	2801	2827	2854	2881	2897	2912	2927	2943	2959	2974
7) OTHER WASTES		8549	8636	8724	8813	8903	8988	9073	9159	9246	9334	9384	9433	9483	9534	9584	9635
Inert Solids		7822	7902	7983	8064	8146	8224	8302	8381	8460	8541	8586	8632	8677	8723	8769	8816
HHW		727	734	742	749	757	764	771	779	786	794	798	802	806	810	815	819
8) OTHER SPECIAL WASTES b)		116	117	118	119	121	122	123	124	125	127	127	128	129	129	130	131
Total		93281	94233	95194	96165	97146	98069	99000	99941	100890	101849	102388	102931	103477	104025	104576	105131

Total may not sum exactly due to rounding

a) Escalation factor (Esc. factor) is based on projected population data, as reported by ABAG for Santa Clara County.

b) Small Household Appliances

SANTA CLARA SOUTH COUNTY AREA

DISPOSED WASTE FIELD ANALYSIS PLAN

Prepared by:

Cal Recovery Systems, Inc.
160 Broadway, Suite 200
Richmond, California 94804

Submitted to:

County of Santa Clara
1735 North First Street, Suite 275
San Jose, California 95112

March, 1991

DISPOSED WASTE FIELD ANALYSIS PLAN

INTRODUCTION

This test plan presents the methodology for estimating the composition of solid waste generated within the cities of Gilroy and Morgan Hill and the Unincorporated South County. The field analyses will be conducted at the San Martin Transfer Station during the period of April 1-7 (Monday through Saturday), 1991

SAMPLE COLLECTION AND SORTING METHODS

The methods of sample collection and of sorting will be those of the ASTM Draft "Method for Determination of the Composition of Unprocessed Municipal Solid Waste." Loads of waste will be diverted 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, but not limited to, those in Table 1. Data will be recorded on field sample data sheets similar to those in Table 2.

Residential waste collection vehicles will be selected to be representative of waste from within each jurisdiction. Commercial waste collection vehicles will be selected to be representative of commercial generators within each jurisdiction. The selection of representative loads of waste will be based on discussions with the haulers and CRS's knowledge of the residential and commercial waste sources within the jurisdictions.

Industrial waste collection vehicles (debris boxes) from the three jurisdictions will be selected at random at the landfill during the course of the one-week field study.

Special wastes (such as sludge, asbestos, etc.) will be sorted to the extent they are present in loads designated for sampling and will be visually surveyed among the self-hauled wastes. Additionally, records kept of special waste by haulers and disposers will be analyzed as part of the study.

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. As shown in the table, 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 go establish an estimation of the quantity, composition, and source of this waste including jurisdiction of generation. The objective will be to visually survey about 70 percent of the self-haul wastes disposed during the week sample period.

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).

- An estimated composition measurement accuracy for the primary recyclable waste categories of the overall waste stream in the range of 10% to 15% of the population mean for each jurisdiction at the 90% confidence level.

Since composition sampling has not been performed before on wastes from all three jurisdictions, the sampling plan is based on information regarding sample variability obtained from other areas. Specifically, the plan has been developed assuming a ratio of standard deviation to mean value (coefficient of variation) of 0.3. An objective of the analysis is to characterize the overall waste stream from each jurisdiction within an accuracy of approximately 10 to 15%. A selection of 18 to 20 samples per jurisdiction yields an estimated error band of 12% at the 90% confidence level. The number of collection vehicles selected for sampling represents about 50% of those in the jurisdiction.

WASTE QUANTITIES

Total waste quantities will be accounted for by using the most recent 6 months of historical data for each waste type originating from within the three cities.

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
- Estimated number of corresponding households

Commercial

- Collection company and route number
- Type of generator

Industrial

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

Table 1. Refuse Components for Sorting Study

PAPER

1 Corrugated/kraft paper
2 Mixed paper
3 Newspaper
4 High grade/office
5 Magazines/glossy
6 Other paper

PLASTICS

7 Film
8 PET
9 HDPE
10 Polystyrene foam
11 Other

12 FOOD
13 YARD WASTE
14 WOOD
15 TEXTILES/LEATHER
16 RUBBER/TIRES
17 AGRI. CROP RESIDUE
18 MANURE
19 OTHER ORGANICS

METALS

20 Steel food and beverage containers
21 Other ferrous
22 Bi-metal cans
23 Aluminum cans
24 Other aluminum
25 Other non-ferrous

GLASS

26 Redeemable beverage containers
27 Non-redeemable beverage containers
28 Other recy. glass
29 Other non-recy. glass

30 OTHER INORGANICS/INERTS
31 WHITE GOODS
32 HOUSEHOLD HAZARDOUS WASTE
33. SPECIAL WASTES (Where applicable)

Table 2. Sample Field Data Sheet

WASTE COMPOSITION DATA SHEET FOR _____ Sample Notes: _____

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

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

Component	Cont. Tare	Gross Weights (lb) Tare	No Tare	Total
Corrugated containers				
Mixed paper				
Newspaper				
High grade ledger paper				
Magazines				
Other paper				
Film plastics				
HDPE containers				
PET containers				
Polystyrene				
Other plastics				
Food waste				
Yard waste				
Wood wastes				
Textiles/leather				
Tires/rubber products				
Agricultural crop residues				
Manure				
Other organics				
Tin cans				
Other ferrous				
Bi-metal containers				
Aluminum cans				
Non-ferrous				
Other aluminum				
CA Redemption Value				
Non-redeemable glass				
Other recyclable				
Other non-recyclable				
Other inorganics				
Appliances				
HHW				

Notes on HHW: _____

Misc. Notes: _____

Table 3. Santa Clara South County Sampling Plan

Waste Source	Gilroy	Morgan Hill	Unincorporated	Totals[1]	Small Hauler & Self-Haul
Residential	8	8	7	23	
Commercial	6	6	6	18	
Industrial	5	5	5	15	
Totals	19	19	18	56	

[1]The actual number of samples to be collected and sorted depends upon the actual arrival times of vehicles at the landfill. The total number of samples to be collected is estimated to be in the range of 50 to 60.

Tracking No.: 34.01-016R6
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STANDARD METHOD FOR DETERMINATION OF THE COMPOSITION OF UNPROCESSED MUNICIPAL SOLID WASTE[1)]

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.

1.4 This standard does not purport to address all of the safety problems associated with its use. It is the responsibility of the user of this standard to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use. Specific precautionary information is given in Section 6.

2. Terminology

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.

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1) This test method is under the jurisdiction of ASTM Committee D34 on Waste Management and is the direct responsibility of Subcommittee D34.01 on Sampling and Monitoring.

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 Method

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. Hazards

6.1 Review the hazards 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, dust masks, 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.

6.6 Loss of mass from the sorting sample can occur through evaporation of water. Consequently, samples should be sorted as soon as possible after collection.

6.7 Containers of liquids or other potentially dangerous wastes shall be put aside and handled separately.

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 1. A description of some of the waste component categories is given in Table 2. Other waste components can be defined and sorted depending upon the purpose of the waste composition determination. The list in Table 1 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 1 be sorted. Therefore, similar breakdowns of solid waste composition are available for purposes of comparison, if desired. Label the storage containers accordingly.

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 Collect any required information from the vehicle operator prior to the vehicle leaving the discharge area. 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 in order to facilitate the collection of the samples.

8.9 Using a front-end loader with at least a one cubic yard bucket, remove material longitudinally along one entire side of the discharged load in order to obtain a representative cross-section of the material. The mass of material shall be 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. Unprocessed solid waste is a heterogeneous mixture of materials. Consequently, care must be taken during the application of the procedures for sample collection in order to obtain a representative sample.

Table 1. 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 2. 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

8.10 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.

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

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.

Suggested values of s and of $\bar{x}$ for waste components are listed in Table 3. Values of t* are given in Table 4 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 4 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 4 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 X1 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

Table 3. 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 4. 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

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:

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

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:

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

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

$$P_i = mf_i \times 100 \quad (4)$$

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

$$\sum_{i=1}^{j} P_i = 100 \quad (5)$$

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, mf_i, is calculated as:

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

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

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

where n is the number of samples.

10. Precision and Bias

10.1 A precision and bias statement cannot be made for this test method at this time. However, the committee is interested in conducting an interlaboratory test program and encourages interested parties to contact the Committee E-34 staff manager at ASTM Headquarters.

11. Keywords

Municipal Solid Waste, Composition, Waste Characterization

APPENDIX X1. EXAMPLE CALCULATION OF NUMBER OF SAMPLES FOR ANALYSIS (Non-mandatory Information)

EXAMPLE 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 3)
$x = 0.14$ (from Table 3)
$e = 0.10$
$t^* (n = \infty) = 1.645$ (from Table 4)

Using equation 1:

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

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

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

Referring again to Table 4, 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.

Clarification of CalRecovery Disposed Waste Analysis

I. **"As-needed Sampling".** Based on the hauler's background data, each jurisdiction's daily residential, commercial, and industrial waste sources could be readily sampled on an as-needed basis during the sampling period to reflect each jurisdiction's waste stream. Vehicles were identified by the hauler to represent the different waste sources of the jurisdictions (i.e. residential, commercial, and industrial). Loads were then selected from each jurisdiction and source 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 prior knowledge of the contents or history of the load and no basis (other than the need to sort) upon which to subjectively select one vehicle over another. Therefore the load is selected by chance.

II. **Comparison of Lexington Hills with South County.** South County and Lexington Hills are the most rural portions of unincorporated Santa Clara County. In 1990, neither area had residential curbside recycling, but residents had metered rates and access to drop off recycling facilities in nearby cities. Areas are similar in terms of the ethnicity of population, population density, and income levels. Both areas have solely single family residential homes. Although South County has a small commercial/industrial base, data from that sector was excluded from the calculations because there is no commercial/industrial activity in Lexington Hills.

Since Lexington Hills represents less than 2 percent of the unincorporated area population and total waste stream, any inaccuracy in the disposed waste composition data resulting from the calculations for this area would have a negligible impact on the overall composition of the unincorporated area residential disposed waste stream and on the County's ability to meet waste stream reduction goals.

III. **Sampling Method.** The sampling method used by CalRecovery is described in detail on pages 4 - 8 of the Cal Recovery Analysis.

Attachment 2

Survey Form For Recyclers

COUNTY OF SANTA CLARA RECYCLING SURVEY

to

Recycling Collectors and Brokers
operating within or receiving materials from within
the County of Santa Clara

The information in this survey will be kept confidential and will be used to prepare a report for the County of Santa Clara and the incorporated cities in the County to comply with the California Integrated Waste Management Act of 1989.

COMPANY NAME:_____

ADDRESS:_____

_____TELEPHONE:_____

CONTACT PERSON:_____TITLE:_____

TYPE OF BUSINESS: (Please check all that apply.)

_____Collector/Hauler
_____Dealer/Packer
_____Convenience Zone Redemption Center
_____Buy-Back Center
_____Donation Center
_____Non-profit Organization
_____Commercial Composter
_____News Bin Operator
_____Broker
_____End market/Manufacturer
_____Scrap Metal Dealer
_____Auto Wrecker
_____Asphalt/Concrete Recycler
_____Demolition Debris Recycler
_____Wood Waste Chipper
_____Confidential Paper Service
_____Other Commercial Recycler (Specify)_____
_____Special Waste Recycler (See listing below; specify)_____

When completed, please return this survey in the enclosed postpaid envelope to:
Katherine Dever, EMCON Associates, 1921 Ringwood Avenue, San Jose, California 95131.
If you have questions regarding this survey, call Ms. Dever at 408/453-7300.

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1. On the following page, please include the TOTAL TONS of MATERIAL COLLECTED, BY TYPE, for a recent twelve month period from an aggregate of accounts WITHIN THE COUNTY OF SANTA CLARA, by unincorporated area and city jurisdiction only, not from other sources.

   Twelve month period used is from_____ to _____

2a. Anticipated <u>increase</u> in recycling tonnage for 1991:_____% or

2b. Anticipated <u>decrease</u> in recycling tonnage for 1991:_____%

3. Amount of residue:_____% of total amount collected which is not recyclable and is discarded.

Recycling M erial Report Form

CITY_____

Please indicate SOURCE of the material (give % if more than one source) Residents, Commercial Businesses, Industry, or Other.

Materials Collected	Total Tons Received (by City)	Source	Purchaser (if not end user)
PAPER			
Corrugated cardboard			
Mixed paper			
Newspaper			
High grade ledger			
Other paper (specify)			
PLASTICS			
HDPE containers			
PET containers			
Film plastics			
Laser toner cartridges			
Other plastics			
GLASS			
Refillable glass beverage containers			
CA Redemption Value glass			
Other recyclable glass			
METALS			
Aluminum cans			
Bi-metal containers			
Ferrous metals and tin cans			
Non-ferrous metals plus al scrap			
White goods (appliances, etc.)			
YARD WASTE			
including leaves, grass and prunings			
OTHER ORGANICS			
Food waste			
Tires and rubber products			
Wood waste, incl. pallets			
Agricultural crop residues			
Manure			
Textiles and leather			
INERT SOLIDS			
Rock, concrete, brick			
Sand, soil, or dirt			
SPECIAL WASTES			
Ash			
Industrial sludge			
Auto shredder waste			
Batteries			
Oil			
Other (specify)			

Attachment 3

Survey Form for City Programs

Table 1. RESIDENTIAL DIVERSION PROGRAMS
(Tons/Year)

							Total
PAPER							
corrugated containers							
newspaper							
high grade ledger paper							
mixed paper							
other paper							
PLASTICS							
HDPE containers							
PET containers							
film plastics							
other plastics							
GLASS							
refillable bev. containers							
CA Redemption Value							
other recyclable glass							
other non-recyclable glass							
METALS							
aluminum cans							
bi-metal containers							
tin cans							
other ferrous							
other aluminum							
other non-ferrous							
white goods							
YARD WASTE							
leaves, grass							
brush, branches							
OTHER ORGANICS							
food waste							
tires/rubber							
wood wastes							
agricultural crop residues							
manure							
textiles/leather							
diapers							
other misc. organics							
OTHER WASTES							
inert solids							
hazardous waste							
SPECIAL WASTES							
ash							
sewage sludge							
industrial sludge							
asbestos							
auto shredder waste							
auto bodies							
other special waste							
TOTAL							

Table 2. RESIDENTIAL DIVERSION PROGRAMS
(Purchaser)

PAPER						
corrugated containers						
newspaper						
high grade ledger paper						
mixed paper						
other paper						
PLASTICS						
HDPE containers						
PET containers						
film plastics						
other plastics						
GLASS						
refillable bev. containers						
CA Redemption Value						
other recyclable glass						
other non-recyclable glass						
METALS						
aluminum cans						
bi-metal containers						
tin cans						
other ferrous						
other aluminum						
other non-ferrous						
white goods						
YARD WASTE						
leaves, grass						
brush, branches						
OTHER ORGANICS						
food waste						
tires/rubber						
wood wastes						
agricultural crop residues						
manure						
textiles/leather						
diapers						
other misc. organics						
OTHER WASTES						
inert solids						
hazardous waste						
SPECIAL WASTES						
ash						
sewage sludge						
industrial sludge						
asbestos						
auto shredder waste						
auto bodies						
other special waste						

Table 3. COMMERCIAL DIVERSION PROGRAMS
(Tons/Year)

							Total
PAPER							
corrugated containers							
newspaper							
high grade ledger paper							
mixed paper							
other paper							
PLASTICS							
HDPE containers							
PET containers							
film plastics							
other plastics							
GLASS							
refillable bev. containers							
CA Redemption Value							
other recyclable glass							
other non-recyclable glass							
METALS							
aluminum cans							
bi-metal containers							
tin cans							
other ferrous							
other aluminum							
other non-ferrous							
white goods							
YARD WASTE							
leaves, grass							
brush, branches							
OTHER ORGANICS							
food waste							
tires/rubber							
wood wastes							
agricultural crop residues							
manure							
textiles/leather							
diapers							
other misc. organics							
OTHER WASTES							
inert solids							
hazardous waste							
SPECIAL WASTES							
ash							
sewage sludge							
industrial sludge							
asbestos							
auto shredder waste							
auto bodies							
other special waste							
TOTAL							

Table 4. COMMERCIAL DIVERSION PROGRAMS
(Purchaser)

PAPER						
corrugated containers						
newspaper						
high grade ledger paper						
mixed paper						
other paper						
PLASTICS						
HDPE containers						
PET containers						
film plastics						
other plastics						
GLASS						
refillable bev. containers						
CA Redemption Value						
other recyclable glass						
other non-recyclable glass						
METALS						
aluminum cans						
bi-metal containers						
tin cans						
other ferrous						
other aluminum						
other non-ferrous						
white goods						
YARD WASTE						
leaves, grass						
brush, branches						
OTHER ORGANICS						
food waste						
tires/rubber						
wood wastes						
agricultural crop residues						
manure						
textiles/leather						
diapers						
other misc. organics						
OTHER WASTES						
inert solids						
hazardous waste						
SPECIAL WASTES						
ash						
sewage sludge						
industrial sludge						
asbestos						
auto shredder waste						
auto bodies						
other special waste						

Table 5. INDUSTRIAL DIVERSION PROGRAMS
(Tons/Year)

							Total
PAPER							
corrugated containers							
newspaper							
high grade ledger paper							
mixed paper							
other paper							
PLASTICS							
HDPE containers							
PET containers							
film plastics							
other plastics							
GLASS							
refillable bev. containers							
CA Redemption Value							
other recyclable glass							
other non-recyclable glass							
METALS							
aluminum cans							
bi-metal containers							
tin cans							
other ferrous							
other aluminum							
other non-ferrous							
white goods							
YARD WASTE							
leaves, grass							
brush, branches							
OTHER ORGANICS							
food waste							
tires/rubber							
wood wastes							
agricultural crop residues							
manure							
textiles/leather							
diapers							
other misc. organics							
OTHER WASTES							
inert solids							
hazardous waste							
SPECIAL WASTES							
ash							
sewage sludge							
industrial sludge							
asbestos							
auto shredder waste							
auto bodies							
other special waste							
TOTAL							

Table 6. INDUSTRIAL DIVERSION PROGRAMS
(Purchaser)

PAPER						
corrugated containers						
newspaper						
high grade ledger paper						
mixed paper						
other paper						
PLASTICS						
HDPE containers						
PET containers						
film plastics						
other plastics						
GLASS						
refillable bev. containers						
CA Redemption Value						
other recyclable glass						
other non-recyclable glass						
METALS						
aluminum cans						
bi-metal containers						
tin cans						
other ferrous						
other aluminum						
other non-ferrous						
white goods						
YARD WASTE						
leaves, grass						
brush, branches						
OTHER ORGANICS						
food waste						
tires/rubber						
wood wastes						
agricultural crop residues						
manure						
textiles/leather						
diapers						
other misc. organics						
OTHER WASTES						
inert solids						
hazardous waste						
SPECIAL WASTES						
ash						
sewage sludge						
industrial sludge						
asbestos						
auto shredder waste						
auto bodies						
other special waste						

Attachment 4

Conversion Factors
National Recycling Coalition
Densities for Recyclables

Figure 4: Sample Weight to Volume Conversion Factors for Recyclables

Material	Volume	Weight in Pounds
Newsprint, Loose	one cubic yard	360 - 800
Newsprint,compacted	one cubic yard	720 - 1,000
Newsprint	12" stack	35
Corrugated cardboard, loose	one cubic yard	300
Corrugated cardboard, baled	one cubic yard	1000 - 1200
Glass, whole bottles	one cubic yard	600 - 1,000
Glass, semi crushed	one cubic yard	1,000 - 1,800
Glass, crushed (mechanically)	one cubic yard	800 - 2700
Glass, whole bottles	one full grocery bag	16
Glass, uncrushed to manually broken	55 Gallon Drum	125 - 500
PET soda bottles, whole, loose	one cubic yard	30 - 40
PET soda bottles, whole, loose	gaylord	40 - 53
PET soda bottles, baled	30" x 48" x 60"	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

Section III

Source Reduction Component

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 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. Questions of product design and manufacture are most effectively addressed at the national level. Technical options for communities considering source reduction include decreased consumption, product reuse, reduced material volume, reduced toxicity, and increased product life.

Source reduction is the single most effective method of reducing both the volume and the toxicity of the waste stream. However, since the impact of source reduction is reflected in the absence of wastes from the waste stream, reductions are difficult to quantify.

Table III - 1, Typical Examples of Source Reduction (see III -Appendix) lists examples of decreased consumption and material reuse.

Over the long term, effective source reduction will depend on changes in three distinct areas: manufacturing and production processes; retail marketing and packaging design; and 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.

According to the County's Solid Waste Generation Study, data on composition of the disposed waste stream indicate that the proportion of disposed waste that is most amenable to source reduction (paper, plastic, and yard waste) is significant and can be as high as 51.9 percent for paper, 22.8 percent for plastics, and 44.7 percent for yard waste, depending on the source of generation. While the potential for effective source reduction in the county appears to be high, measurable results are difficult to document. Therefore, the success of source reduction programs will be limited. Implementation of source reduction programs will rely heavily on public education programs.

This component:

1. Describes existing conditions and presents source reduction objectives for the unincorporated area;

2. Evaluates a broad range of alternatives that may be used to achieve those objectives;

3. Selects source reduction programs for implementation; and

4. Identifies a plan of action to implement and monitor the selected source reduction programs.

OBJECTIVES

The source reduction objectives presented in this section have been developed to meet the overall goal of reducing the amount of solid waste generated in the unincorporated portions of Santa Clara County. 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 unincorporated portions of Santa Clara County can expect to divert an estimated 1 percent of the total waste stream by implementing the following objectives:

1. Reduce the use of non-recyclable materials

2. Replace disposable materials and products with reusable materials and products

3. Purchase repaired or repairable products

4. Purchase durable products

5. Reduce amount of yard waste generated and promote backyard or on-site composting.

TARGETED WASTE TYPES

Targeted waste types for source reduction have been identified, based on three factors: the results of solid waste generation studies; the effectiveness of meeting the source reduction objectives; and 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 targeted waste types are:

- packaging materials, including plastics and paper products
- construction materials, including concrete, asphalt, lumber, metals, and other inert solids
- paper, including office paper and mixed waste paper such as paper napkins, disposable bags, and junk mail
- yard waste
- single-use products, including disposable diapers, cups, utensils, office supplies, and personal care products
- repairable products, including appliances and electronics

Source reduction alternatives targeting the above waste types are evaluated below in the section entitled "Evaluation of Alternatives" according to their effectiveness in meeting the source reduction objectives outlined above.

EXISTING CONDITIONS

This section describes existing source reduction activities and programs in the unincorporated portions of Santa Clara County. The County has reviewed and

documented potential and ongoing source reduction efforts in the unincorporated portions of the county. The quantitative effectiveness of most current source reduction activities is difficult to assess because records and data are not available. The description of existing conditions for source reduction activities is therefore qualitative.

The difficulty of assessing the total volume of waste reduction resulting from current source reduction activities in the unincorporated area is illustrated by the fact that no thrift or resale shops exist exclusively for the use of residents of the unincorporated areas. Unincorporated area residents patronize the facilities in adjacent cities, but facilities do not keep records which document the jurisdiction of residency of thrift shop patrons. Although unincorporated area residents donate used items to Goodwill, Salvation Army and other such organizations, these donations have been counted as diversion by the cities in which these facilities exist.

LOCAL GOVERNMENT ACTIVITIES

Source reduction activities in County facilities:

- provision of education and information to employees on source reduction, including memos and posting of source reduction and recycling reminders on bulletin boards
- bulk purchasing programs
- production of double-sided photocopies in offices and quick-copy locations
- reuse of:
  - large mailing envelopes to send interoffice communications;
  - waste paper for memos, notes, and scratch pads;
  - file folders;
  - cardboard boxes and other packaging material.
- use of electronic mail, both intra-office and between facilities.
- use of half sheet or "Post-it" fax sheet covers
- routing of memos and other written material, instead of distribution of individual copies

- "library" shelving of information binders for general staff use instead of providing personal copies;
- use of re-manufactured laser printer cartridges.
- reuse of uniforms and shop rags in motor pool garages and facilities
- use of cloth towels and sponges in the cafeteria
- use of rented equipment (instead of purchased)
- reuse of furniture and equipment re-routed by property disposal
- office furniture refurbishing program at Elmwood Correctional Facility; old furniture from County facilities is reconditioned and reused
- donation of old equipment to schools and charities
- use of reusable coffee filters and ceramic mugs in offices and shops
- 5¢ credit in employee cafeterias for use of own coffee cup instead of a disposable cup.
- use of permanent-ware plates and utensils in employee cafeterias
- use of permanent-ware food trays at the four correctional facilities operated by the County
- composting of leaf, wood, and other yard wastes from County parks

There are no plans to decrease or phase out any of the existing programs.

RESIDENTIAL ACTIVITIES

Residential source reduction activities in the County include:

- backyard composting of yard wastes

- purchasing in bulk
- purchasing products with reduced or minimal packaging
- purchasing longer-lasting products
- participation in junk mail reduction programs
- purchasing products with limited or reduced amounts of environmental toxins
- use of diaper services in lieu of disposable diapers
- donation, resale of used clothing and household items

These existing activities are expected to continue.

COMMERCIAL AND INDUSTRIAL ACTIVITIES

Commercial and industrial activities in the unincorporated areas of the county include:

- reuse of materials
- routing of memos, documents, and magazines
- rented equipment (instead of purchased)
- donation of old equipment to schools and charities
- reuse of cardboard boxes and other packaging material
- electronic mail

EXISTING GARBAGE RATE STRUCTURE

1. **San Jose**

   East/Central and Cambrian/South San Jose areas have unlimited garbage collection combined with curbside recycling collection at a fixed service rate.

   The Burbank Sanitary District has a modified flat rate structure, in which residents are charged for service in three-can increments. There is currently no curbside recycling collection; a program is planned for early 1993.

2. **Other Areas**

   South County, West Valley, Lexington Hills and North County residents pay a per-can rate for service. A blue-bag recycling collection program began July 1, 1992 in South County; West Valley and North County have curbside recycling bin service; Lexington Hills currently has no curbside recycling program.

There are no plans to decrease or phase out any of the existing programs.

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

NATIONAL SOURCE REDUCTION EFFORTS

Many source reduction measures affecting the waste generated locally are being conducted on a national scale. Efforts by national manufacturers affect the products purchased and used by residents of the unincorporated areas.

Here are some examples of major national source reduction efforts[1]

- Some manufacturers offer concentrated versions of products which use less packaging (e.g., frozen juices, concentrated pesticides, and concentrated soaps).

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

- 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 and some plastic beverage containers have been reduced in thickness and 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 has been reduced by 50 percent.

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

  - Half-gallon ice cream cartons have been reduced in weight by 30 percent over the last five years by making them out of different material.

- One manufacturer changed the tub of a dishwasher from enameled steel to engineered plastic, resulting in a more durable product, which allowed a longer warranty period on the dishwasher.

- 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 PET 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.

- A 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 by those stores 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.

EVALUATION OF ALTERNATIVES

This section presents alternatives for implementing successful source reduction programs that meet the objectives outlined above. Each alternative consists of several approaches to implementing the alternative; these approaches are called "programs" in this Source Reduction Component. Each of the alternatives is evaluated according to a set of criteria specified in the regulations implementing AB 939. Program costs are approximate and program details should be considered preliminary. Cost and program details will be refined during development of specific programs.

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 disposal rates;

2. **Economic Incentives**, including tax credits, loans, grants, and loan guarantees, penalties and fines, and advance disposal fees;

3. **Technical Assistance and Public Education**, including waste audits, technical assistance to industry and consumer organizations, backyard composting workshops, educational efforts, public recognition activities, and county facilities 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.

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. The following alternatives have been evaluated:

Rate Structure Modifications
- Alternative 1: Self-Haul Disposal Fees
- Alternative 2: Volume-Based Garbage Rates
- Alternative 3: Weight-Based Garbage Rates

Economic Incentives
- Alternative 4: Direct Economic Benefits
- Alternative 5: Economic Assistance
- Alternative 6: Penalties and/or Fines
- Alternative 7: Advance Disposal Fees

Technical Assistance and Public Education
- Alternative 8: Waste Evaluation
- Alternative 9: Backyard Composting
- Alternative 10: Multi-Jurisdictional Efforts
- Alternative 11: Public Recognition Awards
- Alternative 12: County Facilities Source Reduction Programs
- Alternative 13: County Facilities Recognition Awards

Regulatory Programs
- Alternative 14: Procurement Ordinances
- Alternative 15: Product Bans
- Alternative 16: Xeriscaping Requirements/Recommendations

RATE STRUCTURE MODIFICATIONS

Source reduction activities can be encouraged through rate structure modifications, including disposal fees and quantity-based rates for garbage collection services. The rate structure modifications described below address the County's source reduction objectives and may be applied to both residential and commercial generators.

Alternative 1: Self-Haul Disposal Rates

In cooperation with other jurisdictions, the County of Santa Clara could encourage landfill operators to expand the use of disposal pricing structures that reflect the level of source separation and contamination of wastes received. The cost for disposal of non-recyclable and non-reusable wastes would be higher than rates for other wastes. Clean, source-separated wastes that could be salvaged, repaired or composted would be accepted for the lowest rates. When properly publicized, pricing structures based on recyclability of materials to be disposed could reduce the amount of wastes presented for landfilling. Unless implementation is carefully planned, delays could occur at disposal site gates. Some facilities will need to be redesigned, to create storage areas for salvageable and compostable materials.

Alternative 2: Volume-Based Garbage Rates

In a "volume-based" rate structure, customers pay fees based on their actual use of waste disposal services: a household which produces less waste would pay lower fees; a household which produces more waste would pay higher fees. This rate structure is similar in principle to other service-based utility charges such as water and electricity. The alternative, a flat-rate structure, charges each customer the same fee, regardless of amount of waste produced.

A volume-based rate structure in which fees are assessed according to the number of garbage cans or bags used is the most common type of volume-based system and is the easiest to implement. Rates can be calculated to be directly proportional to actual disposal costs; residents can reduce their costs by generating less waste.

Proponents believe that volume-based rates are effective in reducing waste generation. Volume-based rate structures are most successful when the waste collection system also provides for collection of recyclables. Implementing recycling and yard waste programs in conjunction with a volume-based rate structure provides customers with alternatives for diverting wastes from disposal and provides a direct link between fee levels and generated quantities of non-recyclable wastes.

Alternative 3: Weight-based Garbage Rates

Weight-based garbage rates are in fact a further refinement of volume-based rates. In a "weight-based" rate structure, customers are charged fees according to the weight of the garbage to be disposed. Weight-based systems are costly to implement and require substantial capital investment, because garbage trucks must be equipped with scales that record the weight of each customer's garbage.

Evaluation of Alternatives 1-3

Effectiveness. Rate structure modifications can be very effective in encouraging source reduction when the cost of collection and/or disposal is high. The economic incentive to reduce disposed waste may cause generators to become more conscious of waste generation and may encourage them to reduce the amount of material generated through purchasing decisions, backyard composting, product reuse, and other source reduction activities. Additionally, variable rate structures provide an

incentive for increased participation in recycling and community composting programs. Studies have shown that, during the first year of operation, a volume-based rate system can reduce the volume of waste requiring disposal by 25 to 50 percent, although the weight of the waste tends to increase due to compaction. This assumes that no recycling programs are in effect. For communities where collection programs for recyclables compostable yard wastes 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, 2) the effectiveness of the source reduction activities undertaken by participating generators, and 3) the level of public education that supports the new fee structure. These factors are sensitive to the rate at which collection and disposal fees rise; as fees increase, participation and effectiveness will increase. However, if rates rise too high, illegal dumping may begin to occur.

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

Ability to Accommodate Change. Modifications to rate structures, in general, are easily adapted to 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. Many jurisdictions may find that their disposal and collection fees are not as flexible in the short term because of existing contracts with haulers and landfill operators.

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.

Implementation Period. Implementation of this alternative could occur within a period of months to a year and is well within the short-term planning period for most areas.

Facility Requirements. No additional facilities are needed to implement rate structure modifications.

Consistency with Local Plans and Policies. This alternative is consistent with the plans, policies, and ordinances of the County. Variable can rates already exist in several areas.

Institutional Barriers. There are no institutional barriers to rate structure modifications. Rates are reviewed annually in all franchised collection areas, and maximum rates are established by the County Board of Supervisors.

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

- an analysis of the existing system and rates 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
- staff time to negotiate and modify rate structures with each of the franchised haulers serving unincorporated garbage collection districts
- review and approval by the County (including a public hearing)
- implementation of the modified rates and a companion educational program.

Costs to the County for implementing the rate structure modifications in the unincorporated areas are not expected to be significant.

End Uses. Not applicable.

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, reduced business license fees, 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 the County's source reduction objectives.

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

Alternative 4: Direct Economic Benefits

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

Alternative 5: Economic Assistance

Economic assistance incentives are designed to enhance the effectiveness of other source reduction alternatives and programs. These economic incentives are primarily intended to support groups and programs that contribute to the education and technical assistance efforts of the community's source reduction campaign. The county could provide loans, loan guarantees, or grants to encourage the economic development of businesses, non-profit groups, or associations that 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.

For example, the County could provide a grant to the local chapter of an environmental group or public service organization to develop and implement backyard composting workshops. Workshops could be timed to coincide with the implementation of other programs, such as expanded recycling programs, and variable disposal rates. The County could provide funding and meeting rooms for workshops on source reduction techniques for managers of commercial procurement programs. The County could also lend support by developing other funding sources such as grants, industry financial and in-kind contributions (donations of composting bins or use of facilities for workshops), and private contributions for use in developing and implementing source reduction programs.

Alternative 6: Penalties and/or Fines

Penalties and/or fines could be imposed by the county on businesses that do not develop and implement source reduction programs and practices. Alternatively, fines could be imposed upon businesses that fail to complete a short (one or two page) form providing data on their waste stream and outlining their source reduction practices. Businesses could also be required to demonstrate a program to purchase feedstock, materials, or inventories that have the minimum packaging possible (such as buying in bulk).

Alternative 7: Advance Disposal Fees

The County of Santa Clara could support the imposition of advance disposal fees at the state or national level on certain products. Advance disposal fees are placed on products at the point of manufacture, to include the cost of waste disposal early in the product cycle so that the cost of disposal affects the price of the product and thus the purchasing decision.

Fees could be imposed on products that are disposable, non-recyclable, non-reusable, or have excess packaging. For example, a fee could be placed on disposable products such as pens, razors, cameras, beverage containers, utensils, personal care products, and disposable diapers. Fees could also be applied to products with a range of useful lifespans, such as tires, batteries, and appliances. Applied to products with shorter

lifespans, the fees would raise their prices, helping to induce the consumer to purchase longer-lasting alternatives.

Advance disposal fees are now under consideration in California, and background research has recently been completed for the CIWMB [2]. While the concept has merit, there are some areas of concern:

- What would be the implications of the resulting increases in the price of products on particular segments of society, such as people on fixed incomes and public assistance?

- What would happen to the revenues? Would they fund recycling for the affected products?

- AB 939 called for consideration of use of advance disposal fee revenues to fund the CIWMB in order to phase out the Board's reliance on funding from tonnage fees. If advance disposal fees accomplish their goals, revenue could decrease over time, thus jeopardizing Board funding.

Evaluation of Alternatives 4-7

Effectiveness. In unincorporated Santa Clara County, there are 1283 commercial and industrial establishments. Of these, 684, or 53%, are small service businesses and 92, or 7%, are real estate, finance or insurance offices. Applying local economic disincentives to businesses of this size would not be cost-effective.

To reduce enforcement costs, the County could apply the economic disincentives described above only to commercial or industrial generators that have more than 250 employees at a single site in the unincorporated area.

Advance disposal fees imposed at the state or national level 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. Advance disposal fees would target residential and non-residential generators, as well as retail vendors of products generally consumed and disposed of by residential generators.

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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.

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

Ability to Accommodate Change. Economic incentives can be modified to accommodate changes in consumption patterns, availability of materials, and the economy. As the unincorporated area, 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.

Consequences to 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 waste stream composition will depend on the materials targeted by the incentive programs. The greatest potential for shifts in the waste stream composition would result from programs directed toward (1) backyard composting, (2) commercial procurement programs, and (3) consumer purchasing awareness programs. Waste stream materials affected by these types of programs are yard wastes and wood cuttings, office paper, plastic and paper packaging, corrugated cardboard, and other packaging products.

Implementation Period. Economic incentives must be approved by the Santa Clara County Board of Supervisors. The amount of time required for the approval process and implementation of the program can range from a few months to several years. Modifications in any economic incentive programs would undergo a similar approval process. The implementation period for advanced disposal fees would depend on the types of fees and products involved.

Facility Requirements. No facilities are needed to implement economic incentives in unincorporated area.

Consistency with Local Plans and Policies. Providing economic incentives or disincentives to businesses located in the unincorporated areas of the county has no historical precedent. Therefore, this alternative is not consistent with current local policy.

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

The disincentives presented under this alternative should be cost recovery activities and could generate some additional revenue.

Estimated Cost. The costs of this alternative would include the use of County staff resources to develop and administer the incentive and disincentive programs. Staff resources would be necessary to develop, approve, implement, and administer each community project funded by the County of Santa Clara. Additional costs include the direct dollar amounts of any grants or funding provided under the incentive programs. Although the disincentive programs would generate some level of revenue, whether they would cover their costs is unknown. Costs for the County would depend on the level of an approved program.

End Uses. Not applicable.

TECHNICAL ASSISTANCE, EDUCATION, AND PROMOTION

The programs presented in this alternative address all source reduction objectives identified above in the section entitled "Objectives." These activities include waste evaluations, technical assistance, educational efforts, promotional programs (i.e., public recognition and awards), and County source reduction programs.

Alternative 8: Waste Evaluations

Waste evaluations identify the waste types generated by a business that can be targeted for source reduction and recycling activities. A local jurisdiction can provide technical assistance to selected generators to identify what types and amounts of wastes are being generated and advise them on appropriate source reduction and recycling techniques.

Waste evaluations provide a mechanism for educating businesses about waste exchange services offered by the State, options for collection of recyclables, modifications in business operations that could reduce waste generation, options for purchase of supplies that either produce less waste or are recyclable, and composting options.

Waste evaluations could be used to plan recycling routes that could be serviced by local recyclers.

Alternative 9: On-Site Composting

The Solid Waste Generation Study shows that 15.4 percent of the unincorporated area waste stream is yard waste, including grass clippings, tree trimmings, weeds, leaves and brush. Much of this organic material could be composted on the same parcel of land where it originates, thereby decreasing collection costs and the costs associated with disposal or centralized composting. Backyard composting offers great promise for diverting wastes from collection systems. Some unincorporated area residents already maintain their own compost piles. Significant increases in backyard composting would require a public education program.

Alternative 10: Multi-Jurisdictional Efforts

The County of Santa Clara could participate in multi-jurisdictional approaches to source reduction. Other jurisdictions in the County and Bay Area could cooperate to produce public education materials, such as a guide to backyard composting, radio and television public service announcements, or a procurement guide for businesses to encourage the purchase of durable, reusable, and recyclable supplies. Technical assistance, such as workshops and seminars, could be co-sponsored.

Alternative 11: Public Recognition Awards

Public recognition awards can be used by the County to acknowledge businesses that have implemented source reduction activities. Awards could also be presented to community groups or individuals that promote source reduction in the community through either example or education. Public recognition programs could be implemented on a countywide or regional basis.

Alternative 12: County Facilities Procurement and Source Reduction

The County of Santa Clara already promotes source reduction, recycling and procurement in county facilities. This alternative would continue existing activities and expand them to include more facilities and employees. These activities involve all methods to implement source reduction that are not associated with purchasing decisions. Activities could include education programs familiarizing people with source reduction practices such as:

- encouraging the use of discarded one-sided copies as scratch paper
- making fewer drafts of reports
- increasing the use of electronic and voice mail
- taking action to reduce unwanted junk mail by writing to direct mail marketers from whom unwanted materials have been received.

Other actions the County could take to further source reduction in its facilities include:

- priority purchasing for soil amendments and mulch comprised of locally-composted yard and landscaping wastes;
- expanding the use of voice mail systems throughout County facilities;
- priority purchasing of re-refined motor oil;
- yard-waste recovery at the Civic Center and other major County facilities;
- expanded use of the Property Disposal Department;
- audits of waste bins at County facilities so that education efforts can target specific materials.

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

Alternative 13: County Facilities Recognition Awards

The Board of Supervisors could establish an awards program to County offices, departments and individual employees that promote and practice the principles of source reduction at work.

Evaluation of Alternatives 8-13

Effectiveness. 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 the types of programs selected, the scope of each program, and the materials and generators targeted for program impact. The programs and activities outlined by these alternatives combine several factors that point to potentially high returns in terms of waste diverted through source reduction. First, this alternative targets the entire spectrum of waste generators; both residential and commercial/industrial. Second, the alternative targets the entire spectrum of wastes in the waste stream, from paper and plastic packaging to yard wastes and non-durable, disposable products. Finally, this alternative consistently aims to use all existing resources within the community in terms of public service and environmental groups, associations, businesses, and private individuals. This alternative seeks to achieve gains in source reduction by using existing non-public community resources in well-organized and administered programs to increase awareness, achieve technology and information transfer, and publicly reward top performers. In this way, the programs outlined under this alternative support, enhance, and increase the effectiveness of other source reduction programs and alternatives.

Hazard. There are no hazards associated with the programs presented in this alternative. The County will seek to ensure that proper composting techniques are used so that no public health or fire hazards are created.

Ability to Accommodate Change. This alternative is easily adaptable to change as new methods and programs are developed. This alternative also readily adapts to changes in the waste stream, as well as to changes in consumer purchasing behavior and available products and alternatives. Indeed, once the public becomes aware of the County 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 change over time, the expertise and abilities of community resources will change also. New techniques and approaches will become available to the County through the informal relationship between the public agencies, businesses, households, and community groups. Programs for public recognition, local pride, and environmental awareness can all be readily changed in their focus, scope, and intensity to accommodate changes in local waste management programs, changes in the waste stream, seasonal variations in waste characteristics, and other factors.

Consequences to the Waste Stream. Technical assistance, yard waste management at the site of generation, educational efforts, and County in-house source reduction programs would reduce wastes at the source, and avoid substitution of a product or material that results in an equivalent or greater amount of waste being generated.

The most likely areas for significant impact would be from programs aimed at backyard composting, commercial purchasing and procurement, office source reduction, and consumer-purchasing awareness programs. The waste stream materials affected by these types of programs are:

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

Implementation Period. This alternative provides 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. Programs requiring additional staffing and countywide or regional planning will take longer to implement, possibly into the medium-term.

Facility Requirements. No additional waste-handling facilities would be required. Existing educational facilities could serve as locations for seminars and educational workshops.

Consistency with Local Plans and Policies. Technical assistance, education, and promotional activities appear to be consistent with current County policies.

Institutional Barriers. There are no institutional barriers to implementing technical assistance, education, and promotional activities for source reduction.

Estimated Cost. The cost of any of these programs will vary depending upon the scope of implementation and degree of countywide involvement. Each of the programs outlined in this alternative would require resources for developing and administering the program. Countywide programs could be funded through the Countywide AB 939 Implementation Fee. Although staffing would constitute the majority of the costs of implementing programs described above, there would also be some direct costs, including costs associated with promotional brochures, pamphlets, flyers, doorhangers; and production costs for use of the media or of outside consultants.

The costs associated with County facilities source reduction programs would be 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 County. Additional costs include preparing and disseminating informational materials to staff, perhaps in the form of pamphlets or flyers posted at appropriate places in the workplace, use of on-site "recycling coordinators," and workshops for County employees.

End Uses. Not applicable.

REGULATORY PROGRAMS

Several regulatory program alternatives are available to the County that address the County's source reduction objectives. These programs include:

- local procurement ordinances
- required waste reduction planning and reporting
- local product bans
- local land-use planning requirements

Regulatory programs require continuous enforcement efforts.

Alternative 14: Local Procurement Ordinances

This alternative would require adoption of a procurement ordinance by the Board of Supervisors specifying that any business or organization holding a contract with the County would have to have a source reduction plan or program and provide products or materials according to several criteria, including durability, recyclability, reusability, and recycled material content. Criteria and the ordinance itself would be developed in conjunction with Purchasing. The County could adopt purchasing preferences and establish set-asides for recycled products or reusable products.

Alternative 15: Product Bans

Targeted products and packaging techniques would be banned, resulting in a reduction of waste at the source. Bans might be considered on products and packaging that do not lend themselves to easy recyclability or source reduction.

Alternative 16: Xeriscaping Requirements/Recommendations

The native plants of this region are generally drought tolerant and slow-growing. Land use and development requirements could encourage xeriscaping, or the use of such plants, in landscaping new developments. Such plantings could be recommended to residents of single-family dwellings. Slow-growing plants create less yard waste and thus reduce the amount of waste for disposal.

Evaluation of Alternatives 13-16

Effectiveness. The effectiveness of regulatory programs would depend on the level of regulation imposed by the County, and the level of enforcement. Procurement ordinances could be effective in stimulating demand for durable, recyclable, and reusable products. Product bans would require a great deal of enforcement and would be especially difficult to enforce, given the nature and diversity of the unincorporated area. Xeriscaping requirements would be easier to implement, because current permitting processes could be used. However, there would be no way to enforce over time.

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

Ability to Accommodate Change. These alternatives are readily adaptable to change.

Consequences to the Waste Stream. Changes in waste stream composition would be minor for the most part, though xeriscaping could reduce the amount of yard waste generated at major facilities significantly.

Implementation Period. Procurement ordinances can be implemented in the short-term planning period. Any other regulatory programs would have to undergo a complex approval process, as well as resistance by businesses to further regulation.

Facility Needs. There are no facility requirements for this alternative.

Consistency with Local Plans and Policies. Regulatory programs appear to be consistent with County policy.

Institutional Barriers. Although purchasing and procurement is often centralized within an organization, user agencies and departments must agree to any necessary changes in product specifications. A successful program must inform these user groups of the comparability and quality of substitute products.

Estimated Cost. Costs for regulatory programs in general depend upon the level of regulation a jurisdiction chooses to pursue. Changing the County's procurement program would require staff resources for developing, administering, implementing, and monitoring the program. Products that meet source reduction requirements (and therefore identified as viable substitutes for products normally purchased), might cost more to purchase, as in the case of plain paper fax machines. Analysis of life-cycle costs might help to show long-term savings over the useful life of the product.

End Uses. Not applicable

SELECTION OF PROGRAMS

This section describes the specific alternatives selected for implementation. Alternatives were selected based on the characteristics of the unincorporated area waste stream as identified in the Waste Generation Study, existing conditions, the program's compatibility with other chosen alternatives, and the program's ability to meet AB 939 diversion requirements and objectives. Criteria used to make the selection were impact, effectiveness, local conditions, and ease of implementation.

Short-Term Planning Period

Program 1: Volume-Based Garbage Rates (Alternative 3)
Program 2: Backyard Composting (Alternative 9)
Program 3: Multi-Jurisdictional Approaches (Alternative 10)

Program 4: County Facilities Source Reduction Programs (Alternative 12)
Program 5 County Facilities Recognition Awards (Alternative 13)

Program 1: Volume-Based Garbage Rates

Selection rationale: This alternative was selected because volume-based garbage rates will establish an equitable rate structure and provide an impetus for increased participation in recycling and waste reduction programs. Variable can rates already exist in some unincorporated area collection districts, and will need to be analyzed and modified where necessary to increase incentives to source-reduce.

Potential diversion: This program is expected to result in some diversion, though the specific amount will be difficult to quantify.

Handling Methods: This discussion is not applicable to this program.

Required Facilities: No facilities are required.

End Uses and Market Development: This discussion is not applicable to this program.

Program 2: Backyard Composting

Selection rationale: This alternative was selected because it will work well in all sections of the unincorporated area.

Potential diversion: This program is expected to result in some diversion, though the specific amount will be difficult to quantify.

Handling Methods: The County will educate the public on methods to be used to ensure backyard composting is done in a way that causes no health or vector control hazards.

Required Facilities: No facilities are required.

End Uses and Market Development: This discussion is not applicable to this program.

Program 3: Multijurisdictional Approaches

Selection rationale: This alternative was selected because it is the most practical way to implement source reduction education and technical assistance in the diverse unincorporated area.

Potential diversion: This program is expected to result in some diversion, though the specific amount will be difficult to quantify.

Handling Methods: This discussion is not applicable to this program.

Required Facilities: No facilities are required.

End Uses and Market Development: This discussion is not applicable to this program.

Program 4: County Facilities Source Reduction Programs

Selection rationale: This alternative was selected because it will build upon and enhance source reduction activities already taking place.

Potential diversion: This program is expected to result in some diversion, though the specific amount will be difficult to quantify.

Handling Methods: This discussion is not applicable to this program.

Required Facilities: No facilities are required.

End Uses and Market Development: This discussion is not applicable to this program.

Program 5: County Facilities Recognition Awards

Selection rationale: This alternative was selected because it will reinforce source reduction behavior by county employees.

Potential diversion: This program is expected to result in some diversion, though the specific amount will be difficult to quantify.

Handling Methods: This discussion is not applicable to this program.

Required Facilities: No facilities are required.

End Uses and Market Development: This discussion is not applicable to this program.

Medium-Term Planning Period

All programs and alternatives selected in the short-term planning period will be continued in the medium-term. In addition, the County has selected the following programs and alternatives:

Program 1: Advance Disposal Fees (Alternative 7)
Program 2: Xeriscaping Requirements/Recommendations (Alternative 16)

Program 1: Advance Disposal Fees

Selection rationale: This alternative was selected because it will complement ongoing local programs. The County will also consider supporting certain advance disposal fees in the short term, should they be proposed.

Potential diversion: This program is expected to result in some diversion, though the specific amount will be difficult to quantify.

Handling Methods: This discussion is not applicable to this program.

Required Facilities: No facilities are required.

End Uses and Market Development: This discussion is not applicable to this program.

Program 2: Xeriscaping Requirements/Recommendations

Potential diversion: This program is expected to result in some diversion, though the specific amount will be difficult to quantify.

Handling Methods: This discussion is not applicable to this program.

Required Facilities: No facilities are required.

End Uses and Market Development: This discussion is not applicable to this program.

PROGRAM IMPLEMENTATION

This section details how the County of Santa Clara will implement the source reduction programs selected. Table III - 2, Implementation Plan (see III - Appendix) defines the necessary tasks, identifies the parties responsible, and establishes an implementation schedule. Implementation costs for the selected programs are presented in Table III - 3, Program Implementation Costs (see III - Appendix).

MONITORING AND EVALUATION

This section establishes systems for monitoring and evaluating the selected programs. The responsible agency, funding requirements, and shortfall measures are specified for each program. Details about the programs have been included in each respective implementation table.

Monitoring Methods

The Santa Clara County of Office of Toxics and Solid Waste Management is responsible for the implementation, monitoring and evaluation of all source reduction programs. The Office of Toxics and Solid Waste Management will periodically assess ongoing source reduction programs using the criteria described below to determine if a program should be continued, altered, updated, or discontinued.

Criteria for Evaluating Programs

1. Does the program divert, in volume and/or weight, the quantity of material expected and/or sufficient to meet program objectives?

2. Is the participation of residents or businesses adequate?

3. Has the promotion of the program been sufficient?

4. Has the program made a measurable difference in the amount of waste disposed?

5. Have the costs been commensurate with the diversion achieved?

The Office of Toxics and Solid Waste Management will collect data on source reduction programs using one or more of the following: waste generation studies, targeted solid waste characterization study, or product assessment.

Funding Requirements. The monitoring and evaluation program described in this section will be funded from the Countywide AB 939 Implementation Fee, rate increases, and surcharges. Program costs include administrative activities, recordkeeping, program monitoring and evaluation, tracking of survey results, and annual report-writing. Monitoring and evaluation is expected to be about 10% of the estimated program costs.

Shortfall Measures. If the programs described above fail to meet the goals and objectives of this component, the following measures can be considered:

- Analysis of existing programs and alternatives for obstacles to successful implementation.

- Modification of selected alternatives, including degree, scope, or extent of source reduction activity and implementation schedule.

- Additional funding and staff.

- Consideration of additional alternatives

- Discontinuation of the program.

Monitoring and Reporting Schedule: Annual reports will be submitted to the CIWMB by June 30 of the following calendar year up through the year 2000 as required by AB 939.

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

Table III - 1
Examples of Source Reduction

Decreased Consumption

Reduce Material Volume

- Make two-sided copies
- Buy in bulk
- Use routing slips
- Use electronic mail
- Offer waste reduction incentives to employees

Reduce Material Toxicity

- Use product substitutes

Increase Product Durability

- Purchase durable goods
- Design durable products
- Provide/use maintenance contracts to extend the life of equipment

Material Reuse

Reuse, Exchange, Donate Materials

- Use cloth towels, retreaded tires, refillable pens, reusable air filters, returnable bottles
- Provide/use returnable packaging containers
- Donate used equipment
- Reuse packaging or packing material
- Use silverware and dishes in the cafeteria
- Reuse blank sides of paper for scratch
- Rent equipment rather than buying
- Compost, mulch or chip on site
- Use a waste exchange program
- Design for reuse or recyclability
- Use ceramic coffee mugs

Table III - 2

Source Reduction Implementation Plan

Task	Responsible Agency	Implementation Date
Short Term		
PROGRAM 1: VOLUME-BASED GARBAGE RATES		
• Develop RFP for volume-based service in San Jose Area	Solid Waste Program	4th Quarter 1992
• Review bids for volume-based service	Solid Waste Program	1st Quarter 1993
• Select contractor and negotiate new contract	Solid Waste Program	2nd/3rd Quarter 1993
• Implement volume-based service	Solid Waste Program	4th Quarter 1993
• Review all existing rate structures, change and adjust as necessary	Solid Waste Program	1st Quarter 1994
PROGRAM 2: BACKYARD COMPOSTING		
• Participate in development of Countywide backyard composting program and RFP	Solid Waste Program	2nd Half 1993
• Select contractor for backyard composting program	Solid Waste Program	1st Quarter 1994
• Implement backyard composting program	Solid Waste Program	2nd Quarter 1994
PROGRAM 3: MULTI-JURISDICTIONAL APPROACHES		
Participate in multi- jurisdictional source reduction programs	Solid Waste Program	1st Quarter 1994

Table III - 2, continued

Source Reduction Implementation Plan

Task	Responsible Agency	Implementation Date
PROGRAM 4: COUNTY FACILITIES SOURCE REDUCTION PROGRAMS		
•Evaluate non-procurement programs for use throughout County facilities	Finance /Purchasing	1st Quarter 1994
•Evaluate use of Property Disposal Department; promote reuse	Finance/SWP	2nd Quarter 1994
•Review existing County procurement program; suggest possible changes	SWP/Finance	1st Quarter 1994
•Consider Implemention of yard-waste recovery at the Civic Center	GSA/ Bldgs. and Grounds	1st Quarter 1994
•Perform audits of disposal bins at County facilities	GSA/SWP	3rd Quarter 1993
•Design new educational materials, based on results of disposal bin audits	GSA/SWP	1994/on going
•Distribute new educational materials to County employees	Solid Waste Program	1994/ on going
PROGRAM 5: COUNTY FACILITIES RECOGNITION AWARDS		
•Initiate County Facilities Awards Program	Solid Waste Program	1994/ on going
Medium Term		
PROGRAM 1: ADVANCE DISPOSAL FEES		
•Evaluate proposed Advance Disposal Fees	Solid Waste Program	1st Quarter 1996
PROGRAM 2: XERISCAPING REQUIREMENTS/RECOMMENDATIONS		
•Evaluate xeriscaping requirements	Planning & Development	1st Quarter 1996
• Implement xeriscaping requirements	Planning & Development	3rd Quarter 1996

Table III - 3
Program Implementation Costs

Task	Cost
Short Term	
PROGRAM 1: VOLUME-BASED GARBAGE RATES	
Develop RFP for service in San Jose Area	$8,640.00
Review bids for volume-based service	$10,240.00
Negotiate new contract	$8,960.00
Implement volume-based service	$1,440.00
Review existing rates, adjust as necessary	$5,720.00
PROGRAM 2: BACKYARD COMPOSTING	$15,400.00
Participate in development of Countywide backyard composting p composting program and request for proposals	
Select contractor for backyard composting program	
Implement backyard composting program	
Evaluate non-procurement programs for use throughout County facilities	
PROGRAM 3: MULTI-JURISDICTIONAL APPROACHES	$5,600.00
Participate in development of multi-jurisdictional source reduction programs	
PROGRAM 4: COUNTY FACILITIES SOURCE REDUCTION PROGRAMS	
Evaluate and promote use of Property Disposal Department	$2,800.00
Review existing County procurement program; suggest changes	$2,800.00
Consider yard-waste recovery at Civic Center	unknown
Perform waste audits of disposal bins at County facilities	in County service contract
Design educational materials, based on disposal bin audits	to be determined
Distribute new educational materials to County employees	to be determined
PROGRAM 5: COUNTY FACILITIES RECOGNITION AWARDS	$5,600.00
Initiate County Facilities Awards Program	
Medium Term	
PROGRAM 1: ADVANCE DISPOSAL FEES	
Evaluate proposed advance disposal fees; support as appropriate	unknown
PROGRAM 2: XERISCAPING REQUIREMENTS/RECOMMENDATIONS	
Evaluate xeriscaping requirements	unknown
Implement xeriscaping requirements as appropriate	unknown

Section IV

Recycling Component

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 land disposal capacity, this form of waste diversion helps preserve natural resources and reduces the environmental impacts associated with both waste disposal and the production of new materials.

The County of Santa Clara 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 goals and objectives for the unincorporated area;

2. Evaluates a broad range of alternatives that may be used to achieve those goals and objectives;

3. Selects recycling programs for implementation, and

4. Identifies a plan of action to implement and monitor the selected recycling programs.

OBJECTIVES

The recycling objectives presented in this section have been developed to meet the following goals for the unincorporated area of Santa Clara County:

Short-Term Planning Period Goals

Goal 1: Assure that basic recycling opportunities are available to all residents and businesses in the unincorporated area.

Goal 2: Expand recycling services in areas where additional services can be provided at a reasonable cost.

Medium-Term Planning Period Goals

Goal 3: Provide additional recycling programs as alternatives become feasible.

Short-Term Planning Objectives

The County's recycling program is expected to achieve short-term (by 1995) diversion of 21,435 tons per year (excluding yard wastes and household hazardous wastes). This diversion is 16.9% of the total waste stream. Materials and amounts to be diverted are identified in Tables IV - 1 through IV - 4 (See IV - Appendix). Additional County diversion will be achieved through recycling programs at Stanford University and Naval Air Station Moffett Field. These programs are expected to achieve short-term diversion of 5185 tons per year. This diversion is 4.1% of the total waste stream. Materials and amounts to be diverted at Stanford and Moffett Field are identified in Tables IV - 5 and IV - 6 (See IV - Appendix). The County will achieve this diversion by implementing the following objectives:

Objective 1: Expand Curbside Collection programs for four service areas.

Objective 2: Develop multifamily recyclables collection programs for two service areas.

Objective 3: Increase the number of drop-off recycling centers and increase the types of materials accepted in the Lexington Hills service area.

Objective 4: Encourage independent recycling efforts by commercial and industrial companies in three service areas.

Objective 5: Participate in development of a countywide program to divert inert materials.

Objective 6: Review and adopt appropriate zoning, building code and permitting practices to encourage recycling at a countywide level.

Objective 7: Develop markets for recyclable materials at a countywide level.

Medium Term Planning Objectives

The County's recycling program is expected to achieve medium-term (by 2000) diversion of 39,813 tons per year (excluding yard wastes, and household hazardous wastes). This diversion is 30.2% of the total waste stream. Materials and amounts to be diverted are identified in Tables IV - 1 through IV - 4 (See IV - Appendix) Additional County diversion will be achieved through recycling programs at Stanford University and Naval Air Station Moffett Field. These programs are expected to achieve medium-term diversion of 11,144 tons per year. This diversion is 8.4% of the total waste stream. Materials and amounts to be diverted are identified in Tables IV - 5 and IV - 6 (See IV - Appendix). The County will achieve this diversion by continuing programs implemented in the short-term planning period and by implementing the following objectives:

Objective 8: Consider franchising commercial/industrial collection in unincorporated service areas.

TARGETED MATERIALS

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

- corrugated cardboard
- newspaper
- high-grade office paper
- mixed paper
- telephone books
- wood wastes

- PET, HDPE, and other plastics
- film plastic
- glass
- aluminum cans
- tin cans
- other scrap metal
- small household appliances
- inert solids (asphalt, concrete, construction and demolition debris)

Recycling alternatives targeting the above waste types are evaluated according to their effectiveness in meeting the recycling objectives outlined above, see section Evaluation of Alternatives , page IV - 9

EXISTING CONDITIONS

This section provides a brief description of the existing recycling programs and activities in the Unincorporated area for base year 1990 and updates through July, 1992. Of the existing recycling activities and programs, the County does not anticipate that any programs will be phased out or discontinued in the future. Program descriptions include information on the company or organization operating the program and the waste types and quantities diverted.

Existing recycling efforts in the unincorporated area include, residential curbside collection in most garbage collection districts, drop-off sites in some areas, and independent commercial, industrial and institutional recycling. Together, these activities diverted an estimated 8,201 tons in 1990, which is approximately 6.83% of the total waste stream. By 1992, implementation of curbside recycling programs in additional garbage collection districts had increased County recycling diversion to 16,547 tons per year, or 13.5% of the total waste stream. Tables IV - 7 and IV - 8 (See IV - Appendix) identify County diversion quantities under existing conditions (1990) by waste type, percent of the total waste stream, and waste generator type.

Curbside and Multi-Unit Recycling

The types of residential recycling programs vary throughout the nine unincorporated service areas. Factors that influence the development of curbside recycling in each area include demographic characteristics such as high or low population density; type of commercial and industrial activity; and topography, such as hillside or mountainous areas.

In addition, much of the unincorporated area consists of pockets within incorporated cities. The type of recycling program in place in the adjacent incorporated city affects the type and cost of programs offered by service providers for the unincorporated area. The County of Santa Clara coordinates programs for unincorporated area residents with adjacent jurisdictions whenever feasible. Provision of similar services meets service demands of residents, minimizes costs, and facilitates educational efforts.

Existing curbside recycling activities in unincorporated residential areas are described below.

1. **San Jose Area**

   A. East/Central San Jose Area

      1990: There was no curbside or multi-unit recycling program for unincorporated residents in East/Central San Jose in 1990.

      1992: A curbside recycling program was established for 8986 single family households in the East/Central San Jose service area in September, 1991. Collection is provided by Waste Management Incorporated (WMI) using a 3-bin collection system to recycle glass, aluminum, steel cans, PET; and newspapers; and oil is collected in screw-top containers. 7989 single family households are also receiving HDPE collection. In 1991, a total of 344.25 tons of recyclable materials were collected. There is no multi-unit recycling.

   B. Burbank Sanitary District

      1990: There are approximately 990 single family and 700 multi-family residences in the Burbank Sanitation District that are served by Mission Trail Waste Systems. No curbside or multi-unit recycling programs were in place in 1990.

      1992: The Board of the Burbank Sanitation District is considering proposals for a curbside recycling program; preliminary plans are for a curbside and multi-unit collection program to be established in late 1993.

C. Cambrian/South San Jose Area

1990: On October 1, 1990, a curbside recycling program was established for approximately 2500 single family households in the Cambrian/South San Jose service area. Collection is provided by Green Valley Disposal Company using a 2-bin collection system to recycle glass, PET, aluminum and tin; newspaper and magazines are bundled separately, and oil is collected in screw-top containers. In 1990, a total of 138 tons of recyclable material were collected. There was no multi-unit recycling.

1992: The curbside program has been continued. In 1991, a total of 346 tons, and in the 1st quarter 1992, a total of 32.8 tons, of recyclable materials were collected. There is no multi-unit recycling.

2. **South County Area**

1990: There was no curbside recycling program in the South County service area in 1990. There are no multi-unit households in this service area.

1992: On July 1, 1992, a curbside recycling program was established for 2600 single family households in the South County service area. Collection is provided by South Valley Refuse Disposal using a blue bag collection system to recycle glass, PET, HDPE, aluminum and tin; newspaper is bundled separately, and used motor oil is collected in screw-top containers. The pilot program reported a participation rate of 68% in the 500 household pilot program. Initial reports indicate that this program will divert approximately 100 tons of recyclable material per year.

3. **West Valley Area**

1990: On October 1, 1990, a curbside recycling program was established for 1,770 single family households in the West Valley service area. Collection is provided by Green Valley Disposal Company using a 2-bin collection system to recycle glass, PET, aluminum and tin; newspaper and magazines are bundled separately, and oil is collected in screw-top containers. In 1990, a total of 97 tons of recyclable materials were collected. There was no multi-unit recycling.

1992: The curbside program has been continued. In 1991, a total of 246 tons, and in the 1st quarter 1992, a total of 23 tons of recyclable materials were collected. There is no multi-unit recycling.

4. **Lexington Hills**

There are approximately 2300 single family households in the Lexington Hills area of which only 900 are receiving garbage service. In 1985, the Board of Supervisors granted a refuse collection permit to Lexington Hills Disposal Company. There is no curbside recycling program in Lexington Hills. There are no multi-unit facilities in the Lexington Hills service area.

1990: There was no curbside recycling program in the Lexington Hills area in 1990. There are no multi-unit complexes in this service area.

1992: Lexington Hills Disposal Company established a drop-off recycling center for recyclables at Lexington School in February 1992. Aluminum and plastic (PET) are accepted. Materials are processed by Los Altos Recycling Center. Quantities of materials collected from this program are minimal.

5. **North County Area**

1990: In August 1990 a curbside recycling program was established for approximately 1,100 single family households in the Los Altos area. Collection is provided by Los Altos Garbage Company (LAGCO) using a 1-bin collection system to recycle glass, PET, aluminum, bi-metal and tin; paper, including newspaper, non-glossy white paper, advertising inserts, stationery and photocopies, is bundled separately, and used motor oil is collected in screw-top containers. In 1990, a total of 170 tons of recyclable material were collected.

1992: The curbside program in the Los Altos area has been continued. In 1991 400 tons of recyclable materials were collected; diversion in 1992 is also expected to total 400 tons.

In March and April 1991 curbside recycling programs were established for single family households in the Cupertino (2,200) and Los Altos Hills (300) areas. Collection is provided by LAGCO using a 1-bin collection system to recycle glass, PET, aluminum, bi-metal, and tin. Newspaper and mixed paper are bundled separately. Used motor oil is collected in screw-top

containers (no oil is collected in Los Altos Hills area). In 1991, 668 tons of recyclable material were collected. Projected diversion for 1992 is 900 tons.

6. **Stanford University**

In 1987, Peninsula Sanitary Service established a curbside recycling program for the 613 single family households in Stanford's housing for faculty and staff. Newspaper, glass, and aluminum are collected in a 3-bin system. In 1990, 834 tons were diverted.

Recycling services are also provided to multiple unit dormitories, married student housing, and graduate student housing. Peninsula Sanitary uses front-loading dumpsters or 96-gallon carts and a two-sort system to collect:

1) commingled glass, aluminum, and plastic, and
2) newspaper.

Drop-Off Recycling

In Santa Clara County there are a total of 23 independent recycling centers in addition to 80 certified redemption centers. These centers collect a wide variety of materials as illustrated below. Although the majority of these centers are located in incorporated cities, they are used by unincorporated area residents and businesses.

Commercial and Industrial Recycling

Commercial and industrial facilities in the unincorporated area include facilities operated by a private university, County, state, and federal agencies, and private businesses. Status of current recycling in each of these types of facilities is discussed below.

Stanford University

Peninsula Sanitary Service maintains approximately 100 recycling containers for cardboard only and will pick up cardboard if it is set beside a refuse bin or upon special request. During 1990, 716 tons of cardboard were recovered for recycling.

Peninsula Sanitary Service will accept white goods and provide pick up services for a fee. The items are stripped and sold to scrap metal dealers. In 1990,

approximately 64 tons of scrap metal were recycled as a result of this scrap metal recovery program.

County Facilities

Note that status of and planning for all County facilities are included in this document, regardless of whether facilities are located in cities or unincorporated areas. The County of Santa Clara provides the following recycling activities in County-owned/operated facilities.

- Recycling of white office, computer, and mixed paper, newspaper, old corrugated cardboard, aluminum, plastic, and glass in some departments.
- Recycling of used motor oil, oil filters, antifreeze, and mop water from the Transportation Agency and General Services Agency equipment yards for use by the County.
- Programs for purchasing of products with recycled material content. Current purchasing policies are being evaluated to identify additional opportunities for purchase of recycled products and equipment.
- Waste reduction and recycling education and information programs for County employees.

State and Federal Facilities

Henry Coe State Park located in the South Valley service area recycles aluminum and glass in the picnic and camping areas of the park, which is self-hauled to a drop-off center. Grass is left on the ground and yard waste is chipped and used for mulch and trails. Quantities are unknown, but park staff considers quantities to be low.

There are two federal facilities located in the unincorporated area of the County, the Naval Air Station (NAS) Moffett Field and the National Aeronautics and Space Administration (NASA) - Ames Research Center. Waste generation and diversion data provided by NAS Moffett Field and NASA-Ames Research Center is included in Table II - 2 (See II - Appendix) of the Solid Waste Generation Study, Section II.

According to the Solid Waste Survey and Solid Waste Management Plan (SWMP) for NAS Moffett Field (1991), the installation has a total population of 6,867 (4145 residents, 1550 non-residents, 819 fleet personnel, and 353 transient).

The SWMP states that approximately 19.4% of their solid waste is being diverted from the landfill, and the 25% diversion goal will be achieved by 1995 through the following programs:

Expansion of cardboard recycling
Use of oil filters as recycled scrap metal
Disposal of non-reusable tires as fuel at a tire-derived fuel facility
Segregation of computer paper and high grade paper for higher resale value
Relocation of contractor recycling igloos to increase use, and
Establishment of a compost station for green waste.

While recycling programs do exist at the NASA facility, existing data on recycling efforts is minimal. Staff at the facility reported that approximately 124 tons of high grade office paper were recycled in 1990. Precious metals and scrap metals are also recycled at the facility. Staff also reported that approximately 15,000 gallons of used motor oil were recycled in 1990.

Private Commercial/Industrial Facilities

The County has not established a commercial/industrial recycling program or special requirements for such facilities. Little information on existing recycling programs is available at this time. Data on private commercial/industrial recycling in unincorporated areas will be collected during the implementation of this element.

Landfill Salvage

Guadalupe landfill currently has independent salvagers that remove reusable items from the active face of the landfill. Tonnages of materials diverted by the salvage operation are unknown.

EVALUATION OF ALTERNATIVES

The County has considered a number of recycling alternatives that could be implemented to meet its diversion goals. For ease of evaluation, alternatives are grouped into residential alternatives, those that apply to the commercial/industrial alternatives, and alternatives for both sectors. Each alternative is briefly described and then evaluated according to a set of criteria specified by AB 939 regulations. Program details should be considered preliminary and costs are approximate.

Details will be refined during development of specific programs. The following recycling alternatives are considered:

Alternative 1: Basic Curbside Collection
Alternative 2: Expanded Curbside Collection
Alternative 3: Residential Wet/Dry Collection
Alternative 4: Mobile Collection
Alternative 5: Multifamily Recyclables Collection
Alternative 6: Buy-Back Center
Alternative 7: Increase Drop-Off Recycling Centers
Alternative 8: Encourage Independent Commercial/Industrial Recycling
Alternative 9: Franchised Commercial/Industrial Collection
Alternative 10: Expand Recycling Program in County Facilities
Alternative 11: Manual/Mechanized Material Recovery Operation
Alternative 12: Encourage Salvage at Solid Waste Facilities
Alternative 13: Divert Inert Materials
Alternative 14: Change Zoning and Code Practices
Alternative 15: Market Development

Many of these alternatives are complementary and implementation will be coordinated with implementation of other related alternatives, programs, or SRRE Components. Significant interrelationships are discussed in the evaluation of the alternatives. An additional consideration in evaluating an alternative is that its effectiveness and impact must be considered on the basis of how several alternatives or programs will work together as a system, and not as independent alternatives. System impacts are reconciled in the section: Selection of Program Alternatives (IV 35). Materials to be diverted and amounts have been estimated based on the combination of programs selected.

The effectiveness of any recycling diversion program depends on the methods that are used to extract recyclable materials from the waste stream. The effectiveness of a separation method will be affected by: (1) the degree to which materials can be separated at the source of generation, which affects the cost, recovery rate, and quality of materials; and (2) the level of convenience to generators, which affects participation in the programs. These factors will also be considered in the evaluation of programs.

Alternative 1: Basic Curbside Collection.

Curbside collection of recyclable materials from single-family homes is the most effective method of collecting the maximum amount of recyclables and achieving high rates of participation. A basic curbside program generally accepts glass and metal food and drink containers, PET plastic drink containers, and newspaper. Once a basic program is established, additional materials, such as corrugated cardboard, magazines, and mixed paper, can be added in order to increase the amount of materials diverted from the waste stream.

Programs are most successful when the level of service and convenience to the homeowner is high. 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.

Collection system alternatives for a curbside program include:

- Single bin for commingled containers; bags or bundles of newspapers are placed beside the bin.
- Two or three stackable bins for sorted recyclables (for example, glass; plastic and metals; and newspaper).
- "Blue Bags" to contain specific recyclables. Newspaper in bags or bundles is placed at the side of the bag of recyclables. These recyclables are generally collected in the same truck as garbage, then sorted at a processing facility.

Each of these methods have been used with success in Santa Clara County as well as in many other communities.

All County franchised service areas have a basic curbside recycling program for single family residences. Whenever feasible, the County coordinates the level and type of residential services and programs with those offered by adjacent jurisdictions. Comparable services facilitate public education and minimize the cost of services to unincorporated area residents. Only two portions of the unincorporated area do not currently have curbside recycling services.

San Jose Area

In a portion of the San Jose Area, franchised collection services negotiated by the Burbank Sanitary District Board currently do not include residential curbside

recycling collection services. A curbside recycling program for Burbank's 900 single-family and 700 multi-family residences is currently under consideration by the Board.

Lexington Hills

Lexington Hills, an area with low population density and hillside terrain that is difficult to serve, will require a customized program in order to provide for at an acceptable cost. A blue bag collection system or drop-off sites will be evaluated for use in this area.

Unserved Residences

Many unincorporated area residents do not subscribe to services provided by the franchised collection companies and therefore do not participate in the curbside recycling programs provided in their area. Provision of basic recycling services to these households would require enforcement of mandatory service requirements.

Alternative 2: Expanded Curbside Collection

As noted above, most unincorporated area residences which receive solid waste collection services also receive curbside recyclables collection services. Programs differ by service area. Existing programs could be expanded by adding additional types of materials. Expansion would be expected to increase participation by residents as well as increasing the amount of material collected.

San Jose Area

An expanded curbside program for portions of the unincorporated area within the City of San Jose will be evaluated. The goal of the service expansion would be to expand the current system to attain comparable services to those that will be provided under the new, expanded residential collection system to be implemented by the City in July 1993. The proposed expansion will result in collection rates that are based on the volume of waste generated by a household, include a significant increase in the number of materials collected for recycling, and provide for expanded public education. New materials that would be considered for collection in the proposed expansion include:

- Small aluminum and steel scrap.
- Mixed paper: Office grade paper, magazines, telephone books, junk Mail, catalogs, cardboard, envelopes, egg cartons, paperboard, kraft paper.
- Mixed plastics: Bottles (all resins), film plastic (all resins), polystyrene (foam and rigid).
- Textiles
- Aseptic containers

South Valley Area

An expanded curbside program for the South Valley area will be evaluated. The goal of the expansion would be to expand the current system to maintain comparable services to those that are provided by the cities of Gilroy and Morgan Hill, so that the three jurisdictions provide for the most cost-effective services possible. The proposed expansion will continue to provide for collection rates that are based on the volume of waste generated by a household, will include an increase in the number of materials collected for recycling, and provide for expanded public education. New materials that would be considered for collection in the proposed expansion include:

- HDPE, all colors
- Mixed paper
- Cardboard

West Valley Area

An expanded curbside program for the West Valley area will be evaluated. The goal of the expansion would be to expand the current system to maintain comparable services to those that are provided by the West Valley cities, so that the five jurisdictions (Campbell, Los Gatos, Monte Sereno, Saratoga, and the County) provide for the most cost-effective services possible. The proposed expansion will establish or continue to provide for collection rates that are based on the volume of waste generated by a household, will include an increase in the number of materials collected for recycling, and provide for expanded public education. New materials that would be considered for collection in the proposed expansion include:

- HDPE, all colors
- Mixed paper
- Cardboard

North County Area

An expanded curbside program for the North County area will be evaluated. The goal of the expansion would be to expand the current system to maintain comparable services to those that are provided by the cities of Cupertino, Los Altos, and Los Altos Hills, so that the four jurisdictions provide for the most cost-effective services possible. The proposed expansion will continue to provide for collection rates that are based on the volume of waste generated by a household, will include an increase in the number of materials collected for recycling, and provide for expanded public education. New materials that would be considered for collection in the proposed expansion include:

- HDPE, all colors
- Mixed paper
- Cardboard

Alternative 3: Residential Wet/Dry Collection System

The Residential Wet/Dry Collection System alternative requires separation of wet wastes, such as food waste, wet paper, diapers, etc., from dry wastes, such as paper, wood, containers, textiles, etc. When dry wastes are not contaminated with wet wastes, more materials can be sorted out at a materials recovery facility for recycling. This system is used in Europe and Canada. In addition, wet wastes could be composted utilizing a sophisticated in-vessel composting system.

This System can provide for the highest possible diversion because all marketable recyclable materials can be separated from the waste stream at a materials recovery facility. The system is flexible in meeting market demands since the sorting process can be modified to remove only those materials for which markets are available. Because all sorting would be done at a facility the processing cost would be higher. In addition, the quality of recyclable materials may be lower than the quality of materials separated by the waste generator.

The System can be designed to meet a jurisdiction's objectives. Wet wastes could be sent directly to a landfill or composted in an in-vessel composting system. Dry wastes could be separated for easier sorting and lower contamination. For example,

glass could be kept separate from paper to provide a more valuable paper product. This System could be implemented in any unincorporated service area, provided that processing facilities are available.

Alternative 4: Mobile Drop-Off Collection System

A Mobile Drop-Off Collection System could be established utilizing temporary collection sites in parking lots and similar locations. A Mobile System would require a regular and reliable schedule, similar to a bookmobile library system, so that residents can count on consistent service. This type of system could be implemented at a lower cost than either a curbside collection program or a drop-off center. Mobile Systems are most appropriate for rural areas with low-density populations. Jurisdictions with fairly high population densities and/or with many established recycling collection programs would be better and more efficiently served by promoting and expanding curbside recycling programs.

This System could be implemented in any unincorporated service area which has few existing recycling alternatives. It appears to be most suitable for the Lexington Hills area. Feasibility of establishing a mobile collection system for the Lexington Hills area could be evaluated.

Evaluation of Alternatives 1-4

Effectiveness: Each of the residential collection alternatives would increase participation by residents and reduce the amount of recyclable materials discarded in landfills. Higher participation rates can be expected from programs that collect more types of recyclable materials. Greater levels of contamination can also be expected in a multi-commodity system.

Hazard: These alternatives present no major hazards.

Ability to Accommodate Change: These alternatives can be adapted to meet changing conditions, such as changes in marketable material types, processing and handling techniques, and changes in the waste management system and regulatory programs. Adding new materials to a system is generally considered to be fairly simple, requiring public education and feedback on participation. Eliminating collection of a specific material would be expected to result in some confusion among residents and would be expected to decrease participation if changes are too frequent. Informing residents and reinforcing participation would be critical to implementing any collection system changes.

Consequences to the Waste Stream: None of these alternatives is expected to change the types of wastes generated by residential households. Impact on the waste stream is expected to be limited to the removal of targeted materials.

Implementation Period: Alternatives 1, 2, and 4 could be implemented in the short-term planning period (by 1995) as they build on established waste collection and processing systems. Alternative 3, the Wet/Dry Collection System, would be a major change from current collection and recycling systems. Start-up costs would be high, since local residents and waste collection and processing companies have no experience with this System. Prior to implementation, a thorough evaluation of the System would be required, a pilot program would be desirable, and effective public education would be essential. Therefore, this program is more suitable for consideration in the medium-term.

Facility Requirements: Alternatives 1, 2, and 4 would result in increased processing of recyclables by existing facilities, but such increases are within the capacity of such facilities. Alternative 3, a Wet/Dry System, would require a facility to perform in-vessel composting for processing the wet portion of the waste stream. Possible changes in existing facilities for sorting the dry portion of the waste stream could be required. Permits for temporary collection locations would be required for a Mobile System.

Consistency with Local Plans and Policies. Each of the four alternatives is consistent with local plans and policies. Changes to existing franchise agreements between the County and service providers and/or facility operators would be necessary.

Institutional Barriers: There are no known institutional barriers to implementation of these alternatives.

Estimated Cost: Costs per household per month for these alternatives are as follows:

Alternative 1:	Cost of Basic Curbside collection is estimated to range from $1 to $4.
Alternative 2:	Cost of Expanded Curbside collection is estimated to range from $1 to $4.
Alternative 3:	Cost of Residential Wet/Dry Collection cannot be estimated at this time.

Alternative 4: Cost of Mobile Collection is estimated to range from $0.50 to $1.

End Uses: See Market Conditions (page IV - 45)

Public vs. Private Operation: Existing County franchise agreements provide for collection services in the unincorporated area utilizing private collection companies. The programs outlined under these alternatives are fully compatible with the existing system, but could be operated by either a public or private entity.

Alternative 5: Multifamily Recyclables Collection

Multi-family dwellings typically include apartments, condominiums, townhouses, and mobile home parks. Recycling services to multi-family dwellings could consist of bins for individual units, wheeled carts, or divided dumpsters. There are no multifamily dwellings in the South Valley or West Valley portions of the unincorporated area.

Unincorporated Service Areas

San Jose Area

There are 81 multi-family complexes in the San Jose area. There are no existing recycling programs. The County will evaluate program options for multi-family services comparable to the new services that will be instituted by the City of San Jose in July 1993, including options for working directly with the City to extend recycling services to multi-family units in the unincorporated portion of the City.

Multi-family recycling services could include many of the materials that may be collected from single family homes, such as:

Glass food containers; Aluminum, tin, bi-metal and steel cans, small aluminum and steel scrap; Newspaper; Mixed paper (office grade paper, magazines, telephone books, junk mail, catalogs, cardboard, envelopes, egg cartons, paperboard, kraft paper); Mixed plastics (bottles, film plastic, polystyrene); Textiles; Aseptic containers.

Multi-family programs for the unincorporated area would provide for services that are primarily based on the volume of garbage generated, and rates will include the cost of recycling services.

North County Area

The North County service area has 4 multi-family dwellings adjacent to the City of Cupertino. The County will explore the feasibility of establishing a program for this area comparable to programs offered by the City of Cupertino.

Evaluation of Alternative 5

Effectiveness: Recycling services for multi-unit dwellings can be effective in reducing the amount of targeted recyclable materials in the solid waste stream. The success of programs depends upon how well the program addresses the particular needs of each multi-unit dwelling. Higher participation rates can be expected from programs that collect more types of materials. Greater levels of contamination can be expected in a multi-family system, therefore ongoing education to inform new residents and support participation by all residents will be very important.

Hazard: This alternative presents no major hazards.

Ability to Accommodate Change: This alternative can be adapted to meet changing conditions, such as changes in marketable material types, processing and handling techniques, and changes in the waste management system and regulatory programs. Adding new materials to a system will be somewhat more complicated than equivalent changes to a single family system, since new services must be negotiated with property managers. Public education and feedback on participation would be essential. Eliminating collection of a specific materials would be expected to result in some confusion among residents and would be expected to decrease participation if changes are too frequent. Informing residents and reinforcing participation would be critical to implementing collection system changes.

Consequences to the Waste Stream: Multi-unit dwelling recycling programs are not expected to change the types of wastes generated by residents. Impact on the waste stream is expected to be limited to the removal of targeted materials.

Implementation Period: This alternative could be implemented in the short-term planning period (1995), unless storage areas for collecting recyclables are not available at facilities.

Facility Requirements: This alternative would result in increased processing of recyclables by existing facilities, but such increases are within the processing capacity of existing facilities.

Consistency with Local Plans and Policies: Minor changes to existing plans and policies could be required. These could include changes to agreements between the County, the hauler, and the multi-unit dwelling property manager with regard to garbage collection and recycling services. If space for storage of recyclables is not available at existing multi-unit facilities, ordinance changes could be necessary to provide for variances from parking or other requirements.

Institutional Barriers: Moderate institutional barriers exist with this alternative. With rental property, turnover in property managers, on-site managers, and tenants often makes it difficult to keep residents informed of recycling programs and changes. Also, to accommodate a recycling program, space within the facility must be dedicated as a site for the storage and collection of materials. This can reduce the size of facility parking areas. Parking space requirements for the unincorporated area of the County are set by local ordinance at 1.5 parking spaces per unit. Variances from this requirement could be required at some facilities in order to provide for a storage and collection area.

Estimated Cost: Costs for this program are estimated to range from $1 to $5 per multi-family household per month.

End Uses: See section titled Market Conditions (page IV - 45).

Public vs. Private operation: Existing County franchise agreements provide for collection services in the unincorporated area utilizing private collection companies. The programs outlined under these alternatives are fully compatible with the existing system, but could be operated by either a public or private entity.

Alternative 6: Buy-back Center

Under AB 939, the County is required to evaluate a buy-back center alternative. A buy-back center is a collection center which pays for recyclable materials brought to

the center. Buy-back centers typically accept such materials as aluminum cans, newspaper, glass, metal cans, plastic (PET and HDPE), corrugated cardboard, and high-grade papers. Because of the nature of the services provided, buy-back centers must be staffed and have regular business hours, thus labor costs for operating buy-back facilities are higher than costs for operation of drop-off centers. In addition, the need to process recyclable materials on-site may increase equipment requirements.

Unincorporated Service Areas

This alternative could be implemented in a number of service areas. Because numerous private companies and organizations operate buy-back centers in Santa Clara County, no intervention in this existing private buy-back system is considered necessary.

Alternative 7: Increase Drop-Off Recycling Centers

A drop-off recycling center is a collection center that accepts specified recyclable materials brought to the facility, but does not pay for them. Drop-off centers generally target recyclable materials from residential sources and are usually located in areas where they are readily accessible to the general public. Centers may also be located in commercial/urbanized areas to serve smaller businesses and downtown areas, or at solid waste transfer and disposal facilities. Facilities can be 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 in areas where there are no curbside recyclables collection services.

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.

Existing recycling facilities are conveniently accessible to most portions of the unincorporated area, with the exception of less populated, more rural portions of the county.

Unincorporated Service Areas

Lexington Hills

The Lexington Hills service area has one drop-off recycling center, provided as a service to local residents by the Lexington Hills Disposal Company, which accepts aluminum and plastic (PET). This drop-off center could be expanded to accept other materials, such as glass, corrugated cardboard, used motor oil, and newspaper. In addition, other drop-off centers could be established in convenient locations to serve Lexington Hills area residents.

Evaluation of Alternatives 6 and 7

Effectiveness: Buy-back centers provide options for residents who wish to claim the deposit fee or obtain the scrap value for their recyclables. Buy-back centers in communities with established recycling programs can result in shifting of materials from other programs, such as curbside, where the generator is not paid for the materials recovered. Therefore, the buy back center can be less effective in providing for additional recycling in areas where other options are available. Drop-off centers can provide useful recycling options in areas which are not served by curbside collection programs, or in which the existing programs accept only a few types of recyclable materials.

Hazard: An unstaffed drop-off site could pose a hazard if solid waste or hazardous waste are illegally disposed of at the site. Staffed sites generally do not pose a hazard during normal operating hours. After hours, staffed sites can pose an illegal dumping hazard if the public can gain access to the site.

Ability to Accommodate Change: These alternatives can be adapted to meet changing conditions, such as changes in marketable material types, processing and handling techniques, and changes in the waste management system and regulatory programs. At sites which are staffed, need for specialized public education would be minimal. Adding new materials would be fairly simple. Eliminating acceptance of specific materials could result in some confusion among users and could cause decreased participation if changes are frequent. Unattended collection sites would require greater efforts to inform users of changes in order to minimize the deposit of unwanted recyclables.

Consequences to the Waste Stream: These alternatives are not expected to change the types of wastes generated. Impact on the waste stream is expected to be limited to the removal of targeted materials.

Implementation Period: These alternatives could be implemented in the short-term planning period (by 1995).

Facility Requirements: New facilities could be required. Many buy-back sites exist in the County, but a site, facility, and processing equipment (e.g., scales, cash register, safe, calculators, hand carts) would be needed for any new buy-back center. Drop-off centers could consist of a simple labeled dumpsters or roll-off container with no attendant.

Consistency with Local Plans and Policies: These alternatives are consistent with local plans and policies.

Institutional Barriers: Some institutional barriers exist for these alternatives. A convenient location is essential for any new sites. Necessary permits would need to be obtained. In addition, a buy-back 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.

Estimated Cost: Costs for this program are estimated to range from $5,000 to $50,000. If new construction is required, capital costs would vary depending on the site selected and the amount of construction required. Construction costs would be paid by a private company. Operating costs would vary depending on the type and size of the facility, and the equipment in use. Labor costs would vary depending on the number of employees and the source of employees (ie, work programs for the disabled, inmate labor, union or non-union workers).

End Uses: See section titled Market Conditions (page IV - 45).

Public vs. Private Operation: The existing recycling system in Santa Clara County relies primarily on facilities operated by private companies. It is anticipated that any additional facilities would be privately operated.

Alternative 8: Encourage Independent Commercial/Industrial Recycling

An independent commercial/industrial recycling system relies on small private recycling businesses to establish recycling collection programs to serve commercial/industrial waste generators. The advantages to providing for independent recycling include:

1. Can lead to more recycling options;
2. Jurisdiction can avoid the cost of establishing and managing a collection program;
3. Businesses often prefer to have the option of selecting their own recycler;
4. Can be more cost effective where small numbers of businesses are geographically dispersed.

However, an independent system:

1. Is more vulnerable to market instabilities;
2. Is less likely to serve small generators;
3. Costs more to small generators;
4. Has lower participation than a mandatory system;
5. Generally will not generate franchise fee revenue for the jurisdiction; and
6. Is likely to collect primarily high value materials, thus resulting in lower diversion than a system which includes a wider variety of materials.

The County could encourage commercial/industrial recycling through one or more of the following:

1. Publicize and provide information and/or a directory of independent recyclers.
2. Publicize and provide information on the CIWMB Materials Exchange Program. This is a free program (referred to a CALMAX) which is analogous to a classified ads listing for "waste" materials available and wanted throughout California.
3. Establish recycling routes for small businesses to generate enough recyclables to make it economically feasible for collection.
4. Perform waste audits to encourage businesses to participate.
5. Ban recyclables from disposal.
6. Encourage waste haulers to offer independent recycling services.
7. Encourage waste haulers to offer rubbish/garbage service and to sort the rubbish at a materials recovery facility.

8. Encourage waste haulers to plan routes by type of waste generator and sort mixed waste at a materials recovery facility. For example, a waste hauler could create routes to serve similar types of facilities, such as office buildings, restaurants, or industrial businesses, which generally produce high volumes of certain less contaminated recyclables.
9. Require recycling programs as part of the permit requirements for new and expanded facilities.
10. Provide for recognition awards to businesses which implement outstanding recycling programs.

Unincorporated Service Areas

All portions of the unincorporated area have some commercial/industrial businesses. The County could evaluate the current status of waste reduction and recycling in unincorporated area businesses and encourage them to establish recycling programs. The County could provide technical assistance as necessary.

The Casa De Fruta resort in the South County area currently exports waste to San Benito County. The County could encourage the operators to establish a recycling program. The County could provide technical assistance as necessary.

Alternative 9: Franchised Commercial/Industrial Collection

The County could provide for franchised collection of recyclables. Services could be provided by the waste hauler or another provider. The collection system and level of source separation could vary from completely source separated to a wet/dry collection system.

Franchised collection will:

1) Provide regular collection to all businesses;
2) Generate revenue for the County;
3) Collect a variety of materials;
4) Be less vulnerable to changes in market prices of recyclables than an independent system; and
5) Provide for systematic and reliable reporting on amounts of materials that are recycled.

However, franchised collection can also compete with local independent recyclers. A franchised system can be more expensive for waste generators which produce

large quantities of a valuable waste stream, and therefore may not be preferred by businesses.

Unincorporated Service Areas

North County Area

Most unincorporated area businesses in the North County area (30 of 34) are located in the Cupertino sphere of influence. The County does not have a commercial recycling program at present. The City of Cupertino has an exclusive franchise for recyclables collection with Los Altos Garbage Company (LAGCO). Commercial and industrial businesses may select independent recyclers for single source separated commodities.

Evaluation of Alternatives 8 and 9

Effectiveness: These alternatives would be effective in reducing the amount of targeted recyclable material in the commercial/industrial waste stream.

Hazard: These alternatives present no major hazards.

Ability to Accommodate Change: Commercial collection programs are readily adaptable to changing conditions such as increased participation rates or the addition of another material type for collection. Responses to such changes could include increasing the number of trucks or providing for more frequent collection of materials. Changes in franchised systems may require amendments to the franchise agreement. A non-franchised or independent system can be particularly adaptable to change if there is a potential for economic gain.

Consequences to the Waste Stream: These alternatives have no known impact on the composition of the waste stream.

Implementation Period: These alternatives could be implemented in the short-term planning period (1995).

Facility Requirements: Access to a materials recovery or other processing facility will be needed to process the materials collected.

Consistency with Local Plans and Policies: These alternatives are consistent with local plans and policies.

Institutional Barriers: Franchised collection could require new franchise agreements or amendments to current franchise agreements. Legality of franchised commercial recyclables collection has recently been challenged and issues have not yet been resolved. Therefore, evaluation of options for a franchised system should await resolution of legal issues.

Estimated Cost: Cost of a commercial/industrial recycling program could vary widely, depending on the number of businesses in a specific portion of the unincorporated area, the size of the businesses, and the type and volume of potential recyclables that are generated. Costs to businesses could range from savings on current waste collection costs to extra costs for bins and collection. Actual dollar cost estimates are not available.

County staffing costs for development of a commercial/industrial recycling program could vary from staff time for development of new franchise agreements or amendments to existing agreements, to provision of technical assistance to businesses for development of independent programs. Actual dollar cost estimates are not available.

End Uses: Please see section titled, Market Conditions (page IV - 45).

Public vs. Private Operation: Commercial recycling programs could be operated by either private or public entities.

Alternative 10: Expand Recycling in County Facilities

The County of Santa Clara has operations at over 100 buildings. Employees at most of these buildings are practicing source reduction and recycling measures. Recycling measures are addressed below.

Paper Recovery of Northern California collects white office paper and computer paper from centralized collection areas at 38 locations. Approximately 500 tons of paper are collected each year.

San Jose Conservation Corps (SJCC) collects materials from facility offices located at West Hedding Street, Berger Drive, North First Street (several locations), and the Municipal Court. SJCC collects aluminum, glass, and newspaper from all locations, and also collects cardboard, white office, computer, and mixed paper from North

First Street locations. Quantities diverted are unavailable because materials from individual sites are not weighed.

Mission Trail Waste Systems provides cardboard and used pallet collection at Berger Drive, and cardboard collection at West Hedding Street. Mission Trail also provides phone book directory collection for County facilities during new directory distribution season.

Used motor oil is collected by Santa Clara Valley Oil at 12 service yards operated by the Transportation and General Services Agencies. Approximately 80,000 gallons of used motor oil are collected each year.

Used antifreeze and oil filters are collected by Antifreeze Environmental Services from 10 County locations. Approximately 20,000 gallons of used antifreeze, and 150 drums of used oil filters are collected each year.

Additionally, many tons of recyclable materials that are collected each year from County facilities go undocumented and records are unavailable. While recycling programs at County facilities may be highly successful in diverting significant amounts of materials from landfill, diversion from facilities located in incorporated areas probably cannot be counted as diversion by the County of Santa Clara. However, recycling at County facilities saves valuable landfill capacity and the expansion of County facility recycling programs is evaluated as an alternative below.

Evaluation of Alternative 10

Effectiveness: These alternatives could be effective in reducing the amount of targeted recyclable material in the commercial/industrial waste stream.

Hazard: These alternatives present no major hazards.

Ability to Accommodate Change: Facility collection programs are readily adaptable to changing conditions such as increased participation rates or the addition of another material type for collection. Responses to such changes could include increasing the number of trucks or providing for more frequent collection of materials. Changes in facility collection systems may require amendments to franchise agreements or new agreements. A non-franchised or independent system can be particularly adaptable to change if there is a potential for economic gain.

Consequences to the Waste Stream: These alternatives have no known impact on the composition of the waste stream.

Implementation Period: These alternatives could be implemented in the short-term planning period (1995).

Facility Requirements: Access to a materials recovery or other processing facility will be needed to process the materials collected.

Consistency with Local Plans and Policies: These alternatives are consistent with local plans and policies.

Institutional Barriers: Expanded collection services at facilities could require approval of the Board of Supervisors, and possibly new franchise agreements or amendments to current franchise agreements. Legality of franchised commercial (facility) recyclables collection has recently been challenged and issues have not yet been resolved. Therefore, evaluation of options for a franchised system should await resolution of legal issues.

Estimated Cost: Cost of an expanded facility recycling program could vary widely, depending on the number of facilities, locations, sizes of the facilities, and the type and volume of potential recyclables that are generated. Costs to facilities could range from savings on current waste collection costs to extra costs for bins and collection. Actual dollar cost estimates are not available.

County staffing costs for expansion of facility recycling programs could vary from staff time for development of new franchise agreements or amendments to existing agreements, to provision of technical assistance to facility staff for development of independent programs. Actual dollar cost estimates are not available.

End Uses: Please see Market Conditions (page IV - 45).

Public vs. Private Operation: Facility recycling programs could be operated by either private or public entities.

Alternative 11: Material Recovery Facility

Material recovery facilities are designed for the collection, processing, and marketing of recyclable materials. A material recovery facility accepts incoming loads which

are tipped either onto a pad or into a hopper. The waste stream is then sorted and separated, usually as it travels along a conveyor belt system. Wastes can be sorted by hand (a manual system) or by a series of mechanical processors that assist in waste stream segregation. Even with a mechanized system, a portion of material is often sorted manually.

Manual and mechanized material recovery operations are very similar in function, with some differences in capital investment, facility size, equipment, and operating costs. Both types of facilities receive recyclable materials, remove contaminants, and prepare materials for transportation to markets. Facilities can provide for separation of a wide variety of recyclable materials from mixed waste loads, thus increasing diversion of commercial/industrial wastes.

Unincorporated Service Areas

A number of material recovery facilities are in operation in Santa Clara County. Additional facilities are planned. Current facilities are deemed sufficient to handle recyclables from the unincorporated area through the year 2000.

Evaluation of Alternative 11

Effectiveness: Alternative 11 is a processing program, therefore it is not considered for its effectiveness in removing recyclables from the waste stream.

Hazard: This alternative presents moderate hazards, including the possibility of fire and explosion from 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 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.

Ability to Accommodate Change: Both manual and mechanized facilities are readily adaptable to changing conditions.

Consequences to the Waste Stream: This alternative has no known impact on shifts in waste-type generation.

Implementation Period: Facilities are currently in operation. Additional facilities such as simple manual recovery operations (i.e., dump-and-pick) could

be implemented in the short-term planning period. Larger, more complex, facilities would require extensive design, permitting, and development efforts that would be likely to extend into the medium-term planning period.

Facility Requirements: Some facilities are in operation, others are being developed. It is considered unlikely that additional facilities will be needed or that the County would need to develop publicly-owned processing facilities.

Consistency with Local Plans and Policies: Materials recovery facilities are consistent with local plans and policies.

Institutional Barriers: All materials recovery facilities require state and local permits for construction and operation.

Estimated Cost: 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 would also affect the cost. Costs to the County have not been estimated since it is considered unlikely that additional facilities, developed by the County, will be needed.

End Uses: See Market Conditions (page IV - 45).

Public vs. Private Operation: Existing facilities are privately owned and operated except for the SMaRT Station which is owned by the City of Sunnyvale and operated by a private contractor..

Alternative 12: Encourage Salvage at Solid Waste Facilities

Salvage of materials from loads delivered for disposal at a landfill or transfer station involves sorting activities that can be similar to a manual material recovery operation. Wastes can be sorted in a designated area or facility prior to delivery to the active tipping area of a landfill or transfer station, or they can be sorted at the active tipping area.

Loads subject to salvage at solid waste facilities include residential, commercial, industrial, and self-haul loads. Salvage is usually restricted to clearly identifiable loads of specific items such as metals, white goods, wood waste, mattresses, as well as glass, plastics, and metal beverage containers. In addition, high-concentration loads of construction debris, soil, concrete, asphalt, wood waste, and landscaping

wastes are often diverted to a separate tipping area to facilitate recovery. Loads selected for sorting are often uncompacted wastes from commercial debris boxes.

Recycling and salvaging operations are already performed at some local landfills. The County of Santa Clara could encourage increased salvage operations at one or more landfills.

Unincorporated Service Areas

The County of Santa Clara does not own or operate any landfills and thus cannot require general salvaging. However, some landfills currently have extensive salvaging activities. The County could encourage increased salvage of specific materials, such as yard waste, wood waste, white goods, tires, particularly from self-haul loads.

Evaluation of Alternative 12

Effectiveness: This alternative is effective in diverting targeted recyclable materials from the waste stream.

Hazard: Workers may be at risk due to refuse collection trucks coming in and out regularly and from working around large, moving equipment, such as loaders, dozers, and compactors. Also, hazards could arise from workers' exposure to potentially hazardous materials in the waste stream.

Ability to Accommodate Change: Salvaging at disposal or transfer facilities is readily adaptable to changing conditions.

Consequences to the Waste Stream: This alternative has no known impact on shifts in waste-type generation.

Implementation Period: Salvage operations currently exist at some landfills. This alternative could be easily implemented in the short-term. However, six months to one year could be required to begin salvaging at a landfill if solid waste facility permit revisions are required.

Facility Requirements: This alternative can be integrated into existing facilities, although space constraints could be a problem at some facilities. For salvaging, a cement pad to serve as a special sorting area is preferable, though not required.

Consistency with Local Plans and Policies: This alternative is consistent with local plans and policies.

Institutional Barriers: Disposal or transfer facility permits may prohibit salvaging. In such cases, permits would have to be revised in order to incorporate a salvaging operation.

Estimated Cost: Cost of a salvage operation could be covered by the value of materials removed for recycling/reuse. Cost for recovery of some materials could require a per ton subsidy to fund the program, over time the need for such subsidies would vary based on market prices for various commodities.

End Uses: See Market Conditions (page IV - 45).

Public vs. Private Operation: Salvaging programs could be operated at both public and private landfills. Most wastes originating in the unincorporated area of the County are disposed in private landfills, therefore such landfills would be the focus of any County program.

Alternative 13: Divert Inert Materials

Inert materials include soil, concrete, and asphalt. Demolition and construction debris, which can include wood and rebar as well as the items listed above, is generally considered to be inert material as well. Inert materials are easily recovered and account for a large portion of the waste stream by weight. The County of Santa Clara could increase the diversion of inert materials in the unincorporated area in one or more of the following ways:

1. Require all public works projects to use inert materials as substitutes for other materials. For example, crushed concrete can be used as road base instead of gravel.

2. Provide for priority purchase of recycled inert materials for public works projects when feasible.

3. Provide information to private construction and demolition contractors on the costs of recycling versus disposal, the benefits of recycling, and the alternatives to disposal.

4. Impose permit requirements that require private construction and demolition contractors to divert inert materials. For example, permits could require that wastes be segregated by type and delivered for recycling.

5. Impose permit requirements which encourage private construction contractors to use recycled inert materials when feasible.

6. Encourage or require facilities which receive wastes from unincorporated areas to divert inert materials from the waste stream.

Evaluation of Alternative 13

Effectiveness: This alternative would be effective in reducing the amount of targeted recyclable materials in the waste stream.

Hazard: Processing operations for inert materials are noisy (requiring ear protection), can produce a substantial amount of dust, and can create other hazards from use of large chipping, shredding, and crushing equipment.

Ability to Accommodate Change: This alternative can readily adapt to changing conditions.

Consequences to the Waste Stream: This alternative will have no impact on shifts in waste-type generation.

Implementation Period: This alternative could easily be implemented in the short-term planning period (1995).

Facility Requirements: No facilities are required as this alternative is intended to be integrated into existing processing facilities.

Consistency with Local Plans and Policies: This alternative may require changes in the County permitting requirements and purchasing policies. Resistance to change in use of construction materials for public and/or private projects could be a problem.

Institutional Barriers: There are no known institutional barriers to implementing this alternative.

Estimated Cost: Cost of an inert processing operation could be covered by the value of materials removed for recycling/reuse. Cost for recovery of some materials could require a per ton subsidy to fund the program, over time the need for such subsidies would vary based on market prices for various materials. Some landfill operators promote the recycling of inert materials by offering a favorable disposal rate for clean loads of such materials in comparison with the disposal rate for disposal of mixed wastes or mixed loads of inert materials. Cost to the County for promoting additional recycling of inert materials could range from:

1. Staff cost of developing a contractor information campaign;
2. Staff cost of developing and implementing new policies and procedures;
3. The cost of implementing a price preference for purchase of inert materials for public projects.

Actual cost would depend on the program components selected for implementation.

End Uses: Inert materials are primarily used for road base or drainage material.

Public vs. Private Operation: Operation of a processing facility could be public or private. Currently in Santa Clara County, salvage and processing of inert materials is done by private firms.

Alternative 14: Changes to Zoning and Code Practices

The County of Santa Clara could promote recycling activities through regulatory approaches such as zoning, land-use, and building code requirements. Revisions to zoning and building code requirements could include:

1. Adoption of an ordinance to require all new development projects to plan and provide for recycling needs in building and site design. State law currently requires implementation of a State model ordinance or the adoption of a local ordinance by September 1993.

2. Requirements that specify waste and recycling planning as a condition of establishing a new business, relocate an existing business, or developing property for commercial or residential purposes. The development plan could require descriptions of programs to be implemented to encourage materials separation and recycling at the developed area.

3. Identify zoning areas that are suitable for facilities that will sort, process, market, or utilize recyclable materials in production.

Evaluation of Alternative 14

Effectiveness: The effectiveness of these regulatory programs would depend on the level of change that would result from regulations adopted by the County of Santa Clara, the materials targeted, efforts by local developers, and the level of enforcement.

Hazard: There are no environmental hazards associated with these regulatory programs.

Ability to Accommodate Change: The regulatory measures outlined in this alternative are flexible and could accommodate changes in recycling techniques and recovery processes as well as changes in local recycling programs and regulations. Regulatory programs can be adapted to new types of materials and products as well as changes in the waste stream. However, effective regulation of development necessitates that local codes and ordinances remain relatively stable over time in order to provide for adjustments by developers for inclusion in all project plans.

Consequences to the Waste Stream: This alternative has no known impact on shifts in waste-type generation.

Implementation Period: Regulatory programs, such as zoning, building code, and land-use requirements could be implemented in the short-term time period. Under AB 1327, the County must adopt an ordinance or enforce a state model ordinance relating to provision of adequate area for collecting and loading of recyclable materials in new development projects by September 1, 1993. Other regulatory programs outlined in this alternative would be subject to an extensive development and approval process. The complexity of (and possible opposition to) regulatory programs may preclude implementation in the short-term.

Facility Needs: There are no facility requirements for this alternative.

Consistency with Local Plans and Policies: Regulatory programs would require changes in current County requirements and policies. However, County policies generally support recycling throughout the community.

Institutional Barriers: New regulatory requirements for residential and commercial areas within the jurisdiction could be considered to be an impediment to attracting new growth and investment in the community, especially if requirements are absent or substantially different in neighboring jurisdictions.

Estimated Cost: Each of the options outlined in this alternative would require County staff resources for developing, administering, implementing, monitoring, and enforcing the program. Total costs to the county are estimated to range from $2,500 to $5,000.

End Uses: See Market Conditions (page IV - 45).

Public vs. Private Operation: Not applicable.

Alternative 15: Market Development

The availability of markets for recycled materials is essential to successful recycling programs. County options for support of market development include:

1. Participation in State-wide market development efforts sponsored by the California Integrated Waste Management Board.

2. Adoption of procurement policies and ordinances to support recycling by County government offices (procurement policies and ordinances are addressed in the Source Reduction Component).

3. Promotion of the use of products with recycled content by businesses and the public through public education and information programs.

4. Provision of technical assistance to businesses to support of the use of products with recycled content.

5. Support of state and federal legislation that will result in improved markets for recyclable materials, such as minimum-content requirements and advance disposal fees on selected products.

6. Cooperate and assist other jurisdictions with applications for a Recycling Market Development Zone designation under SB 1322. A designated

Zone offers state and local government incentives to attract industries that use post-consumer waste as a feedstock in manufacturing processes. Recycling Market Development Zones could stimulate economic development by increasing jobs and increasing the tax base, as well as providing a market for local recyclables.

Evaluation of Alternative 15

Effectiveness: This alternative could be effective in supporting local markets for recyclable materials.

Hazard: This alternative presents no major hazards.

Ability to Accommodate Change: County market development policies and program efforts can be readily adapted to changing conditions.

Consequences to the Waste Stream: Successful market development programs could strengthen markets for specific materials, thus reducing the cost of recycling that material. This could provide an incentive for the County, businesses, and residents to use that material instead of one that is more difficult or costly to recycle.

Implementation Period: These program options could be implemented in the short-term planning period (1995).

Facility Needs: There are no facility requirements for this alternative.

Consistency with Local Plans and Policies: This alternative is consistent with local plans and policies.

Institutional Barriers: A Market Development Zone requires designation by the CIWMB. Many jurisdictions compete for a limited number of zone designations. There are no other known institutional barriers to implementing this alternative.

Estimated Cost: Each of the options outlined in this alternative would require County staff resources for such tasks as: developing proposed policies and ordinances, developing and implementing public information and technical assistance programs, developing positions on proposed legislation, coordinating and preparing Market Development Zone applications in cooperation with other

jurisdictions. Total costs to the county are estimated to range from $4,000 to $6,000.

End Uses: See Market Conditions (page IV - 45).

Public vs. Private Operation: Not applicable.

SELECTION OF PROGRAM ALTERNATIVES

This section describes the specific alternatives selected for implementation. Selection of alternatives is based on the characteristics of the County waste stream as identified in the Waste Generation Study, existing conditions, status of current recycling programs, coordination with adjacent cities, and the contribution of each program to the County's ability to meet AB 939 diversion requirements. Details on the programs selected for implementation are described in the preceding section, Evaluation of Alternatives. Public Education programs to support new or expanded programs are discussed in the Public Information and Education Component of this Element.

Short-Term Planning Period

Programs for Specific Portions of the Unincorporated Area

Program 1: Basic Curbside Collection (Alternative 1) for the Burbank area of San Jose.

Program 2: Expanded Curbside Collection (Alternative 2) for the San Jose, South Valley, West Valley, and North County areas.

Program 3: Multifamily Recyclables Collection (Alternative 5) for the San Jose and North County areas.

Program 4: Encourage Independent Commercial/Industrial Recycling (Alternative 8) for the San Jose, South Valley, and North County areas.

Program 5: Evaluate Increased Drop-Off Recycling Centers (Alternative 7) for the Lexington Hills Area.

Countywide Programs

Program 6: Divert Inert Materials (Alternative 13)

Program 7: Change Zoning and Code Practices (Alternative 14)

Program 8: Support Market Development (Alternative 15)

Medium-Term Planning Period

Program 9: Consider Franchising Commercial/Industrial Collection (Alternative 9) in the unincorporated area.

Discussion of Selected Programs for Specific Portions of the Unincorporated Area

Program 1: Basic Curbside Collection for the Burbank area.

Selection Rationale: As noted above, curbside collection of recyclable materials is the most effective method of collecting the maximum amount of residential recyclables and achieving high rates of participation.

Potential Diversion: Basic curbside recycling programs typically cover entire jurisdictions and result in 5 to 9 percent diversion. This program is expected to divert 0.2% of the total waste stream.

Handling Methods: Basic curbside recycling services are typically provided by the waste collection hauler. The District Board is considering a curbside recycling program similar to other unincorporated area residential programs for the Burbank Sanitary District. Collection, processing, and marketing of materials will be the responsibility of the service provider for each area.

Required Facilities: A facility will be required to process materials collected by these programs. At present there is enough sorting capacity at existing facilities in the County to manage materials generated by these programs.

Program 2: Expanded Curbside Collection for the San Jose, South Valley, West Valley, and North County areas.

Selection Rationale: County policy for the unincorporated area is to provide waste collection and recycling services that are comparable to those provided

to residents of adjacent cities. Expanded curbside recycling programs can divert a significant number of materials and will thus assist the County in meeting diversion goals for the unincorporated areas.

Potential Diversion: This program is expected to divert 4.8% of the total waste stream.

Handling Methods: This program will collect additional recyclable materials, as described in Alternative 2. The County will contract for collection, processing, and marketing of collected materials. Additional materials will be commingled with other materials or additional containers will be used. There is sufficient processing capacity in the private sector to handle the volume of materials to be collected in this program.

Required Facilities: A facility will be required to process materials collected by these programs. At present there is enough sorting capacity at existing facilities in the County to manage materials generated by these programs.

Program 3: Multifamily Recyclables Collection for the San Jose and North County areas

Selection Rationale: Curbside collection of recyclable materials is the most effective method of collecting the maximum amount of residential recyclables and achieving high rates of participation. This program will provide basic recycling services to residents of multifamily facilities located in the unincorporated area. Services will be comparable to those in adjacent cities. This program will collect a significant number of materials and will thus assist the County in meeting diversion goals for the unincorporated area.

Potential Diversion: This program is expected to divert 0.1% of the total waste stream.

Handling Methods: This program will collect the materials listed in Alternative 5 for each of the target areas. The County will contract for collection, processing, and marketing of collected materials. Materials will be collected using either divided dumpsters or wheeled carts. There is sufficient processing capacity in the private sector to handle the volume of materials to be collected by this program.

Required Facilities: A facility will be required to process materials collected by these programs. At present there is enough sorting capacity at existing facilities in the County to manage materials generated by these programs.

Program 4: Encourage Independent Commercial/Industrial Recycling for the San Jose, South Valley, and North County areas.

Selection Rationale: Many recycling businesses in the County are capable of providing commercial/industrial recyclables collection and processing services. It is hoped that a free market system can divert enough materials to meet County diversion goals. The County will support the success of this program through provision of technical assistance to businesses to increase their participation in recycling and knowledge of the alternatives available.

Potential Diversion: This program is expected to divert approximately 25% of the Commercial/Industrial waste stream or 4.9 of the total waste stream.

Handling Methods: Materials may be processed by the company which collects the material or by a separate processing company.

Required Facilities: A facility will be required to process the recyclable materials collected from commercial/industrial generators. Currently, there is enough sorting and procesing capacity at existing facilities in the County to manage materials collected from commercial/industrial firms, however any additional facilities will be provided by private recycling companies.

Program 5: Evaluate Increased Drop-Off Recycling Centers for the Lexington Hills Area

Selection Rationale: Additional drop-off recycling centers could provide increased service in the Lexington Hills area as an alternative to curbside recyclables collection services and to serve residents not currently receiving garbage service.

Potential Diversion: This program would probably divert less than 0.1% of the total waste stream.

Handling Methods: Clearly marked dumpsters or wheeled carts could be placed in secure and convenient locations for the collection of recyclable

materials. The County could work with the local hauler to develop, service, and maintain collection centers.

Required Facilities: Minor property improvements at proposed drop-off centers might be required, such as fencing and paving. A facility would be required to process materials collected by this program. At present there is enough sorting capacity at existing facilities in the County to manage materials generated by this program.

Discussion of Selected Countywide Programs

Program 6: Divert Inert Materials

Selection Rationale: Inert materials constitute much of the waste stream and are relatively easy to divert.

Potential Diversion: This program is expected to divert approximately 2,100 tons per year by 1995 or 1.6% of the total waste stream.

Handling Methods: The County will provide information on diversion options to construction and demolition companies through the permitting process.

Required Facilities: A facility will be required to process materials collected by this program. At present there is enough sorting capacity at existing facilities in the county to manage inert materials generated by this program.

Program 7: Change Zoning and Code Practices

Selection Rationale: The County of Santa Clara will evaluate possible changes to zoning and building codes that would be intended to encourage recycling. The County will review and comment on laws and regulations proposed for adoption by the State.

Potential Diversion: This program does not directly divert materials from the waste stream, it provides support and compliments other selected programs. Because of the difficulty in measuring diversion from this type of program, no diversion target has been assigned.

Handling Methods: Not applicable to this program.

Required Facilities: Not applicable to this program.

Program 8: Market Development

Selection Rationale: As noted above, the availability of markets for recyclable materials is essential to successful recycling. The County recognizes the need to develop markets for recycled products and will take an active role in supporting the creation of such markets.

Potential Diversion: This program does not directly divert recyclable materials, it provides support for other selected programs. Because of the difficulty in measuring diversion from this type of program, no diversion target has been assigned.

Handling Methods: Not applicable to this program.

Required Facilities: Not applicable to this program.

Medium-Term Planning Period

Program 9: Consider Franchising Commercial/Industrial Collection

Selection Rationale: Achieving waste diversion goals in the County will require recovery of a large portion of the commercial/industrial waste stream. A review of diversion achieved by commercial/industrial businesses through the services of independent recyclers will be conducted in the medium term to determine if long term goals will be achieved. If necessary, the County will consider franchising commercial/industrial collection. Franchised collection could provide dependable services which are less affected by changes in markets.

Potential Diversion: The diversion that might be realized by implementing this program is unknown at this time.

Handling Methods: Businesses will receive weekly collection of source separated recyclables. Collection methods may vary to meet the needs of the business and the capabilities of haulers. The County will contract with a hauler for the collection, processing, and marketing of materials.

Required Facilities: A facility will be required to process materials collected by this program. At present there is enough sorting capacity at existing facilities in the County to manage inert materials generated by this program.

END USES AND MARKET CONDITIONS

Viable markets for recovered materials are essential to the success of recycling programs. Reliance on the mere separation and collection of materials is inadequate for compliance with AB 939 diversion mandates unless those materials can be effectively marketed over the long term at a minimal public subsidy.

This section discusses existing market conditions relevant to the County of Santa Clara. The focus is on markets for those materials most often collected through recycling programs, such as various paper grades, plastics, metals, and glass. In addition, anticipated County efforts for support and development of markets, as discussed in Alternative 14 above, could result in County participation in a Recycling Market Development Zone established under SB 1322. The County of Santa Clara benefits from contracts that local waste industry companies have established with various processors nationwide.

Overview of Markets for Recyclable Commodities

Across the nation, prices for most recyclable commodities fell to unprecedented lows over the past year. Nationwide markets for green glass and office paper are glutted; prices for newspaper, aluminum beverage cans, mixed paper, and plastic fell to unprecedented lows. The recession, export container shortages, and failure of demand to keep pace with supply all contributed to the market decline. "Market" has a number of meanings in the context of sales of recyclable commodities. There are at least two and sometimes three separate but related markets that together make up the "market for recyclables."

The processing market (Recycling operators and materials brokers who purchase "raw" secondary material): Most local firms clean and process at least some of the materials that they collect; other materials are sold to private processors. Prices brought by various commodities are based on the quality of the material, which is influenced by the collection and sorting methods used.

The manufacturing market (Companies which use a recyclable material as a feedstock for a manufacturing process): Buyers in this market are looking for high-quality materials in a form that can substitute for a virgin raw material in a manufacturing process. Manufacturing markets are addressed by various California Integrated Waste Management Board (CIWMB) programs.

The consumer market (The general public and commercial/industrial purchasing agents): Buyers in this market choose among a variety of products which compete to meet a particular need. This market is directly affected by government and private industry procurement programs, as well as by other consumers. An increase in demand in the consumer market stimulates growth in the two "raw materials" markets described above. By purchasing products made from recycled materials, the public and government can help to assure sufficient demand for products made from recycled materials. In addition, minimum content legislation influences consumer markets by assuring a demand for products made with recycled content, which in turn stimulates expansion in the manufacturing market.

The health, strength and size of the manufacturing and consumer markets have a direct bearing on the processing market. Creating demand at both of these levels can result in a dependable outlet for the materials collected in every jurisdiction. Sufficient demand for recyclable commodities will stabilize their value, and thus reduce the public subsidy necessary for maintaining supply.

Local Processing Markets

In Santa Clara County, market prices for recovered materials have declined, mirroring the national situation. One local recycling manager calls the current market the worst in thirty years. Prices for all commodities are considerably lower than they were six months ago.

In the past, clean recyclables brought one price while lower-quality, contaminated recyclables brought another. ("Contaminants" are materials harmful to a recycling process which may be present in a load of recyclable material, such as gummed labels or tape in newspaper or ceramic coffee mugs in a load of glass.) However low the price, no materials were ever completely rejected. That has changed; contaminated loads are regularly rejected in today's markets. Ensuring quality has become an integral part of day-to-day operations at local recycling centers. The highest quality commodities still bring the best prices, but few loads are completely uncontaminated and therefore must be sold at lower prices.

Old Newspaper (ONP). ONP is the main grade of waste paper collected from the residential sector. At present, the amount of ONP that is available nationwide for recycling far exceeds the demand. 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 newspaper or reuse it. The de-inking capacity in the United States is expected to increase in the future to meet the anticipated demand. It is estimated that the demand for ONP will almost double by 1995 due to increases in processing capacity, exports of ONP, increases in the paperboard market, and other factors. A number of ONP markets are available in northern California, including the South Bay.

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 Weyerhauser Paper Company (Weyerhauser) for sales of ONP.

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 for ONP, until more newspaper recycling opportunities emerge in the next few years. OMG is used in newspaper recycling mills which have converted from a simple wash process to a flotation process for de-inking. Smurfit Companies have converted to flotation de-inking and can utilize supplies of OMG. The current price is $20 per ton; a higher price can be negotiated, based on volume. The main requirement for preparation of magazines is that they must be loose, rather than bagged or tied with string.

High-Grade 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 price for higher grades of paper are generally more stable than prices paid for lower grades. The higher the degree of separation by quality and type of paper, 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 Weyerhauser for high-grade 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; the nearest ones are in Santa Clara, San Jose, Newark, and San Leandro.

Mixed 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 primary use of mixed 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.

The housing industry and the value of the U.S. dollar overseas affect the demand for mixed paper (a strong dollar results in decreased 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 supported the growth of 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: Weyerhauser in San Jose and DAI El Papers USA Corporation in Burlingame, but other markets must be identified to support expansion of mixed paper recycling in the County.

Old Corrugated Containers (OCC). The amount of OCC consumed in the U.S. is approximately 15 million tons per year, due to its use in shipping packaging for most consumer products. OCC is a significant proportion of the commercial waste stream, but is a more minor part of the residential waste stream. 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 County of Santa Clara are Jefferson Smurfit and Weyerhauser in San Jose and DAI EI Papers USA Corporation in Burlingame. Some local haulers have contracts with Weyerhauser for OCC.

Aluminum Cans. Approximately half of the aluminum in the waste stream is in the form of drink containers. The "return for deposit" waste recovery system for aluminum cans is highly successful. Compared with other recyclables, aluminum cans command the greatest price per pound. Separated aluminum cans can be remelted and made directly into can stock. Other 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 of the AB 2020 redemption value raises the total market price. Markets for aluminum cans exist in the U.S. and abroad.

Steel Food and Beverage Containers. Bimetal cans used as food containers are steel cans with a thin coating of tin. The percentage of tin in steel cans usually totals about 0.25 percent[1] and is worth approximately $3 to $4 per pound. Even this small amount of tin is a source of contamination in steel manufacturing. For this reason, detinning is used to reclaim valuable tin and improve the quality of the steel scrap. Sometimes post-consumer steel cans and scrap are used

1 "A Force in Detinning," by Tom Watson, *Resource Recovery,* January/February 1989, p.18.

directly as a raw material.[2] Steel can recycling is expanding, due in part to increased participation by steel mills and detinning mills in collecting and purchasing used steel cans.[3]

The major detinning companies have opened new facilities around the U.S. to accommodate the influx of steel cans and demand from the steel industry. This has helped decrease transportation distances for recyclers.[4]

Glass Cullet. Waste glass usage in the U.S. is estimated at 25 to 30 percent of the glass produced. Glass 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, contaminants can cause damage to glass-making equipment or result in poor quality product. Curbside collection of commingled glass produces mixed-color cullet. Markets for mixed-color cullet are less stable with lower overall prices in comparison with markets 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.

Two markets for recovered glass are Golden State Glass Recycling in Newark and California CRINC in San Leandro. Neither charges a processing fee to take the materials. The glass market has become problematic for many recyclers recently, due to increased quality standards and demand 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 of the AB 2020 redemption values raises the total market price.

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2 Watson, p. 18.

3 "The Steel Can's Push for Recycling Respect," by Michael Misner, *Waste Age*, February 1991, p. 69.

4 Recyclable Steel Cans: An Integral Part of Your Curbside Recycling Program, *Steel Can Recycling Institute*, Summer 1990, p. 14.

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

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

High-density polyethylene (HDPE) is used in the manufacture of jugs (milk, cider, distilled water) and bottles (laundry and dish detergent, motor oil, antifreeze). Although the market for recycled HDPE is growing, sanitary restrictions prevent recycling of these items into food packaging. Major potential markets for recycled HDPE are soft drink basecups, plastic lumber, containers, drums, pails, and various types of pipes. One major West Coast processor of HDPE is Partek in Vancouver, Washington. 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 per year is made into trash bags. It is also used to make piping, to coat wires and cables,[5] and in the manufacture of rigid items, such as food storage containers and flexible lids.[6] LDPE is used in plastic grocery bags, which are increasingly being separated for recycling. Four manufacturers provide most of the grocery sacks in North America and are active in supporting the separation of plastic grocery sacks from the waste stream to be made into new products.[7]

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5 "Progress in Plastics Recycling", by Jim Glenn, *BioCycle*, December 1990, p. 53

6 "All Plastics Are Not Created Equal," by Jerry Powell, *Resource Recycling*, May 1990, p. 41.

7 "Plastic Grocery Sack Recycling," by Arthur Amidon, *Resource Recycling*, November 1990, p. 24.

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.[8]

Polystyrene. There are various forms of polystyrene, the most familiar is expanded polystyrene foam (EPS) commonly referred to as styrofoam. The uses for EPS include fast-food single serve cups and trays and packing materials in both rigid, molded form, and in loose form or "peanuts." 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. Louisiana Pacific Company in Oroville expects to use a steady supply of telephone books for its particle board manufacture once equipment for that process is in place. The company uses phone books to make up approximately 10% of the content of its particle board. The company is presently acquiring the additional equipment necessary to expand its capacity. However, in 1992, 90% of the phone books collected in the County were marketed overseas.

Inert Solids. Asphalt and concrete from construction and demolition is often landfilled, although much of it is recyclable. Local recyclers are Raisch Products in San Jose and Sunnyvale, 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 serve as buyers for local recyclers.

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8 "Dow and Sealed Air Join to Recycle LDPE Scrap," by Susan Combs, *Recycling Times*, January 29, 1991, p. 9

PROGRAM IMPLEMENTATION

Table IV - 9 (See IV - Appendix) defines the tasks necessary for implementing selected programs, identifies the party responsible for completing each task, and establishes an implementation schedule. Implementation costs for each of the selected programs are presented in Table IV - 10 (See IV - Appendix).

MONITORING AND EVALUATION

This section establishes systems for monitoring and evaluating selected programs. The responsible agency, funding requirements, and shortfall measures are specified for each program. Details about the programs have been included in each respective implementation table.

Monitoring Methods

Santa Clara County Office of Toxics and Solid Waste Management is responsible for the implementation, monitoring, and evaluation of recycling programs. The Office of Toxics and Solid Waste Management will periodically assess ongoing recycling programs using the criteria described below to determine if a program should be continued, altered, updated, or discontinued.

Criteria for evaluating programs

1. Does the program divert, in volume and/or weight, the quantity of material expected and/or sufficient quantity to meet program objectives?

2. Is the participation of residents or businesses adequate?

3. Has promotion of the program been sufficient?

4. Has the program made a measurable difference in the amount of waste disposed?

5. Have markets for collected materials been stable? Are markets expected to be favorable during the next year?

6. Are program costs acceptable given the level of diversion achieved by the program?

The Office of Toxics and Solid Waste Management will collect data on recycling programs using more of the following: waste generation studies, targeted solid waste characterization studies, and product assessments.

Reporting Requirements: The County of Santa Clara could require businesses whose primary function is related to recycling (such as recyclers, garbage haulers, scrap dealers, etc.) to maintain records and submit periodic reports to the County on the quantity, by waste type, of materials that are diverted through recycling. Businesses could also be required to identify the organizations or individuals to whom they sell or donate their materials.

Funding Requirements. The monitoring and evaluation program described in this section will be funded from the Countywide AB 939 Implementation Fee, rate increases, rate surcharges, sale of recyclable materials, and/or grants. Monitoring and evaluation costs are estimated at 15% of the estimated program cost. Costs would include: (1) administrative activities, (2) recordkeeping, (3) program monitoring and surveying, (4) tracking of survey results, and (5) annual report-writing.

Short-Fall Measures. If the programs described above fail to meet the goals and objectives of this component, the following measures will be considered:

- Analysis of existing programs and alternative programs for obstacles to successful implementation.
- Modification of selected alternatives, including degree, scope, or extent of recycling activity and implementation schedule.
- Additional funding and staff.
- Development of cooperative relationships with other cities or counties in order to market materials more effectively.
- Evaluation of collection and processing activities to determine if recyclable materials adequately meet buyer's specifications.

- Evaluation of public education efforts to determine if efforts should be increased to broaden awareness of, and participation in, recycling programs.

- Evaluation of alternative markets for recovered materials.

- Evaluation of incentives which encourage the commercial/industrial sector to continue and/or expand recycling efforts.

- Address issues identified from program evaluations that could affect achievement of diversion goals.

- Consider regulatory programs or mandatory programs such as:
  - Adoption of a "mandatory participation ordinance;"
  - Modification of rate structure;
  - Revision of procurement ordinances to provide for increase use of recycled materials.

- Consider additional alternatives.

- Discontinue the program.

Monitoring and Reporting Schedule: In compliance with AB 939, periodic reports will be submitted to the CIWMB.

Table IV - 1 Residential Diversion 1995 and 2000 (Restricted Materials Eliminated)

	SHORT-TERM PLANNING PERIOD (1995)				MEDIUM-TERM PLANNING PERIOD (2000)			
MATERIAL TYPE	DIVERSION	GENERATION	PERCENT DIVERSION	DIVERSION AS % OF TOTAL WASTE GENERATED	DIVERSION	GENERATION	PERCENT DIVERSION	DIVERSION AS % OF TOTAL WASTE GENERATED
1) TOTAL PAPER	4039	13015	31.0%	3.20%	7682	13589	56.53%	5.83%
OCC/Kraft	804	2199	36.6%	0.64%	1468	2296	63.94%	1.11%
Newspaper	1716	2655	64.6%	1.36%	1393	2772	50.25%	1.06%
High Grade	29	202	14.4%	0.02%	76	211	36.02%	0.06%
Mixed Paper	786	4642	16.9%	0.62%	3541	4846	73.07%	2.69%
Other Paper	704	3317	21.2%	0.56%	1204	3463	34.77%	0.91%
2) TOTAL PLASTIC	117	2920	4.0%	0.09%	477	3049	15.64%	0.36%
HDPE containers	6	302	2.0%	0.00%	159	315	50.48%	0.12%
PET containers	94	192	49.0%	0.07%	103	200	51.50%	0.08%
Film Plastics	17	1207	1.4%	0.01%	138	1260	10.95%	0.10%
Other Plastics		1220	0.0%	0.00%	77	1274	6.04%	0.06%
3) TOTAL GLASS	1938	3395	57.1%	1.54%	2287	3544	64.53%	1.74%
Refillable Beverage	16	315	5.1%	0.01%	44	329	13.37%	0.03%
CA Redemption Value	1050	1471	71.4%	0.83%	1236	1537	80.42%	0.94%
Other Recyclable	858	1478	58.1%	0.68%	970	1543	62.86%	0.74%
Other Non-Recyclable	14	130	10.8%	0.01%	37	135	27.41%	0.03%
4) TOTAL METAL	638	2526	25.3%	0.51%	816	2638	30.93%	0.62%
Aluminum Cans	497	615	80.8%	0.39%	591	642	92.06%	0.45%
Bi-metal				0.00%		0	0.00%	0.00%
Tin	141	549	25.7%	0.11%	225	573	39.27%	0.17%
Other Ferrous		310		0.00%		324	0.00%	0.00%
Other Non-Ferrous		376		0.00%		393	0.00%	0.00%
White Goods		139		0.00%		145	0.00%	0.00%
5) YARD WASTE	4436	11105	39.9%	3.52%	9546	11594	82.34%	7.25%
6) OTHER ORGANIC	970	6560	14.8%	0.77%	1612	6849	23.54%	1.22%
Food Waste	364	3554	10.2%	0.29%	728	3711	19.62%	0.55%
Tires/Rubber	488	611	79.9%	0.39%	601	638	94.20%	0.46%
Wood Wastes	71	540	13.1%	0.06%	232	564	41.13%	0.18%
Agric Crop Residue		0		0.00%			0.00%	0.00%
Manure		0		0.00%			0.00%	0.00%
Textiles/Leather	47	733	6.4%	0.04%	51	765	6.67%	0.04%
Other Misc		1429	0.0%	0.00%		1492	0.00%	0.00%
7) OTHER WASTE	38	899	4.2%	0.03%	79	938	8.42%	0.06%
Inert Solids		797	0.0%	0.00%		832	0.00%	0.00%
Hazardous Waste	38	100	38.0%	0.03%	79	105	75.24%	0.06%
8) SPECIAL WASTE	7	13	53.8%	0.01%	9	14	64.29%	0.01%
mattresses				0.00%			0.00%	0.00%
other special waste				0.00%			0.00%	0.00%
9) UNIDENTIFIED WASTE				0.00%			0.00%	0.00%
TOTALS	12183	39584	30.8%	9.66%	22508	41327	54.46%	17.09%

Table IV - 2 Commercial Diversion 1995 and 2000 (Restricted Materials Eliminated)

	SHORT-TERM PLANNING PERIOD (1995)				MEDIUM-TERM PLANNING PERIOD (2000)			
MATERIAL TYPE	DIVERSION	GENERATION	PERCENT DIVERSION	DIVERSION AS % OF TOTAL WASTE GENERATED	DIVERSION	GENERATION	PERCENT DIVERSION	DIVERSION AS % OF TOTAL WASTE GENERATED
1) TOTAL PAPER	4331	10306	42.0%	3.43%	7884	10760	73.27%	5.99%
OCC/Kraft	2269	3615	62.8%	1.80%	2974	3775	78.78%	2.26%
Newspaper	304	969	31.4%	0.24%	842	1012	83.20%	0.64%
High Grade	147	464	31.7%	0.12%	350	484	72.31%	0.27%
Mixed Paper	1042	2972	35.1%	0.83%	2211	3103	71.25%	1.68%
Other Paper	569	2285	24.9%	0.45%	1507	2386	63.16%	1.14%
2) TOTAL PLASTIC	147	2371	6.2%	0.12%	862	2475	34.83%	0.65%
HDPE containers	70	259	27.0%	0.06%	143	270	52.96%	0.11%
PET containers	4	27	14.8%	0.00%	11	29	37.93%	0.01%
Film Plastics	73	945	7.7%	0.06%	389	986	39.45%	0.30%
Other Plastics		1140	0.0%	0.00%	319	1189	26.83%	0.24%
3) TOTAL GLASS	442	872	50.7%	0.35%	596	910	65.49%	0.45%
Refillable Beverage		188	0.0%	0.00%	27	175	15.43%	0.02%
CA Redemption Value	197	355	55.5%	0.16%	276	371	74.39%	0.21%
Other Recyclable	188	271	69.4%	0.15%	224	283	79.15%	0.17%
Other Non-Recyclable	57	77	74.0%	0.05%	69	80	86.25%	0.05%
4) TOTAL METAL	95	852	11.2%	0.08%	166	889	18.67%	0.13%
Aluminum Cans	56	75	74.7%	0.04%	69	78	88.46%	0.05%
Bi-metal				0.00%			0.00%	0.00%
Tin	39	418	9.3%	0.03%	97	437	22.20%	0.07%
Other Ferrous		434		0.00%		453	0.00%	0.00%
Other Non-Ferrous		104		0.00%		109	0.00%	0.00%
White Goods				0.00%			0.00%	0.00%
5) YARD WASTE	403	1767	22.8%	0.32%	1534	1845	83.14%	1.16%
6) OTHER ORGANIC	583	6020	9.7%	0.46%	1884	6285	29.98%	1.43%
Food Waste		3606	0.0%	0.00%	1121	3765	29.77%	0.85%
Tires/Rubber	354	405	87.4%	0.28%	378	423	89.36%	0.29%
Wood Wastes	202	262	77.1%	0.16%	215	273	78.75%	0.16%
Agric Crop Residue				0.00%			0.00%	0.00%
Manure				0.00%			0.00%	0.00%
Textiles/Leather	27	373	7.2%	0.02%	76	390	19.49%	0.06%
Other Misc		394	0.0%	0.00%	94	412	22.82%	0.07%
7) OTHER WASTE	128	314	40.8%	0.10%	203	327	62.08%	0.15%
Inert Solids		69	0.0%	0.00%		72	0.00%	0.00%
Hazardous Waste	128	251	51.0%	0.10%	203	262	77.48%	0.15%
8) SPECIAL WASTE	17	433	3.9%	0.01%	18	452	3.98%	0.01%
mattresses	8	20		0.01%	18		0.00%	0.01%
other special waste				0.00%		21	0.00%	0.00%
9) UNIDENTIFIED WASTE				0.00%			0.00%	0.00%
TOTALS	6146	24461	25.1%	4.87%	13147	25539	51.48%	9.98%

Table IV - 3 Industrial Diversion 1995 and 2000 (Restricted Materials Eliminated)

	SHORT-TERM PLANNING PERIOD (1995)				MEDIUM-TERM PLANNING PERIOD (2000)			
MATERIAL TYPE	DIVERSION	GENERATION	PERCENT DIVERSION	DIVERSION AS % OF TOTAL WASTE GENERATED	DIVERSION	GENERATION	PERCENT DIVERSION	DIVERSION AS % OF TOTAL WASTE GENERATED
1) TOTAL PAPER	2695	6263	43.0%	2.14%	4691	6539	71.74%	3.56%
OCC/Kraft	1113	2239	49.7%	0.88%	1842	2338	78.79%	1.40%
Newspaper	106	377	28.1%	0.08%	272	394	69.04%	0.21%
High Grade	330	694	47.6%	0.26%	527	725	72.69%	0.40%
Mixed Paper	643	1727	37.2%	0.51%	1403	1803	77.81%	1.07%
Other Paper	503	1225	41.1%	0.40%	647	1279	50.59%	0.49%
2) TOTAL PLASTIC	76	2539	3.0%	0.06%	320	2651	12.07%	0.24%
HDPE containers	26	170	15.3%	0.02%	78	178	43.82%	0.06%
PET containers	3	11	27.3%	0.00%	13	11	118.18%	0.01%
Film Plastics	47	409	11.5%	0.04%	156	427	36.53%	0.12%
Other Plastics		1949	0.0%	0.00%	73	2035	3.59%	0.06%
3) TOTAL GLASS	106	341	31.1%	0.08%	209	356	58.71%	0.16%
Refillable Beverage		34	0.0%	0.00%	17	35	48.57%	0.01%
CA Redemption Value	29	74	39.2%	0.02%	54	77	70.13%	0.04%
Other Recyclable	77	169	45.6%	0.06%	117	177	66.10%	0.09%
Other Non-Recyclable		64	0.0%	0.00%	21	67	31.34%	0.02%
4) TOTAL METAL	91	1665	5.5%	0.07%	146	1738	8.40%	0.11%
Aluminum Cans	58	70	82.9%	0.05%	68	74	91.89%	0.05%
Bi-metal				0.00%			0.00%	0.00%
Tin	33	135	24.4%	0.03%	78	141	55.32%	0.06%
Other Ferrous		1548		0.00%		1616	0.00%	0.00%
Other Non-Ferrous		95		0.00%		99	0.00%	0.00%
White Goods		2		0.00%		2	0.00%	0.00%
5) YARD WASTE	141	2468	5.7%	0.11%	1541	2577	59.80%	1.17%
6) OTHER ORGANIC	2299	5813	39.5%	1.82%	3437	6069	56.63%	2.61%
Food Waste		781	0.0%	0.00%		816	0.00%	0.00%
Tires/Rubber	294	386	76.2%	0.23%	328	403	81.39%	0.25%
Wood Wastes	2005	3659	54.8%	1.59%	3109	3820	81.39%	2.36%
Agric Crop Residue				0.00%			0.00%	0.00%
Manure				0.00%			0.00%	0.00%
Textiles/Leather		549	0.0%	0.00%		573	0.00%	0.00%
Other Misc		711	0.0%	0.00%		742	0.00%	0.00%
7) OTHER WASTE	91	3202	2.8%	0.07%	135	3343	4.04%	0.10%
Inert Solids		3010	0.0%	0.00%		3142	0.00%	0.00%
Hazardous Waste	91	181	50.3%	0.07%	135	189	71.43%	0.10%
8) SPECIAL WASTE		1	0.0%	0.00%		1	0.00%	0.00%
mattresses				0.00%			0.00%	0.00%
other special waste				0.00%			0.00%	0.00%
9) UNIDENTIFIED WASTE				0.00%			0.00%	0.00%
TOTALS	5499	22039	25.0%	4.36%	10479	23010	45.54%	7.96%

Table IV - 4 Self Haul Diversion 1995 and 2000 (Restricted Materials Eliminated)

	SHORT-TERM PLANNING PERIOD (1995)				MEDIUM-TERM PLANNING PERIOD (2000)			
MATERIAL TYPE	DIVERSION	GENERATION	PERCENT DIVERSION	DIVERSION AS % OF TOTAL WASTE GENERATED	DIVERSION	GENERATION	PERCENT DIVERSION	DIVERSION AS % OF TOTAL WASTE GENERATED
1) TOTAL PAPER	241	1688	14.3%	0.19%	860	2075	41.45%	0.65%
OCC/Kraft	85	734	11.6%	0.07%	404	766	52.74%	0.31%
Newspaper	42	94	44.7%	0.03%	67	98	68.37%	0.05%
High Grade	15	155	9.7%	0.01%	45	161	27.95%	0.03%
Mixed Paper	14	138	10.1%	0.01%	77	145	53.10%	0.06%
Other Paper	85	867	9.8%	0.07%	267	906	29.47%	0.20%
2) TOTAL PLASTIC	18	858	2.1%	0.01%	15	896	1.67%	0.01%
HDPE containers	7	16	43.8%	0.01%	9	16	56.25%	0.01%
PET containers	11	24	45.8%	0.01%	6	25	24.00%	0.00%
Film Plastics		416	0.0%	0.00%		434	0.00%	0.00%
Other Plastics		403	0.0%	0.00%		420	0.00%	0.00%
3) TOTAL GLASS	4	97	4.1%	0.00%	8	102	7.84%	0.01%
Refillable Beverage		4	0.0%	0.00%		4	0.00%	0.00%
CA Redemption Value	2	9	22.2%	0.00%	3	9	33.33%	0.00%
Other Recyclable	2	13	15.4%	0.00%	5	13	38.46%	0.00%
Other Non-Recyclable		72	0.0%	0.00%		75	0.00%	0.00%
4) TOTAL METAL	18	1261	1.4%	0.01%	49	1317	3.72%	0.04%
Aluminum Cans	1	3	33.3%	0.00%	2	3	66.67%	0.00%
Bi-metal		29		0.00%		31	0.00%	0.00%
Tin	17	101	16.8%	0.01%	47	105	44.76%	0.04%
Other Ferrous		602		0.00%		629	0.00%	0.00%
Other Non-Ferrous		424		0.00%		443	0.00%	0.00%
White Goods		35		0.00%		37	0.00%	0.00%
5) YARD WASTE	615	3701	16.6%	0.49%	3001	3864	77.67%	2.28%
6) OTHER ORGANIC	1601	4245	37.7%	1.27%	2721	4432	61.39%	2.07%
Food Waste		162	0.0%	0.00%		169	0.00%	0.00%
Tires/Rubber	17	24	70.8%	0.01%	22	25	88.00%	0.02%
Wood Wastes	1584	3493	45.3%	1.26%	2631	3646	72.16%	2.00%
Agric Crop Residue		257		0.00%		268	0.00%	0.00%
Manure				0.00%			0.00%	0.00%
Textiles/Leather		267	0.0%	0.00%	68	279	24.37%	0.05%
Other Misc		241	0.0%	0.00%		252	0.00%	0.00%
7) OTHER WASTE		4628	0.0%	0.00%	202	4832	4.18%	0.15%
Inert Solids		4356	0.0%	0.00%		4547	0.00%	0.00%
Hazardous Waste		257	0.0%	0.00%	202	269	75.09%	0.15%
8) SPECIAL WASTE	3	3	100.0%	0.00%	3	3	100.00%	0.00%
mattresses	3	3		0.00%	3	3	100.00%	0.00%
other special waste				0.00%		0	0.00%	0.00%
9) UNIDENTIFIED WASTE				0.00%	0	0	0.00%	0.00%
TOTALS	2500	16646	15.0%	1.98%	6859	17379	39.47%	5.21%

Table IV - 5 Stanford Diversion 1995 and 2000 (Restricted Materials Eliminated)

	SHORT-TERM PLANNING PERIOD (1995)				MEDIUM-TERM PLANNING PERIOD (2000)			
MATERIAL TYPE	DIVERSION	GENERATION	PERCENT DIVERSION	DIVERSION AS % OF TOTAL WASTE GENERATED	DIVERSION	GENERATION	PERCENT DIVERSION	DIVERSION AS % OF TOTAL WASTE GENERATED
1) TOTAL PAPER	2811	8492	33.1%	2.23%	6741	8866	76.03%	5.12%
OCC/Kraft	511	1469	34.8%	0.41%	1133	1533	73.91%	0.86%
Newspaper	541	1258	43.0%	0.43%	2476	1314	188.43%	1.88%
High Grade	298	593	50.3%	0.24%	457	619	73.83%	0.35%
Mixed Paper	1461	2881	50.7%	1.16%	2675	3008	88.93%	2.03%
Other Paper		2291	0.0%	0.00%		2392	0.00%	0.00%
2) TOTAL PLASTIC	2	937	0.2%	0.00%	56	978	5.73%	0.04%
HDPE containers		88	0.0%	0.00%	37	92	40.22%	0.03%
PET containers	2	25	8.0%	0.00%	19	26	73.08%	0.01%
Film Plastics		429	0.0%	0.00%		448	0.00%	0.00%
Other Plastics		394	0.0%	0.00%		412	0.00%	0.00%
3) TOTAL GLASS	498	1150	43.3%	0.39%	823	1201	68.53%	0.62%
Refillable Beverage			0.0%	0.00%			0.00%	0.00%
CA Redemption Value	205	439	46.7%	0.16%	386	459	84.10%	0.29%
Other Recyclable	293	630	46.5%	0.23%	437	658	66.41%	0.33%
Other Non-Recyclable		81	0.0%	0.00%		85	0.00%	0.00%
4) TOTAL METAL	23	448	5.1%	0.02%	67	468	14.32%	0.05%
Aluminum Cans	13	68	19.1%	0.01%	59	71	83.10%	0.04%
Bi-metal		139	0.0%	0.00%		145	0.00%	0.00%
Tin	10	11	90.9%	0.01%	8	11	72.73%	0.01%
Other Ferrous		232	0.0%	0.00%		242	0.00%	0.00%
Other Non-Ferrous		89	0.0%	0.00%		93	0.00%	0.00%
White Goods			0.0%	0.00%			0.00%	0.00%
5) YARD WASTE		800	0.0%	0.00%	1783	835	213.53%	1.35%
6) OTHER ORGANIC	198	2947	6.7%	0.16%	478	3077	15.53%	0.36%
Food Waste		2111	0.0%	0.00%		2204	0.00%	0.00%
Tires/Rubber		20	0.0%	0.00%	58	21	276.19%	0.04%
Wood Wastes	198	805	24.6%	0.16%	420	841	49.94%	0.32%
Agric Crop Residue			0.0%	0.00%			0.00%	0.00%
Manure			0.0%	0.00%			0.00%	0.00%
Textiles/Leather		133	0.0%	0.00%		139	0.00%	0.00%
Other Misc		15	0.0%	0.00%		15	0.00%	0.00%
7) OTHER WASTE		370	0.0%	0.00%	47	386	12.18%	0.04%
Inert Solids		333	0.0%	0.00%		348	0.00%	0.00%
Hazardous Waste		36	0.0%	0.00%	47	37	127.03%	0.04%
8) SPECIAL WASTE		63	0.0%	0.00%		469	0.00%	0.00%
mattresses			0.0%	0.00%		0	0.00%	0.00%
other special waste		387	0.0%	0.00%		469	0.00%	0.00%
9) UNIDENTIFIED WASTE			0.0%	0.00%		0	0.00%	0.00%
TOTALS	3532	15032	23.5%	2.80%	9995	15694	63.69%	7.59%

Table IV - 6 Moffett Field Diversion 1995 and 2000 (Restricted Materials Eliminated)

	SHORT-TERM PLANNING PERIOD (1995)				MEDIUM-TERM PLANNING PERIOD (2000)			
MATERIAL TYPE	DIVERSION	GENERATION	PERCENT DIVERSION	DIVERSION AS % OF TOTAL WASTE GENERATED	DIVERSION	GENERATION	PERCENT DIVERSION	DIVERSION AS % OF TOTAL WASTE GENERATED
1) TOTAL PAPER	1746	4016	43.5%	1.38%	3221	4193	76.82%	2.45%
OCC/Kraft	1450	505	287.1%	1.15%	2726	527	517.27%	2.07%
Newspaper	143	63	227.0%	0.11%	288	66	436.36%	0.22%
High Grade	153	130	117.7%	0.12%	71	136	52.21%	0.05%
Mixed Paper		122	0.0%	0.00%	92	127	72.44%	0.07%
Other Paper			0.0%	0.00%	44		0.00%	0.03%
2) TOTAL PLASTIC	15	625	2.4%	0.01%	18	653	2.76%	0.01%
HDPE containers	5		0.0%	0.00%	15		0.00%	0.01%
PET containers	10	3	333.3%	0.01%	2	3	66.67%	0.00%
Film Plastics			0.0%	0.00%			0.00%	0.00%
Other Plastics			0.0%	0.00%			0.00%	0.00%
3) TOTAL GLASS	47	231	20.3%	0.04%	13	241	5.39%	0.01%
Refillable Beverage			0.0%	0.00%			0.00%	0.00%
CA Redemption Value	47	17	276.5%	0.04%	13	18	72.22%	0.01%
Other Recyclable			0.0%	0.00%			0.00%	0.00%
Other Non-Recyclable			0.0%	0.00%			0.00%	0.00%
4) TOTAL METAL	14	726	1.9%	0.01%	4	758	0.53%	0.00%
Aluminum Cans	14	6	233.3%	0.01%	4	7	57.14%	0.00%
Bi-metal			0.0%	0.00%			0.00%	0.00%
Tin			0.0%	0.00%			0.00%	0.00%
Other Ferrous		414	0.0%	0.00%		433	0.00%	0.00%
Other Non-Ferrous		44	0.0%	0.00%		46	0.00%	0.00%
White Goods			0.0%	0.00%			0.00%	0.00%
5) YARD WASTE		735	0.0%	0.00%	402	767	52.41%	0.31%
6) OTHER ORGANIC	118	1389	8.5%	0.09%	421	1450	29.03%	0.32%
Food Waste		825	0.0%	0.00%		862	0.00%	0.00%
Tires/Rubber	29	137	21.2%	0.02%	96	143	67.13%	0.07%
Wood Wastes	89	412	21.6%	0.07%	325	430	75.58%	0.25%
Agric Crop Residue			0.0%	0.00%			0.00%	0.00%
Manure			0.0%	0.00%			0.00%	0.00%
Textiles/Leather		80	0.0%	0.00%		83	0.00%	0.00%
Other Misc			0.0%	0.00%			0.00%	0.00%
7) OTHER WASTE		795	0.0%	0.00%		830	0.00%	0.00%
Inert Solids			0.0%	0.00%			0.00%	0.00%
Hazardous Waste			0.0%	0.00%			0.00%	0.00%
8) SPECIAL WASTE			0.0%	0.00%			0.00%	0.00%
mattresses			0.0%	0.00%			0.00%	0.00%
other special waste			0.0%	0.00%			0.00%	0.00%
9) UNIDENTIFIED WASTE			0.0%	0.00%			0.00%	0.00%
TOTALS	1940	8402	23.1%	1.54%	4079	8772	46.50%	3.10%

Table IV - 7 Existing Diversion by Sector, 1990 (Restricted Materials Eliminated)

	RESIDENTIAL		COMMERCIAL		INDUSTRIAL		SELF HAUL		STANFORD	
MATERIAL TYPE	DIVERTED	% OF WASTE STREAM	DIVERTED	% OF WASTE STREAM	DIVERTED	% OF WASTE STREAM	DIVERTED	% OF WASTE STREAMP	DIVERTED	% OF WASTE STREAMP
1) TOTAL PAPER	355	0.30%	7	0.01%	0	0.00%	0	0.00%	2395	2.00%
OCC/Kraft	13	0.01%	2	0.00%		0.00%		0.00%	490	0.41%
Newspaper	323	0.27%		0.00%		0.00%		0.00%	505	0.42%
High Grade		0.00%	5	0.00%		0.00%		0.00%	286	0.24%
Mixed Paper	9	0.01%		0.00%		0.00%		0.00%	1114	0.93%
Other Paper	10	0.01%		0.00%		0.00%		0.00%		0.00%
2) TOTAL PLASTIC	51	0.04%	0	0.00%	0	0.00%	0	0.00%	2	0.00%
HDPE containers	1	0.00%		0.00%		0.00%		0.00%		0.00%
PET containers	50	0.04%		0.00%		0.00%		0.00%	2	0.00%
Film Plastics		0.00%		0.00%		0.00%		0.00%		0.00%
Other Plastics		0.00%		0.00%		0.00%		0.00%		0.00%
3) TOTAL GLASS	1852	1.54%	0	0.00%	0	0.00%	0	0.00%	478	0.40%
Refillable Beverage	8	0.01%		0.00%		0.00%		0.00%		0.00%
CA Redemption Value	971	0.81%		0.00%		0.00%		0.00%	197	0.16%
Other Recyclable	873	0.73%		0.00%		0.00%		0.00%	281	0.23%
Other Non-Recyclable		0.00%		0.00%		0.00%		0.00%		0.00%
4) TOTAL METAL	446	0.37%	0	0.00%	0	0.00%	0	0.00%	22	0.02%
Aluminum Cans	434	0.36%		0.00%		0.00%		0.00%	12	0.01%
Bi-metal		0.00%		0.00%		0.00%		0.00%		0.00%
Tin	12	0.01%		0.00%		0.00%		0.00%	10	0.01%
Other Ferrous		0.00%		0.00%		0.00%		0.00%		0.00%
Other Non-Ferrous		0.00%		0.00%		0.00%		0.00%		0.00%
White Goods		0.00%		0.00%		0.00%		0.00%		0.00%
5) YARD WASTE	22	0.02%	40	0.03%		0.00%		0.00%	546	0.45%
6) OTHER ORGANIC	296	0.25%	49	0.04%	0	0.00%	700	0.58%	106	0.09%
Food Waste		0.00%		0.00%		0.00%		0.00%		0.00%
Tires/Rubber	296	0.25%		0.00%		0.00%		0.00%		0.00%
Wood Wastes		0.00%	49	0.04%		0.00%	700	0.58%	106	0.09%
Agric Crop Residue		0.00%		0.00%		0.00%		0.00%		0.00%
Manure		0.00%		0.00%		0.00%		0.00%		0.00%
Textiles/Leather		0.00%		0.00%		0.00%		0.00%		0.00%
Other Misc		0.00%		0.00%		0.00%		0.00%	0	0.00%
7) OTHER WASTE	24	0.02%	0	0.00%	0	0.00%	0	0.00%		0.00%
Inert Solids		0.00%		0.00%		0.00%		0.00%		0.00%
Hazardous Waste	24	0.02%		0.00%		0.00%		0.00%		0.00%
8) SPECIAL WASTE	0	0.00%	0	0.00%	0	0.00%	3	0.00%	0	0.00%
ash		0.00%		0.00%		0.00%		0.00%		0.00%
sewage sludge		0.00%		0.00%		0.00%		0.00%		0.00%
industrial sludge		0.00%		0.00%		0.00%		0.00%		0.00%
asbestos		0.00%		0.00%		0.00%		0.00%		0.00%
auto shredder waste		0.00%		0.00%		0.00%		0.00%		0.00%
auto bodies		0.00%		0.00%		0.00%		0.00%		0.00%
mattresses		0.00%		0.00%		0.00%	3	0.00%		0.00%
other special waste		0.00%		0.00%		0.00%		0.00%		0.00%
9) UNIDENTIFIED WASTE		0.00%		0.00%		0.00%		0.00%		0.00%
TOTALS	3046	2.54%	96	0.08%	0	0.00%	703	0.59%	3549	2.96%

Table IV - 7 Existing Diversion by Sector, 1990 (Restricted Materials Eliminated)

	MOFFETT FIELD		TOTAL	
MATERIAL TYPE	DIVERTED	% OF WASTE STREAMP	DIVERTED	% OF WASTE STREAM
1) TOTAL PAPER	780	0.65%	3537	2.9%
OCC/Kraft	480		985	0.8%
Newspaper	60		888	0.7%
High Grade	124		415	0.3%
Mixed Paper	116		1239	1.0%
Other Paper			10	0.0%
2) TOTAL PLASTIC	3	0.00%	56	0.0%
HDPE containers			1	0.0%
PET containers	3		55	0.0%
Film Plastics			0	0.0%
Other Plastics			0	0.0%
3) TOTAL GLASS	16	0.01%	2346	2.0%
Refillable Beverage			8	0.0%
CA Redemption Value	16		1184	1.0%
Other Recyclable			1154	1.0%
Other Non-Recyclable			0	0.0%
4) TOTAL METAL	6	0.00%	474	0.4%
Aluminum Cans	6		452	0.4%
Bi-metal			0	0.0%
Tin			22	0.0%
Other Ferrous			0	0.0%
Other Non-Ferrous			0	0.0%
White Goods			0	0.0%
5) YARD WASTE		0.00%	608	0.5%
6) OTHER ORGANIC		0.00%	1151	1.0%
Food Waste			0	0.0%
Tires/Rubber			296	0.2%
Wood Wastes			855	0.7%
Agric Crop Residue			0	0.0%
Manure			0	0.0%
Textiles/Leather			0	0.0%
Other Misc			0	0.0%
7) OTHER WASTE		0.00%	24	0.0%
Inert Solids			0	0.0%
Hazardous Waste			24	0.0%
8) SPECIAL WASTE			3	0.0%
ash			0	0.0%
sewage sludge			0	0.0%
industrial sludge			0	0.0%
asbestos			0	0.0%
auto shredder waste			0	0.0%
auto bodies			0	0.0%
mattresses			3	0.0%
other special waste			0	0.0%
9) UNIDENTIFIED WASTE			0	0.0%
TOTALS	805	0.67%	8199	6.8%

Table IV - 8

Recycling Implementation Plan

Task	Responsible Agency	Date
Program 1 - Basic Curbside Collection - Burbank		
Begin Collection	Franchisee	3rd quarter 1993
Program 2 - Expanded Curbside Collection		
San Jose		
Develop RFP	Solid Waste Program	4th quarter 1992
Review Bids	Solid Waste Program	2nd quarter 1993
Negotiate Contract	Solid Waste Program	3rd quarter 1993
Develop Public Education Materials	Franchisee	3rd 1993/ongoing
Start Collection	Franchisee	4th quarter 1993
South Valley		
Evaluate Expansion of Curbside Program	Solid Waste Program	3rd quarter 1994
Develop Public Education Materials	Franchisee	4th quarter 1994
Collect Additional Materials	Franchisee	4th quarter 1994
West Valley and North County		
Evaluate Expansion of Curbside Program	Solid Waste Program	4th quarter 1993
Develop Public Education Materials	Franchisee	1st quarter 1994
Collect Additional Materials	Franchisee	4th quarter 1994

Table IV - 8

Recycling Implementation Plan

Task	Responsible Agency	Date
Program 3 - Multi Family Recyclables Collection		
San Jose		
Develop RFP	Solid Waste Program	4th quarter 1994
Review Bids	Solid Waste Program	2nd quarter 1995
Negotiate Contract	Solid Waste Program	3rd quarter 1995
Develop Public Education Material	Franchisee	4th quarter 1995
Start Collection	Franchisee	4th quarter 1995
Program 4 - Encourage Independent Commercial/Industrial Recycling		
San Jose		
Encourage Independent Commercial/ Industrial Recycling	Solid Waste Program	4th quarter 1994
Evaluate Commercial Diversion	Solid Waste Program	1st quarter 1997
Produce Technical Assistance Guide	Solid Waste Program	2nd quarter 1997
Provide Technical Support	Solid Waste Program	2nd 1997/ongoing
North County		
Evaluate Franchising of Commercial/Industrial Recycling	Solid Waste Program	1st quarter 1996
Program 5 - Evaluate Increased Drop-Off Recycling Centers for Lexington Hills Area		
Identify Drop-Off Locations	Solid Waste Program	2nd quarter 1994
If implemented,		
Contract for Services	Solid Waste Program	3rd quarter 1994
Develop Public Education Materials	Contractor	4th quarter 1994
Open Drop-Off Sites	Contractor	4th quarter 1994

Table IV - 8

Recycling Implementation Plan

Task	Responsible Agency	Date
Program 6 - Divert Inert Materials		
Develop Educational Material for Inerts	Solid Waste Program	2nd quarter 1993
Distribute Educational Material	SWP/Planning Department	3rd 1993/ongoing
Program 7 - Change Zoning and Code Practices		
Review State Regulations on Zoning Codes	Planning Department	3rd quarter 1994
Make Recommendations on Zoning Codes	Planning Department	4th Quarter 1994
Adopt Zoning Codes	Board of Supervisors	1st quarter 1995
Program 8 - Support Market Development		
Review County Procurement Policies	Purchasing Department	to be determined
Consider Market Development Zones	Solid Waste Program	1994 - 1995

Table IV - 9

Recycling Implementation Costs

Program	Cost
Program 1 - Basic Curbside Collection	
Burbank	$1,000
Program 2 - Expanded Curbside Collection	
San Jose	$5,600
South Valley	$2,800
Weest Valley and North County	$3,000
Program 3 - Multi Family Recyclables Collection	
San Jose	$9,800
Program 4 - Encourage Independent Commercial/Industrial Recycling	
San Jose	$6,000
North County	$2,880
Program 5 - Evaluate Increased Drop-Off Recycling Centers	
Lexington Hills	$5700
Program 6 - Divert Inert Materials	$4,200
Program 7 - Change Zoning and Code Practices	$7,500
Program 8 - Support Market Development	$4,600

Section V

Composting Component

INTRODUCTION

Composting can be defined as the biological degradation of organic matter under controlled conditions to produce a usable soil amendment. Municipal composting programs generally involve the collection of compostable materials, processing of materials, and marketing of the end products. End products include: 1) usable organic compost; 2) usable mulch; and 3) wood chips for use as a mulch or ground cover, a bulking agent for sludge composting, or a boiler fuel for waste-to energy plants. The results of the County's Solid Waste Generation Study indicate that yard waste, food waste, and wood waste from construction and manufacturing processes comprise approximately 33% of the municipal solid waste generated in County unincorporated areas. These wastes are compostable materials that could be diverted from the solid waste stream through a municipal composting program.

Because compostable materials represent such a high percentage of the total waste stream, diversion of these materials through composting programs can become one of the primary means of significantly reducing the amount of solid waste that is landfilled. Note that AB 939 regulations define backyard (home) composting as source reduction, not as diversion of solid waste through composting, and requires inclusion of home composting programs in the Source Reduction Component of this document. Therefore, this component includes evaluation of diversion alternatives from off-site, larger-scale composting programs only. Also note, that because AB 939 regulations disallow it, tons of yard and wood waste diverted for use as fuel are not counted in the short-term planning period (1990-1995).

Reliance on composting as a major component of an integrated waste management plan has several economic and environmental benefits. 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
- Delayed need to incur capital costs for new landfill acquisition
- Reduced expenditure on organic soil amendments

Environmental benefits could include any or all of the following:

- Landfill space savings
- Conservation of a valuable natural resource
- Improved soil fertility and enhanced aesthetics through the application of compost
- Reduced leachate strength from reduced yard waste disposal at landfills

This component outlines the short- and medium-term objectives of the composting plan, and the status of composting programs currently underway. It then provides a summary of the various composting program alternatives that have been considered, together with an evaluation of these alternatives. Finally, the selected programs are presented with a discussion of program costs, implementation, monitoring, and evaluation.

Note that a detailed discussion of the technical and procedural guidelines for composting is beyond the scope of this document. Technical discussions of composting methods can be found in References 1 to 5.

OBJECTIVES

This section describes short- and medium-term objectives for Santa Clara County's unincorporated area composting program. The program includes diversion of organic materials both by composting (to produce compost and mulch) and by other methods of processing (e.g., the production of wood chips for landscaping purposes and boiler fuel).

The County will achieve yard and wood waste diversion quantities listed in Tables IX-2 to IX-7 (See IX - Appendix) through meeting the following objectives:

Short-Term Objectives (by 1995):

Objective 1: Establish permanent drop-off sites in appropriate areas.
Objective 2: Develop residential curbside yard waste collection and composting programs for four service areas.
Objective 3: Develop markets for compost end-products (including establishing County procurement policies that encourage purchase and use of compost program end-products).

Objective 4: Divert yard and wood waste generated at County facilities to appropriate compost processing facilities.
Objective 5: Evaluate the need for a regional composting facility.
Objective 6: Expand Holiday tree recycling program.
Objective 7: Encourage variable disposal fees for yard and wood waste.

Medium-Term Objectives

Objective 8: Participate in a feasibility study of food waste collection and composting with the Cities of Morgan Hill and Gilroy.
Objective 9: Consider implementation of a program to compost or co-compost commercially-generated food waste and other biodegradable materials with the City of San Jose.
Objective 10: Investigate the feasibility of implementing a residential yard waste curbside collection program for the South County portion of the unincorporated area.
Objective 11: Develop a residential curbside yard waste collection and composting program for the Burbank Sanitary District service area.

TARGETED MATERIALS

Waste types that are targeted for diversion through conversion into compost, landscaping soil amendment materials, or fuel have been identified using the results of solid waste generation studies. Three important considerations in choosing target waste types are:

1. Contribution towards meeting mandated diversion goals,
2. Volume and weight of the material, and
3. Compostability or fuel value of the material.

Target waste types are:

- yard waste
- wood waste from construction and manufacturing processes
- food waste

Whether these wastes are ultimately processed into compost, landscaping mulch and wood chips, or boiler fuel (wood that is incinerated to generate energy or used as firewood), will determine how the diversion can be counted towards accomplishment of AB 939 goals. Tons of waste diverted for use as

fuel (i.e. boiler fuel or firewood) cannot be included in the quantity of wastes to be diverted from landfilling by 1995. However, tons of material diverted through burning as a fuel product or firewood can be included toward quantities diverted from landfilling to meet diversion goals for the year 2000.

Processing of yard and wood waste typically begins by running waste through a wood chipper. Chipped materials are screened to separate the "fines" (i.e. materials that, after going through the chipper, fall through a 1 or 2 inch mesh screen (sawdust, leaves, small twigs) from the "overs" (chipped wood materials that won't fit through the screen). The chipping process usually results in 50% to 75% fines and 25 to 50% overs. Fines are suitable for processing into an organic compost or for sale as mulch. Overs are suitable for use as a ground cover or as a fuel.

The percentage of collected yard waste materials that ultimately are directed to composting and other non-fuel end-products (and can be included in the quantity of diverted waste in the short-term planning period) can be varied by the operator of the composting operation. An acceptable ratio of non-fuel to fuel end-products could be specified in the contract with the facility operator.

Wood waste from construction or manufacturing processes is primarily generated by the industrial sector. The ultimate deposition of the wood waste is driven by the market value of wood fuel or wood chips and mulch and is determined by the private landfill/transfer station operator. Wood waste is typically sold as fuel.

EXISTING CONDITIONS

The results of the disposed waste analysis indicate that, for the year 1990, the the following types of compostable waste were generated in the unincorporated area of the County and disposed of as solid waste:

Compostable waste, disposed of as solid waste in 1990, categorized by waste type:

	Tons/Year	% of all compostable waste	% of all disposed waste
• yard waste	18,964	50.6%	16.9%
• wood waste	7,868	20.9%	7.0%
• food waste	10,501	27.9%	9.4%
• agricultural residue	244	0.6%	0.2%
	37,577	100.0%	33.5%

Total of all waste disposed from unincorporated areas: 111,804 tons

Compostable waste, disposed of as solid waste in 1990, categorized by generator:

	Tons/Year	% of sector's disposed waste stream	% compostable solid waste
• residential sector	14,436	41.2%	36.9%
• commercial sector	5,271	25.5%	13.5%
• industrial sector	6,571	29.8%	16.8%
• self-haul sector	6,540	42.1%	16.8%
• Stanford University	2,883	25.2%	7.3%
	35,701		**100%**

Collection of Compostable Waste:

Compostable wastes generated by the residential, commercial, and industrial sectors are collected, along with other mixed wastes, by local waste haulers using garbage trucks and roll-off bins.

In 1990, almost all compostable waste collected from the three sectors was landfilled. Most compostable waste from these sectors is landfilled presently.

By 1991, all franchise agreements for garbage collection services to the unincorporated area of the County included the seasonal collection and processing of holiday trees from residential areas. Holiday trees are either composted or chipped and sold as fuel.

Self-hauled Compostable Waste:

In 1990, most of the self-hauled compostable waste generated in the unincorporated area was landfilled. Most self-hauled compostable waste is landfilled presently.

However, some self-hauled yard and wood waste was diverted in 1990. Diversion of such materials is part of the ongoing programs at a number of facilities. Ongoing activities are described below:

Zanker Road Resource Recovery in San Jose diverted self-hauled yard and wood waste (including holiday trees) at their facility in 1990, as they do today. An estimated 36,000 tons of wood waste was diverted in 1990. In 1990, yard and wood waste that was hauled to Zanker was first screened to separate out grass and leaves ("fines"). These fines were passively composted at the site and ultimately hauled away to be processed into a soil amendment. The remaining yard and wood waste was chipped, ground up, and sold as fuel for a co-generation plant. Some wood waste was originally sold as firewood.

Zanker stopped selling firewood in 1991. Beginning in September 1991, Zanker began composting fines on-site and began to accept self-hauled leaves and grass.

Currently, the majority of self-hauled yard and wood waste arriving at Zanker is generated by landscape maintenance companies, professional gardeners, and demolition contractors. A small percentage comes from residential self-haul loads.

Zanker does not have any jurisdiction-specific records regarding the source of generation of yard and wood waste diverted in 1990. Therefore, it is not known how much of the yard and wood waste diverted in 1990 was generated in the unincorporated area.

Guadalupe Landfill in San Jose, has reported that a total of 58,148 tons of yard and wood waste was diverted at their facility in 1990. Yard and wood waste

from residents who self-haul, gardeners, tree service companies, and holiday trees collected by area garbage haulers or self-hauled by residents are processed to produce "fines" (pulverized yard waste, suitable for mulching and used as a soil amendment), chips (sold as both a mulch and as fuel for a cogeneration plant), and some firewood. Haulers arriving at Guadalupe with uncontaminated wood or yard waste loads receive a discounted rate and are directed to a separate yard and wood waste tipping area of the landfill.

Guadalupe Landfill did not keep specific records on the jurisdiction of generation for yard and wood waste that was diverted in 1990. Therefore, it is not known how much yard and wood waste diverted in 1990 was generated in the unincorporated area.

South Valley Refuse Disposal, at the San Martin Transfer Station diverted self-hauled wood waste at their facility in 1990. The wood waste was chipped and sold for use as fuel.

An estimated 948 tons of the diverted wood waste was generated in the unincorporated area.

The Town of Los Altos Hills Corporation Yard serves as a yard waste drop-off site for residents of the Town of Los Altos Hills. The waste is transferred to the Zanker Road facility for processing. During portions of 1991 and 1992, some unincorporated area residents were allowed to use the site to drop-off yard waste. There was no 1990 diversion of unincorporated area yard waste from this site. The quantity of yard waste diverted in 1991 and 1992 from this drop-off is unknown. This site no longer accepts drop-off yard waste from unincorporated area residents. Los Altos Garbage Company, which staffs the yard waste drop-off site, is currently investigating an alternative site for use by residents of this unincorporated area.

County Parks Program. At several locations, the County of Santa Clara Parks and Recreation Department (County Parks) processes yard waste on-site into a usable mulch that is used for park landscape maintenance. County Parks followed this practice in 1990 but no records were kept of the amount of yard waste that was diverted from disposal. Materials are mulched for use on-site in County Parks. No landscaping waste was accepted in 1990.

EVALUATION OF ALTERNATIVES

The County has evaluated the following composting alternatives that could be implemented to meet its diversion goals. Each alternative is evaluated according to a set of criteria specified in the regulations implementing AB 939. Program costs are approximate and program details should be considered preliminary. Cost and program details will be refined during development of specific programs.

The following composting alternatives are described and evaluated below:

Collection of Compostable Residential, Commercial and Industrial Waste

Alternative 1: Residential Curbside Collection of Yard Waste
Alternative 2: Collection of Commercial/Industrial Yard Waste
Alternative 3: Collection of Industrial Wood Waste
Alternative 4: Collection of Commercial/Industrial Food Wastes
Alternative 5: County Facilities Yard and Wood Waste Collection

Drop-Off of Compostable Waste

Alternative 6: Permanent Drop-Off Centers
Alternative 7: Mobile Drop-Off Centers

Facility Needs Assessment

Alternative 8: Evaluation of the Need for a Regional Composting Facility

Market Development

Alternative 9: Market Development for Compost End-Products

Public Education

Note that a successful composting program will require public information and education on the benefits of participation in the collection program, the benefits of using compost products, and how to obtain compost and other end-

products. Programs to encourage use of area self-haul drop-off sites by landscape maintenance or construction contractors will be needed.

The Public Education and Information Component (Chapter VII) describes plans for such programs.

Residential Backyard (Home) Composting

Home 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 soil amendment.

An aggressive public education campaign including wide distribution of educational literature and regular public demonstrations/training workshops on specific composting skills, together with a publicity campaign would be critical for the success of this program.

Since state regulations classify home composting as a form of source reduction, a detailed description and evaluation of home composting is provided in the Source Reduction Component (Chapter III).

COLLECTION AND DROP-OFF OPTIONS

The highest quality compost products are produced when compostable materials are kept separate from other waste types. The materials can be collected separately for subsequent processing into usable end-products through a combination of residential curbside collection, collection for commercial and industrial establishments, and drop-off sites that can be designated for any and/or all sectors of yard waste generators. These programs should be accompanied by aggressive promotion of source reduction methods, such as home composting.

Collection of Compostable Residential, Commercial, and Industrial Waste
Some advantages of residential curbside collection of yard waste and the collection of commercial compostable waste include: 1) convenience for residents and businesses; 2) high community profile and awareness; 3) high participation and recovery rates; 4) linkage with mixed waste collection; 5) residents and businesses are already familiar with the concept of curbside recycling; and 6) low contamination levels.

Disadvantages of curbside collection for yard waste or other compostables include:
1) higher cost than a drop-off program because of the need for additional collection trucks and/or collection containers, and the cost of transporting collected yard waste to processing sites; 2) greater complexity than a drop-off program, and; 3) longer implementation time than a drop-off program.

A program to collect compostable waste generated by businesses and government agencies could divert a significant amount of materials from landfilling. Compostable materials generated by the commercial/industrial sector include yard waste, wood waste, and food waste.

Alternative 1: Residential Curbside Collection of Yard Waste

Yard waste constitutes approximately 30% of the solid waste disposed by single-family dwellings in the unincorporated area of the County (10,541 tons in 1990). Because of its seasonal nature, the quantities of yard waste generated can be expected to vary throughout the year by as much as 20%. A residential curbside yard waste collection system must be capable of handling these fluctuations consistently and efficiently. Variables to be considered in the planning of a collection program include the types of yard waste to be collected, method of set-out for yard waste, and frequency of collection.

Types of Yard Waste: Yard waste typically includes prunings, leaves, and grass. The City of San Jose has had a curbside yard waste collection program for 180,000 single-family households since 1992. San Jose has estimated that yard waste being generated in the City is 79% prunings, 18% leaves, and 3% grass (measured by volume). Curbside yard waste collection programs for unincorporated areas of the County would be expected to collect similar percentages of prunings, leaves, and grass.

Method of Set-out: There are three main options for setting out yard waste in a residential curbside collection program:

- Bagged or wrapped in gardener's tarps
- Designated rigid containers
- Loose yard waste raked into street near the curb.

Potential advantages of containerized yard waste collection include: 1) no significant behavioral change is required of residents; 2) existing standard waste collection vehicles can be used to collect yard waste, and; 3) collection

equipment does not mar or scratch surface streets; 4) potential for yard waste residue to become a stormwater runoff contaminant in curbside gutters is minimized, and; 5) yard waste residue on streets is minimized. Potential disadvantages include: 1) may require more effort by residents to containerize or bag material; 2) collection crews may need to manipulate and lift heavy bags or containers (unless automatic truck-loading equipment is used); 3) use of bags or cans can be difficult for prunings; 4) use of bags creates need for debagging and more waste; 5) resident set-outs may be limited to container size, and; 6) contaminants can be hidden from view.

Several cities have successfully used containers for collection of yard waste:

- Cupertino and Los Altos provide residents with 96-gallon toters as part of the basic rate.
- Palo Alto allows residents to use 32-gallon cans, 30-gallon paper bags, cardboard boxes, or bundles less than 4 feet in length.
- Saratoga allows residents to use their own 32-gallon cans or 96-gallon toters can be provided for a monthly fee.

Potential advantages of loose collection of yard waste include: 1) does not require debagging of yard waste; 2) is easy for resident to participate because it does not require extra effort to containerize material; 3) does not cause collection crew strain from lifting heavy objects; 4) facilitates inspection by crew for contaminants; 5) is easy for the resident to participate because there is no need to fit prunings into a container or bag; 6) resident set-outs are not limited by container size. Potential disadvantages include: 1) may be more labor-intensive for the collection crew; 2) may be more costly as collection equipment is necessary (an articulated front loader called "The Claw" is used in San Jose); 3) use of "The Claw" may cause marring or scratching of surface streets and yard waste residue on streets; 4) residents may put out loose yard waste in the street days before the pick-up date; 5) residents may place loose yard waste too close to curbside gutters resulting in potential stormwater runoff contaminants.

City of San Jose staff has reported that, with the exception of early set-outs, these problems have not been experienced with the loose collection system used by the San Jose Curbside Yard Waste Program. There have been few citizen complaints about yard waste residue on the street. San Jose has monthly street sweeping which aids in the removal of yard waste residue on the street after collection. The unincorporated area does not have regular street sweeping services. San Jose residents living on streets that are narrow

or streets with little space to set out loose yard waste are given gardener's tarps by the City's contractor to contain their yard waste.

Frequency of collection: There are several options for frequency of collection in curbside yard waste collection programs. Jurisdictions within Santa Clara County that have existing yard waste collection programs either have weekly or bi-weekly collection of yard waste.

San Jose and Saratoga residents receive weekly collection of yard waste.

Advantages of weekly yard waste collection include: 1) familiarity and regularity for residents: Residents are accustomed to setting out their weekly recyclables on the same day as their regular garbage pickup and they are, therefore, more likely to set-out their yard waste on the correct day. 2) The likelihood that more materials will be collected. During their pilot program the City of San Jose observed that homes with weekly collection participated more frequently, and with larger overall amounts of yard waste materials, than homes on bi-weekly or monthly collection schedules.

A disadvantage is that: weekly collection is more expensive. The City of San Jose's Environmental Services Department has reported that curbside collection of yard waste costs range from $3.13 to $4.76 per household per month (excluding compost processing costs).

Cupertino and Los Altos residents receive bi-weekly collection of yard waste in 96-gallon containers.

Advantages of bi-weekly collection include: 1) bi-weekly collection of yard waste is less expensive than weekly. When container costs are excluded, Cupertino and Los Altos, residents receive bi-weekly yard waste collection services for approximately $3.00 and $3.50 per household per month, respectively, including compost processing costs, and; 2) familiarity with bi-weekly service. These residents have curbside collection of other recyclables bi-weekly, so they are familiar with this service pattern.

Potential disadvantages of less frequent service include: 1) containers with materials could remain on the street longer, and; 2) less material may be collected (Less yard waste was collected from bi-weekly and monthly collection areas than weekly collection areas in San Jose's pilot program).

Multi-family dwellings: Curbside yard waste collection for multi-family dwellings is difficult to implement due to space requirements for the collection of yard and wood waste in a single area. However, because landscape maintenance and construction projects at apartment, condominium, townhouse, and mobile park complexes are often handled by private businesses, there is less need for curbside yard and wood waste service for residents of multi-family dwellings.

Evaluation of Alternative 1:

Effectiveness: If implemented in areas under consideration, this alternative would divert an estimated 4436 tons of yard waste per year in the short-term planning period (by 1995). This diversion amounts to 29.9% of the residential and self-hauled yard waste generated (14,806 tons) and 3.5% of the total waste stream generated. The program would also be highly visible in the community and would help to increase participation rates for other recycling programs.

Hazard: This alternative presents no major hazards.

Ability to Accommodate Change: This alternative would be readily adaptable to changing conditions, especially changes in processing and handling techniques, changes in the waste management system, and regulatory programs.

Consequences to the Waste Stream: This alternative would not cause a shift of waste into another waste category.

Implementation Period: This alternative could be implemented in the short-term planning period (by 1995).

Facility Requirements: A composting site would be required for processing collected yard waste. However, sites already exist, and others are being developed.

Consistency with Local Plans and Policies: This alternative is consistent with local plans and policies.

Institutional Barriers: There are no known institutional barriers to implementing this alternative.

Estimated Cost: Based on the cost of programs implemented in other Santa Clara County jurisdictions, a curbside yard waste collection program (including both collection and processing) would cost approximately $3 to $8 per household per month. Costs will vary depending on type of program, collection frequency, and characteristics of the service area. Avoided disposal costs caused by reductions in the amount of waste requiring landfill disposal would partially offset the cost of the program.

End Uses: See section titled: Market Development (V - 23).

Public vs. Private Operation: The programs outlined under this alternative could be operated by either a public or private entity. Since current solid waste collection and recycling services provided to unincorporated area residents are provided through contract with a private company, it is likely that the County would choose to contract composting programs as well.

Alternative 2: Collection of Commercial and Industrial Landscaping Waste:

According to the Solid Waste Generation Study, landscaping waste comprises about 8% of the disposed commercial waste stream and 10% of the disposed industrial waste stream. Almost all of the 4,030 tons of commercial and industrial landscaping waste generated (99%) was landfilled in 1990.

Because of the minimal diversion potential and the high cost of collection, a franchised collection program may not be feasible at this time. However, the County could work with private haulers and provide technical assistance to businesses to ensure that collection of landscaping waste is a service that is offered to businesses at reasonable cost. Landfills and transfer stations would be encouraged to establish or continue to charge variable fees for clean yard waste, and to keep yard waste in separate areas of sites for processing or for transport to off-site processing facilities.

Alternative 3: Collection of Commercial / Industrial Wood Waste:

Wood wastes comprise about 1.3% of the disposed commercial waste stream and 20.5% of the disposed industrial waste stream. Wood waste generated by the industrial sector is typically composed of waste from manufacturing or from construction and demolition projects, both of which could be collected

separately, on-site, in bins, and ultimately transported to a landfill. Collection of wood waste is typically handled by private waste hauling companies. The County could work with private haulers and provide technical assistance to businesses to ensure that collection of wood waste is a service that is offered to businesses at reasonable cost. Generators of wood waste would be encouraged to keep wood separate from other waste types. Landfills would be encouraged to establish or continue to charge variable fees for clean wood waste, and to keep clean wood waste in a separate area of the landfill site for processing or for transport to off-site processing facilities.

Evaluation of Alternatives 2 and 3:

Effectiveness: Alternative 2: This alternative would be expected to divert 544 tons per year (12.8%) of commercial and industrial yard waste in the short- term planning period and 3,075 tons per year (69.5%) in the medium-term planning period. **Alternative 3:** In the short-term planning period, this alternative would be expected to divert 202 tons (77%) of commercial and 2005 tons (55%) of industrial wood waste per year. In the medium-term planning period expected diversion would be 215 tons (78%) of commercial and 3,109 tons (81%) of industrial wood waste per year.

Hazard: These alternatives present no major hazards.

Ability to Accommodate Change: These alternatives would be readily adaptable to changing conditions, especially to changes in processing and handling techniques, changes in the waste management system, and regulatory programs.

Consequences to the Waste Stream: These alternatives would not cause a shift of waste into another waste category.

Implementation Period: These alternatives could be implemented in the short-term planning period (by 1995).

Facility Requirements: Alternative 2 and 3: A composting/processing site would be required for processing the collected yard and wood waste. However, such sites already exist, or are currently being developed in the County to allow for municipal-level composting of yard and wood waste.

Consistency with Local Plans and Policies: These alternatives are consistent with local plans and policies.

Institutional Barriers: There are no known institutional barriers to implementing these alternatives.

Estimated Cost: Alternative 2: Typical operational costs for processing yard waste varies from $20 to $40 per ton (assuming use of the windrow technique). **Alternative 3:** Typical operational costs for processing wood waste varies from $10 to $20 per ton.

End Uses: See section titled: Market Development (page V - 23).

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

Alternative 4: Collection of Commercial and Industrial Food Wastes

Food wastes comprise about 16% of the disposed commercial waste stream and about 3% of the disposed industrial waste stream. If properly managed, co-composting food wastes with yard waste would result in a high-quality compost.

Separate or commingled collection of food waste would require the use of specialized collection equipment. Food wastes have a high moisture content and would have to be promptly and properly mixed with bulky yard waste. The collection of food waste would also require changes in the way employees handle food waste disposal in restaurants and at other locations generating substantial quantities of food wastes. The local health department may place requirements on the on-site storage of food waste prior to collection. Food waste composting would require in-vessel composting.

Evaluation of Alternative 4:

Effectiveness: This alternative would be expected to divert an estimated 1,121 tons per year (24.5%) of commercial and industrial food waste in the medium-term planning period.

Hazard: If not managed properly, a food waste collection program could create vector and bacteriological problems for the generator, who would be required to store the waste on-site until collected, and for the compost

facility operator, if preventative design elements were not included in the facility project.

Ability to Accommodate Change: This alternative may not be readily adaptable to changing conditions because major investments in processing equipment may be necessary to minimize potential health risks.

Consequences to the Waste Stream: This alternative would not cause a shift of waste into another waste category.

Implementation Period: Because of potential health risks and the need for preventative design elements, this alternative would have to be implemented in the medium-term planning period.

Facility Requirements: An in-vessel composting facility would be necessary to process collected food waste.

Consistency with Local Plans and Policies: This alternative is consistent with local plans and policies.

Institutional Barriers: There are no known institutional barriers to implementing this alternative.

Estimated Cost: Typical combined capital and processing costs for a 10,000 ton per year in-vessel composting facility are approximately $40 to $60 per ton. The commercial and industrial sectors in the unincorporated area generated about 4,100 tons of food waste in 1990.

End Uses: See section titled: Market Development (page V - 23).

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

Alternative 5: County Facilities Yard and Wood Waste Collection

Wherever feasible, County agencies that participate in civic maintenance operations such as landscape maintenance and demolition of wooden structures could be requested to separate out yard and wood waste for collection and processing. Yard and wood waste would be kept separated

from each other and from other types of waste in separate roll-off bins and hauled to nearby yard and wood waste processing facilities or transfer stations.

Evaluation of Alternative 5:

Effectiveness: This alternative would be effective in diverting from 50% to 75% of yard and wood waste that is generated by County operations. Tons of materials that would be diverted are not estimated here because data is not available and many County operations are located within incorporated areas. However, if the effort is well-publicized, County government would be providing an effective example to businesses and homeowners.

Hazard: This alternative presents no major hazards.

Ability to Accommodate Change: This alternative would be readily adaptable to changing conditions, especially changes in processing and handling techniques, changes in the waste management system, and regulatory programs.

Consequences to the Waste Stream: This alternative would not cause a shift of waste into another waste category.

Implementation Period: This alternative could be implemented in the short-term planning period.

Facility Requirements: Additional roll-off bins or divided bins could be required at County facilities.

Consistency with Local Plans and Policies: This alternative is consistent with local plans and policies.

Institutional Barriers: There are no known institutional barriers to implementing this alternative.

Estimated Cost: A yard and wood waste collection program to divert County operations-generated waste for landfilling would cost the County about $40 to $60 per ton. Costs for this program would be partially offset by reduced disposal costs.

End Uses: See section titled: Market Development. (page V - 23).

Public vs. Private Operation: County operations-generated yard and wood waste could be transported to processing facilities by either a public or private entity.

Drop-Off of Residential, Commerical, and Industrial Yard and Wood Waste

A drop-off program relies on residents and/or private commercial haulers to transport clean (segregated) yard and wood waste to a designated site. The program could include either permanent or temporary (mobile) sites.

For residential waste, this type of program keeps collection costs low, but generally results in less volume recovered than in a residential curbside collection program. Typically, this is used as the primary collection method in sparsely populated areas, and is often supplemented by a home composting program. If population density increases to feasible levels, a drop-off program can be supplemented or replaced by a curbside collection program for maximum recovery of yard wastes.

Advantages of drop-off sites include: 1) shorter implementation period than a curbside program (three drop-off sites already exist for unincorporated area residents); 2) lower collection and transportation costs (drop-off sites provide for fewer collection vehicle stops or no stops if located at a processing site); 3) familiarity with drop-off procedures (commercial and industrial users are already familiar with drop-off procedures); 4) separated and uncontaminated loads (individual deliveries of self-hauled yard waste by landscape contractors are typically separated and uncontaminated by other types of waste.

Disadvantages of drop-off sites include: 1) lower residential participation rates than with a curbside program; 2) locations of new sites might require changes in zoning ordinances; 3) sites may need to be staffed to prevent unauthorized disposal of unacceptable materials; 4) materials accepted at drop-off sites may be limited if proper equipment is not feasible or available for use.

Alternative 6: Permanent Drop-Off Centers

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

- Since a drop-off center can be more easily located at a landfill, transfer station, or a MRF, these types of sites should be considered first.
- Sites should 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 compostable paper bags.
- A conveniently-located receptacle should be provided so that residents can dispose of their plastic bags or other containers used to transport yard waste to the sites.
- Instructional signs should be placed at sites to indicate acceptable materials, unloading location, and site hours.
- Acceptable materials should include leaves, grass clippings, brush, and branches less than 6 inches in diameter. Stumps and branches over 6 inches in diameter, and construction and demolition wood should not be accepted unless the facility has a demolition wood grinder.
- One employee per site should monitor the site tipping area during hours of public access for quality control and organization.
- The tipping fee for commercial haulers and residential self-haulers should be less than tipping fees at landfill disposal sites in the region to encourage use of the site for separated yard and wood waste.
- Residential self-haulers should be encouraged to use the drop-off site. Incentives could include: lower residential drop-off rates; and access to finished compost or wood chips.

Advantages of permanent drop off sites are: 1) drop-off program sites require minimal financial investment and staffing time, and; 2) sites can be implemented relatively quickly since facilities are available for processing collected materials.

Disadvantages of permanent drop-off sites are: 1) they do not serve the needs of all residents (some would not be capable of hauling to the site), and; 2) changes in zoning may be required because of potential impacts on surrounding land uses (potential for odor, noise, and traffic problems).

Alternative 7: Mobile Drop-Off Centers

These centers would consist of large mobile collection trailers (approximately 40 cubic yard capacity) stopping in neighborhoods for short, scheduled periods of time. Trailers would be driven to a centralized composting site or pre-processing site (to avoid potential odor impacts from decomposition that may occur when the trailer contains damp yard waste). Most of the key planning features of permanent sites listed above would also apply to mobile drop-off sites although, of course, the signage and waste receptacles would be temporary.

Advantages of a mobile drop-off program: 1) convenient for residents and businesses in areas with lower population densities or dispersed sources of large amounts of compostable materials, and; 2) more easily accepted by the community because of the temporary nature of any negative impacts on the area (increased traffic, odors, or noise).

Disadvantages of a mobile drop-off program include: 1) the schedule for the mobile drop-off trailer may be confusing to residents and businesses; 2) additional equipment and trucks may be needed for collection and transportation; 3) additional staff may be necessary to coordinate the siting and scheduling of the mobile trailer; 4) because of the trailer's limited capacity participation may need to be limited to residential generators to prevent use by commercial self-haulers with large volumes of waste.

Evaluation of Alternative 6 and 7:

Effectiveness: Alternative 6: This alternative would be effective in sparcely-populated areas where curbside pick-up would not be feasible. **Alternative 7:** This alternative could provide a more convenient option, and therefore, potentially a more effective option, for residents and businesses of sparcely-populated unincorporated areas. However, it would not be the most effective option for densely-populated areas.

Hazard: These alternatives present no major hazards.

Ability to Accommodate Change: These alternatives are readily adaptable to changing conditions, especially to changes in material types, processing and handling techniques, the waste management system, and regulatory programs.

Consequences to the Waste Stream: These alternatives have no known impact on shifts in waste-type generation.

Implementation Period: These alternatives would likely be completed in the short-term planning period. Several permanent drop-off sites already exist.

Facility Requirements: Alternative 6: It is anticipated that permanent drop-off sites could be established at a landfill, a transfer station, a materials recovery facility (MRF), and perhaps elsewhere, without the need to build new facilities. **Alternative 7:** A mobile drop-off program would require trucks to accept waste at remote sites and transport it to either a processing facility or transfer station.

Consistency with Local Plans and Policies: These alternatives are consistent with local plans and policies.

Institutional Barriers: There are no known institutional barriers to implementing these alternatives.

Estimated Cost: Alternative 6: If located at a landfill or other existing facility the cost of developing a permanent drop-off site is minimal. **Alternative 7:** Cost of a mobile drop-off program is difficult to estimate because of variables, but generally cost is somewhere between the cost of curbside collection and permanent drop-off site programs.

End Uses: See section titled: Market Development (page V - 23).

Public vs. Private Operation: The programs outlined under these alternatives could be operated by either a public or private entity.

Alternative 8: Evaluate the Need for a Regional Composting Facility The County would participate with the cities in the County to evaluate the need for a regional composting facility.

Effectiveness: An analysis of the need for a regional composting facility will allow several cities and the County to work jointly for regional solutions to a common problem. A regional processing facility, if needed, will aid the County and adjacent cities in meeting short- and medium-term diversions goals for compostable materials.

Hazard: This alternative presents no major hazards.

Ability to Accommodate Change: This alternative describes a study that is adaptable to change. The content and focus of the study could be changed as available composting resources and facilities change and as markets for end-products change.

Consequences to the Waste Stream: This alternative would not cause a shift of waste into another waste category.

Implementation Period: This alternative would likely be completed in the short-term planning period.

Facility Requirements: This alternative is a study of the need for a facility.

Consistency with Local Plans and Policies: This alternative is consistent with local plans and policies.

Institutional Barriers: There are no known institutional barriers to implementing this alternative.

Estimated Cost: Depending on the scope of the study, estimated cost would range from $10,000 to $20,000.

End Uses: Not applicable.

Public vs. Private Operation: The study could be conducted by a public entity or by private consultant firm. If the regional facility being evaluated is actually built, it could be a public or privately-owned and/or operated facility. The participating jurisdictions would provide for input from the private sector during the course of the evaluation.

MARKET DEVELOPMENT

Alternative 9: Market Development for Compost End-Products

Markets will be identified for the end-products from the selected composting program. The marketing plan will identify end-products and quality

standards. 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 cost.

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

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

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

Wood Chips: used as a mulch or decorative top dressing, a bulking agent for sludge composting, and as fuel for waste-to-energy facilities.

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

Quality problems associated with compost can include:

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

Compost quality (good appearance, low concentrations of metals and toxic compounds, etc.) will be assured by thorough source separation, careful processing of the feedstock, and regular testing of the end-product. Although a high quality product generally assures more successful marketing, identification of the needs of potential 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 standards. 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:

- Highway departments
- Homeowners
- Greenhouses
- Landscapers
- Farmers and farm suppliers
- Golf courses
- Sod growers
- Cemeteries
- Schools
- Parks
- Public facilities
- Soil amendment processing businesses

If supply exceeds demand, public users of soil amendments can be mandated to give preferential treatment to municipal compost products. Free distribution to homeowners and landscapers will be considered.

In most cases, the private firm which contracts to manage the compost operations will also be responsible for identifying and assuring a market for compost end-products.

To contribute to development of markets for compost end-products, the County will consider giving purchase preference to soil amendments and mulch comprised of locally composted yard/landscaping wastes.

The County will take other actions to support development of markets, as necessary. Actions could include: support for changes in state and federal legislation, adoption of local ordinances, and other measures.

Evaluation of Alternative 9:

Effectiveness: Successful marketing of compost end-products is essential to the success of yard waste diversion and composting programs.

Hazard: This alternative presents no major hazards.

Ability to Accommodate Change: An analysis of the markets for compost end-products will be on-going and will allow programs to respond to changes in material types, processing and handling techniques, and regulatory programs.

Consequences to the Waste Stream: This alternative has no known impact on shifts in waste-type generation.

Implementation Period: This alternative would likely be primarily completed in the short-term planning period. However, market development is an on-going process.

Facility Requirements: No facility is needed for market development activities. Areas must be provided at processing sites to facilitate customer access to finished end-products.

Consistency with Local Plans and Policies: This alternative is consistent with local plans and policies.

Institutional Barriers: There are no known institutional barriers to implementing this alternative.

Estimated Cost: The compost processing contractor would typically be responsible for market development for end-products. Market development costs would be included in the cost of individual programs.

End Uses: Markets would be developed.

Public vs. Private Operation: The activities outlined under this alternative could be done by either a public or private entity. The compost processing contractor would typically be responsible for market development for end-products, guided by participating jurisdictions.

PROGRAM SELECTION

This section describes the specific alternatives selected for implementation. Alternatives were selected based on the County's waste stream characteristics, as identified in the Waste Generation Study, existing conditions, potential coordination with adjacent cities, and the program's ability to meet AB 939 diversion requirements.

A more detailed description and evaluation of selected programs can be found in the Alternatives Section, above.

Short-Term Planning Period (by 1995)

In order to meet short-term goals, the County will divert an estimated 5,595 tons of yard waste per year (27.1% of total generated yard waste) and 4,149 tons of wood waste per year (45.2% of total generated wood waste). To achieve this goal, the County has selected the following programs.

Countywide

Program 1: County Facilities Yard and Wood Waste Collection (Alternative 5)
Program 2: Market Development for Compost End-Products (Alternative 9)

San Jose Service Area

Program 3: Residential Curbside Collection (Alternative 1)
Program 4: Permanent Drop-Off Centers (Alternative 6)

South Valley Service Area

Program 5: Permanent Drop-Off Centers (Alternative 6)

West Valley Service Area

Program 6: Residential Curbside Collection (Alternative 1)
Program 7: Permanent Drop-Off Center (Alternative 6)

North County Service Area

Program 8: Residential Curbside Collection (Alternative 1)
Program 9: Permanent Drop-Off Center (Alternative 6)
Program 10: Collection of Commercial/Industrial Yard and Wood Waste (Alternative 5)

Lexington Hills

Program 11: Permanent Drop-Off Center (Alternative 6)

Medium-Term Planning Period (2000)

In order to meet medium-term goals, the County will divert an estimated 17,804 tons of yard waste per year (82.9% of total generated yard waste) and 6,932 tons of wood waste per year (72.4% of total generated wood waste). To achieve this goal, the County will continue programs implemented in the short-term planning period and has selected the following programs for implementation in the medium-term planning period.

Countywide

Program 12: Evaluate the Need for a Regional Composting Facility (Alternative 8)

San Jose Service Area

Program 13: Collection of Commercial/Industrial Food Waste (Alternative 4)

Burbank Sanitary District

Program 14: Residential Curbside Collection (Alternative 1)

South Valley Service Area

Program 15: Consider Residential Curbside Collection (Alternative 1)
Program 16: Consider Co-composting Food Waste (Alternative 2)

Short-term Programs

Countywide:

Program 1: County Facilities Yard and Wood Waste Collection

Selection Rationale: This program has been selected because County agencies and facilities with landscaping and building maintenance divisions should set a good example by separating yard and wood waste for collection and composting or other recovery processes. This program will also save the County money through avoided disposal costs.

Potential Diversion: A coordinated effort by large County government generators (agencies/facilities) will result in substantial diversion of yard and wood waste. However, because many County facilities are located within incorporated areas, it is unclear whether tonnages of diverted materials would count toward AB 939 diversion goals.

Handling Methods: Yard and wood waste will be separated from other waste and hauled to nearby yard and wood waste processing facilities or transfer stations.

Required Facilities: Existing facilities would be utilized for processing. This program may require additional roll-off bins for waste separation.

Program 2: Market Development

Selection Rationale: This program has been selected because the success of composting programs is dependent on the ability to market compost end-products. The County will cooperate with adjacent cities to initiate a marketing program for compost end-products. Some compost processing contractors may be required to identify markets for end-products. Compost, mulch, andwood chips will be marketed as horticultural products.

Some wood chips ould be marketed as a fuel in order to provide financial stability and fexibility to the program. County procurement policies will provide a purchase preference to compost end-products generated by County programs. Other local agencies and jurisdictions will be encouraged to adopt similar preference programs.

Potential Diversion: Successful marketing of end-products will not directly result in an increase in diversion of waste materials.

Handling Methods: Not applicable.

Required Facilities: Space will be reserved at compost processing facilities to store end-products and to allow customer access to the materials.

San Jose Service Area

Program 3: Residential Curbside Collection

Selection Rationale: This program has been selected because the County wishes to offer unincorporated area residents in the San Jose Service Area a curbside yard waste collection program that is comparable to the existing City of San Jose program.

Potential Diversion: This program will allow the County to divert an estimated 2,229 tons of residential yard waste in the short-term planning period (approximately 48% of yard waste disposed in this area).

Handling Methods: The County has contracted with GreenWaste Recovery for the collection and processing of yard waste beginning October 1, 1993. Yard waste will be collected loose by an articulated front-loader (the Claw). Yard waste processing will be done at the existing composting site at Zanker Road Landfill.

Required Facilities: No new facilities will be required. Zanker Road Landfill has adequate capacity to handle this County yard waste.

Program 4: Permanent Drop-Off Centers

Selection Rationale: The County will cooperate with the City of San Jose to encourage the expansion and/or development of drop-off sites at landfills, transfer stations, compost processing facilities, and other locations. This program is selected because it provides a convenient, cost-effective option for individuals and businesses that self-haul yard and wood waste.

Potential Diversion: This program will allow the County to divert an estimated 880 tons of yard waste and 120 tons of wood waste in the short-term planning period (approximately 16% of yard and 12% of wood waste disposed in this area).

Handling Methods: Yard and wood waste will be hauled to drop-off sites by individuals residents and businesses. The waste may be processed at the site (if it is a composting processing facility) or transferred to a site.

Required Facilities: The addition of areas at landfills or recycling centers dedicated to the collection of yard waste may require only minor property improvements such as fencing, paving, and access space for vehicles.

South Valley Service Area

Program 5: Permanent Drop-Off Centers

Selection Rationale: This program would encourage the development of permanent drop-off sites, for use by residents and businesses, at a landfill, composting facility, or transfer station. This program will provide a convenient and cost effective yard and wood waste recycling option for residents and businesses that typically self-haul yard and wood waste.

Potential Diversion: This program will allow the County to direct an estimated 1,060 tons of yard and 888 tons of wood waste per year (approximately 27% of disposed yard and 37% of disposed wood waste in this area).

Handling Methods: Yard and wood waste will be hauled to the drop-off sites by residents and businesses. The waste may be processed at the site

(if the site is a compost processing facility) or it may be transferred to a processing site.

Required Facilities: The addition of an area at a landfill or recycling center dedicated to the collection of yard waste may require only minor property improvements such as fencing, paving and access space for self-haul vehicles. Two sites that are already being considered by Morgan Hill for development as permanent drop-off sites are the San Martin Transfer Station and the Pacheco Pass Landfill.

West Valley Service Area

Program 6: Residential Curbside Collection

Selection Rationale: This program is selected because it will allow the County to provide comparable yard waste collection service to unincorporated area residents and will be convenient and most effective in diverting as much yard waste as possible from residences. The County will cooperate with adjacent jurisdictions in the development of this residential curbside yard waste collection program.

Potential Diversion: This program will divert an estimated 2,409 tons of yard waste per year (approximately 50% of disposed yard waste in this area).

Handling Methods: The County will contract with a hauler to collect and process the yard waste and to market the end-products.

Required Facilities: A facility will be required to process collected yard waste. Existing facilities have adequate capacity to handle this County yard waste.

Program 7: Permanent Drop-Off Centers

Selection Rationale: The County will cooperate with adjacent jurisdictions to encourage the expansion and/or development of drop-off sites at landfills, transfer stations, compost processing facilities, and other

locations. This program is selected because it provides a convenient, cost-effective option for businesses that self-haul yard and wood waste.

Potential Diversion: This program will allow the County to divert an estimated 688 tons of yard and 408 tons of wood waste in the short-term planning period (approximately 14% of disposed yard and 32% of disposed wood waste in this area).

Handling Methods: Yard and wood waste will be hauled to the drop-off sites by individuals, residents, and businesses. The waste may be processed at the site (if it is a compost processing facility) or transferred to a site.

Required Facilities: The addition of areas at landfills or recycling centers dedicated to the collection of yard waste may require only minor property improvements such as fencing, paving, and access space for vehicles.

North County Service Area

Program 8: Residential Curbside Collection

Selection Rationale: This program is selected because it will allow the County to provide comparable yard waste collection service to unincorporated area residents and will be convenient and most effective in diverting as much yard waste as possible from residences. The County will cooperate with adjacent jurisdictions in the development of this residential curbside yard waste collection program.

Potential Diversion: This program will divert an estimated 587 tons of yard waste in the short-term planning period (approximately 35% of disposed yard waste in this area).

Handling Methods: The County will contract with a hauler to collect and process the yard waste and to market the end-products.

Required Facilities: A facility will be required to process collected yard waste. Existing facilities have adequate capacity to handle this County yard waste.

Program 9: Permanent Drop-Off Centers

Selection Rationale: The County will cooperate with adjacent jurisdictions to encourage the expansion and/or development of drop-off sites at landfills, transfer stations, compost processing facilities, and other locations. This program is selected because it provides a convenient, cost-effective option for businesses that self-haul yard and wood waste.

Potential Diversion: This program will allow the County to divert an estimated 501 tons of yard and 346 tons of wood waste per year (approximately 17% of disposed yard and 32% of disposed wood waste in this area).

Handling Methods: Yard and wood waste will be hauled to the drop-off sites by individuals residents and businesses. The waste may be processed at the site (if it is a compost processing facility) or transferred to a site.

Required Facilities: The addition of areas at landfills or recycling centers dedicated to the collection of yard waste may require only minor property improvements such as fencing, paving, and access space for vehicles.

Program 10: Collection of Commercial/Industrial Yard and Wood Waste (Los Altos Debris box waste diversion program)

Selection Rationale: The City of Los Altos has preliminary plans to establish a debris box yard waste diversion program. Debris box companies would be encouraged to charge customers variable fees if yard and wood wastes are separated by the customer. The County wishes to participate with Los Altos in the development of the program so that debris boxes used in the unincorporated area of North County would also be included. This program is selected because it will increase the amount of yard and wood waste diverted.

Potential Diversion: This program will allow the County to divert an estimated 86 tons of yard and 33 tons of wood waste in the short-term planning period (approximately 3% of yard and wood waste disposed in this area).

Handling Methods: The program will involve an educational program to encourage debris box customers to order divided debris boxes that allow separation of yard and wood waste. These boxes would allow users to keep compostable or recoverable types of yard and wood waste separated. Debris boxes would be hauled to a compost processing facility.

Required Facilities: A facility will be required to process collected yard waste. Existing facilities have adequate capacity to handle this County yard waste. Participating debris box companies may need to invest in debris boxes that have dividers or split lids for yard and wood waste separation.

Lexington Hills Service Area

Program 11: Permanent Drop-Off Centers

Selection Rationale: This program would encourage the development of nearby drop-off sites, for use by Lexington Hills area residents and businesses (self-haulers). This program will provide a convenient, cost-effective yard waste recycling option for area residents and businesses that typically self-haul their yard and wood waste.

Potential Diversion: This program will allow the County to divert approximately 107 tons of yard and 51 tons of wood waste in the short-term planning period (approximately 19% of disposed yard and 35% of disposed wood waste in this area).

Handling Methods: Yard and wood waste will be hauled to drop-off sites by residents and businesses, and later transferred to a composting site. A contracted hauler will provide collection and maintainance services for drop-off sites.

Required Facilities: The addition of an area at a recycling drop-off center dedicated to the collection of yard waste may require only minor property improvements such as fencing and paving. Debris boxes may be necessary to store the collected yard waste until it can be hauled away.

Medium-term Programs

Countywide

Program 12: Evaluate the Need for a Regional Composting Facility

Selection Rationale: This program has been selected in the medium term because it is essential for the County to cooperate with the various cities adjacent to unincorporated areas to assess the need for a regional, centrally-located composting facility. If such a facility is deemed necessary, the County would participate in its development.

Potential Diversion: A regional processing facility, if needed, would not be available for use until the medium-term planning period because of time needed for siting and permitting. If needed, the facility would aid the County and adjacent cities in meeting medium-term diversion goals for compostable wastes.

Handling Methods: If a compost processing facility is deemed necessary, facility design and materials handling methods would be decided by cooperating jurisdictions after a study of various alternatives.

Required Facilities: None required for a facility needs evaluation.

San Jose Service Area

Program 13: Consider Collection of Commercial/Industrial Food Waste

Selection Rationale: The County will consider participating with the City of San Jose in a food waste co-composting program in the medium-term planning period. This program is selected because it has the potential to divert up to 8.7% of the disposed waste stream in this area.

Potential Diversion: The study process itself will not result in any diversion, but the study may result in the development of a program to divert food waste. The program, if deemed feasible, would likely be implemented in the medium-term planning period.

Handling Methods: Restaurants and other large generators of food wastes will be targeted. The program would necessitate changes in the ways that food wastes are handled by businesses and collected by haulers.

Required Facilities: Because of concerns about potential odor impacts and bacterial and vector control problems, the co-composting of food waste with yard waste may require the development of an in-vessel composting facility.

Burbank Sanitary District

Program 14: Residential Curbside Collection

Selection Rationale: This program has been selected because the Sanitary District wishes to offer its residents a curbside collection program comparable to the existing programs in the City of San Jose and the unincorporated San Jose Service Area, both of which adjoin the District.

Potential Diversion: This program will allow the County to divert approximately 38% of Burbank's residential yard waste during the medium-term planning period.

Handling Methods: The Sanitary District will contract with its current garbage and recycling hauler or the County's yard waste collection contractor in the San Jose Service Area for the collection and processing of its yard waste. Methods of yard waste collection and processing will depend upon the choice of contractor.

Required Facilities: A facility will be required to process the yard waste. Existing facilities have adequate capacity to handle Sanitary District yard waste.

South Valley Service Area

Program 15: Consider Residential Curbside Collection

Selection Rationale: This program has been selected to serve residents that have garbage service. The County wishes to offer unincorporated area residents a curbside yard waste collection program that is comparable

to services that will be provided by Morgan Hill and Gilroy. In the medium term, the County will participate with these cities in a feasibility study and, potentially, in the planning phase of a curbside program.

Potential Diversion: The study process itself will not result in any diversion, but the study may result in the development of a residential curbside yard waste program. Such a program, if deemed feasible, would allow the County to divert an estimated 1,384 tons of yard waste per year (approximately 35% of disposed yard waste in this area).

Handling Methods: Source-separated yard waste may be collected weekly from residents who receive regular trash collection services.

Required Facilities: A facility will be required to process the collected yard waste. Existing facilities have adequate capacity to handle this County yard waste.

Program 16: Consider Co-composting Food Waste

Selection Rationale: The County will participate with the Cities of Morgan Hill and Gilroy in a feasibility study that would examine co-composting of food waste with yard waste. This study will be performed in the medium-term planning period. This program has been selected because it has the potential to divert up to 4.5% of this areas' disposed waste stream.

Potential Diversion: The study process itself will not result in any diversion, but the study may result in the development of a program to divert food waste. The program, if deemed feasible, would likely be implemented beyond the medium-term planning period.

Handling Methods: Not applicable to a study.

Required Facilities: A facility needs analysis for such a co-composting program will be included in this study.

PROGRAM IMPLEMENTATION

Table V - 1 details when the County of Santa Clara plans to implement the composting programs selected. Table V - 2 estimates the cost of implementing the programs.

MONITORING AND EVALUATION

The County of Santa Clara Office of Toxics and Solid Waste Management is responsible for the implementation, monitoring, and evaluation of all composting programs. The Office of Toxics and Solid Waste Management will periodically assess ongoing composting programs using the criteria described below to determine if a program should be continued, altered, updated, or discontinued.

Criteria for Evaluating Programs

1. Does the program divert, in volume and/or weight, the quantity of material expected and/or sufficient to meet program objectives?
2. Is the participation of residents or businesses adequate?
3. Has the promotion of the program been sufficient?
4. Has the program made a measurable difference in the amount of waste disposed?
5. Have the costs been commensurate with the diversion achieved?

The Office of Toxics and Solid Waste Management will maintain accurate data on composting programs using one or more of the following: waste generation studies, targeted solid waste characterization study, or product assessment.

Funding Requirements. Funding for the monitoring and evaluation program described in this section will be provided by revenue from the Countywide AB 939 Implementation Fee, rate increases, and surcharges. Program costs include administrative activities, recordkeeping, program monitoring and evaluation, tracking of survey results, and annual report-writing. Monitoring and evaluation is expected to comprise approximately 5% of estimated program costs.

Shortfall Measures. If the programs described above fail to meet the goals and objectives of this component, the following measures can be considered:

- Analysis of existing programs and alternatives for obstacles to successful implementation.
- Modification of selected alternatives, including degree, scope, or extent of composting activity and implementation schedule.
- Additional funding and staff.
- Consideration of additional alternatives.
- Discontinuation of the program.

Monitoring and Reporting Schedule: Annual reports will be submitted to the CIWMB up through the year 2000 as required by AB 939.

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Table V - 1
Composting Implementation Plan

Task	Location	Date
Short Term		
• County Facilities Yard and Wood Waste Collection	Countywide	1994
• Market Development for Compost End Products	Countywide	1994
• Residential Curbside Collection	San Jose	1993
	West Valley	1994
	North County	1993
• Permanent Drop-Off Centers	San Jose	1993
	South Valley	1993
	West Valley	1994
	North County	1993
	Lexington Hills	1994
• Commercial/Industrial Yard and Wood Waste Collection	North County	1994
Medium Term		
• Evaluate Need for Regional Composting	Countywide	1994
• Commercial/Industrial Yard and Wood Waste Collection	San Jose	1996
• Residential Curbside Collection	Burbank	1994
• Consider Residential Curbside Collection	South Valley	1995
• Consider Co-Composting Food Waste	South Valley	1996

Table V - 2
Composting Implementation Plan Costs

Task	Cost	Source of Funds
Short Term		
• County Facilities Yard and Wood Waste Collection	$1,400	SWP/Rates
• Market Development for Compost End Products	$1,400	Solid Waste Program
• Residential Curbside Collection	$1,400	Collection Rates
• Permanent Drop-Off Centers	$1,400	Collection Rates
• Commercial/Industrial Yard and Wood Waste Collection Waste Collection	Unknown	Rate Fees
Medium Term		
• Evaluate Need for Regional Composting	Unknown	Solid Waste Program
• Commercial/Industrial Yard and Wood Waste Collection	Unknown	Collection Rates
• Residential Curbside Collection	Unknown	Collection Rates
• Consider Residential Curbside Collection	Unknown	Collection Rates
• Consider Co-Composting Food Waste	Unknown	Solid Waste Program

Section VI

Special Waste Component

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):

> Special waste means any hazardous waste listed in Section 66740 of Title 22 of the CCR, or any waste which has been classified as a special waste pursuant to Section 66744 of Title 22 of the CCR, or which has been granted a variance for the purpose of storage, transportation, treatment, or disposal by the Department of Health Services pursuant to Section 66310 of Title 22 of the 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 discussed in this component include:

- abandoned vehicles/auto bodies/treated auto shredder waste
- asbestos
- ash
- dead animals
- sewage sludge
- tires
- white goods
- other special wastes

The results of the Solid Waste Generation Study did not indicate generation of some types of special wastes in the County, including: liquid wastes, cannery wastes, contaminated soil, infectious materials, medical wastes, grease trap pumpings and street sweepings, and therefore they are not addressed in this component.

OBJECTIVES

Based on data from the Solid Waste Generation Study, the objectives presented in this section have been developed to address special wastes generated in the County. 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 County can expect to divert approximately 0.3% of the total waste stream by adopting the following objectives:

Objective 1: continue special waste management practices which reduce potential hazards and provide for safe handling and disposal of special waste that cannot be recycled (ash, asbestos, treated auto shredder waste, etc.).

Objective 2: increase recovery of recyclable special waste (used tires, white goods, auto bodies, etc.) from the solid waste stream.

Objective 3: minimize illegal disposal of special waste.

TARGETED MATERIALS

Special waste types targeted for diversion by the County have been identified, based on three factors: (1) the results of the solid waste generation study; (2) effectiveness in 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. Special waste types targeted for diversion by the County are:

- abandoned vehicles (auto bodies)
- used tires
- white goods

EXISTING CONDITIONS

This section describes existing management practices for special wastes generated in the County. Quantities of special wastes diverted by the County's existing programs (by waste category and waste type), are presented in Table VI - 1. The County's existing special waste diversion rate is estimated to be 0.1% of the total waste stream.

The County, neighboring jurisdictions, franchised haulers, and facility operators (at Newby Island, Guadalupe, and Pacheco Pass landfills, and San Martin Transfer Station) have developed programs for managing special waste. These programs target used tires, white goods and abandoned vehicles (auto bodies) for diversion from landfills. Local water pollution control plants, the Humane Society and Animal Control agencies have developed systems which divert sewage sludge and dead animals from disposal. The remaining special waste types discussed in this component require specific handling methods for disposal. Required handling 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 existing programs for each special waste type identified above as well as requirements for their safe handling and disposal.

Abandoned vehicles, auto bodies, treated auto shredder waste.
Some vehicles that are in disrepair are legally self-hauled or privately hauled to metals recyclers. Other vehicles are illegally abandoned by their owners, usually in a state of disrepair, and are normally hauled away by private haulers under the neighborhood preservation programs of each jurisdiction. Under California regulations, abandoned vehicles (which become auto bodies after some dismantling) are considered to be an unclassified waste, thus qualifying for disposal in a Class III landfill. Whole auto bodies pose the same disposal problems as other large bulky items such as white goods and should be handled accordingly.

Whole auto bodies are managed through a combination of source reduction (repair and reuse), recycling (auto shredding), and disposal. According to an industry source, about 1.8 million to 2.0 million whole auto bodies are shredded in California each year.

Abandoned vehicles generated in the County are removed by private towing companies and sold to auto dismantlers. After the vehicle has been stripped of its reusable parts, the remaining auto body is delivered to an auto shredding facility.

Most auto bodies generated in Santa Clara County jurisdictions are shipped to the LMC Metals (LMC) auto shredding facility in Redwood City. The typical auto body yields about one ton of steel and 0.3 ton of auto shredder waste to be disposed.

Auto shredder waste is comprised of metallic fragments (fines), which need to be treated and tested before disposal, and larger pieces of foam rubber, plastic, wood, window glass, upholstery, seats and carpeting. The fines generated at LMC are treated with a polysilicate compound to immobilize lead and other heavy metals. LMC's treated auto shredder waste is tested by certified laboratories to determine its suitability for disposal in a Class III landfill. A 1988 study by the Department of Health Services determined that the larger pieces of auto shredder waste are non-hazardous and can be disposed of at Class III landfills without further treatment. A portion of the resulting treated auto shredder waste generated by LMC is transported to Guadalupe Landfill for disposal.

Whole auto bodies are occasionally landfilled in Santa Clara County. Guadalupe Landfill is the only facility in Santa Clara County which is permitted to accept whole auto bodies for disposal.

There are no automobile shredding facilities located in the County. Because of poor documentation and export of most auto bodies for recycling in Redwood City, no quantities of auto bodies were identified as being generated in the County in the 1990 Solid Waste Generation Study.

Management and diversion practices for abandoned vehicles (auto bodies) generated in the County are considered adequate at this time.

Asbestos.
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 demolition, repair, or maintenance. In California, friable asbestos must be managed as a hazardous waste, requires special handling, and must be disposed in a hazardous waste landfill.

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 its disposal. Handling requirements include a dedicated disposal area away from the normal tipping area, and immediate entombment of the material upon receipt. While several landfills are currently permitted to accept non-friable asbestos for disposal, Guadalupe Landfill is the only disposal facility used by the County which currently accepts it for disposal.

Since both forms of asbestos pose a potential risk to public health, it is not possible to recycle or divert it from landfill disposal; therefore, the only alternative is to continue to safely manage and dispose of asbestos in accordance with all pertinent local, state, and federal regulations.

According to the California Department of Toxics Substance Control (DTSC) Hazardous Materials Report Manifest Information System, 2,866.8 tons of friable asbestos-containing waste were generated in Santa Clara County during 1987. All of this waste was transported to out-of-county facilities for disposal. Because of poor documentation, no quantities of asbestos have been identified in the 1990 Solid Waste Generation Study as being generated in the County.

Ash.
Ash is generated from the combustion of solid waste, such as wood waste and sewage sludge. The primary means of ash management in the United States is land disposal. In California, ash can be disposed of at a Class III landfill unless the DTSC determines that the ash is a hazardous waste. When concentrations of metals in ash exceed levels set by the DTSC, the ash is considered to be a California Hazardous Waste and must be managed by a hazardous waste facility. No significant quantities of ash were identified in the Solid Waste Generation Study as being generated in the County.

Dead animals.
Collection and disposal of dead animals is 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 own pets; however, the Animal Control Department will collect and dispose of the animal for a fee. State agencies are responsible for dead animals found on highways or state property.

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 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 to contract for disposal with Koefran Services of Sacramento. Koefran provides a freezer at the County Animal Shelter and the Humane Society of Santa Clara County Shelter for storage of animal remains. Koefran collects these remains periodically and transports them to Sacramento, where they 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.

Tonnages of dead animals generated and disposed are not available from landfill records. Tonnages diverted are also not available at present. Additionally, County education programs that promote spaying and neutering of pets are a method of source reduction because they reduce the number of unwanted pets and dead animals generated. Current programs for dead animals are considered adequate.

No quantities of dead animals were identified in the Solid Waste Generation Study as being generated in the County in 1990.

Sewage sludge.
Sewage sludge is produced by wastewater treatment plants during secondary treatment of waste water. In areas where wastewater systems service industrial areas (such as portions of Santa Clara County), sludge may contain heavy metals and other constituents that can pose hazards to public health. Disposal of sewage sludge in solid waste (Class III) landfills is becoming more difficult because of stricter landfill regulations.

Water treatment sludge that has been determined to be nonhazardous by the DTSC can be disposed at a Class III landfill under the following conditions: (1) the landfill is equipped with a leachate collection and removal system; (2) the sludge contains at least 20 percent solids if it is primary sludge, or at least 15 percent solids if it is secondary sludge; and (3) a minimum solids-to-liquid ratio of 5:1 by weight is maintained.

There are four wastewater treatment plants in Santa Clara County. The treatment plants are located in the cities of Palo Alto, Sunnyvale, San Jose, and Gilroy.

The City of Gilroy OMI Sewage Treatment Plant treats wastewater from the cities of Gilroy, Morgan Hill, and portions of surrounding unincorporated areas. The plant performs primary treatment of wastewater and currently generates about four tons

per day of sewage sludge. This sludge does not contain heavy metals and is currently stockpiled and landspread on land owned by the City of Gilroy.
Palo Alto Regional Water Pollution Control Plant treats sewage from Palo Alto, Mountain View, Los Altos, Los Altos Hills, Stanford University, and surrounding unincorporated areas. The plant generates approximately 18,880 wet tons of sewage sludge per year, or 5,475 dry tons per year. The sludge generated at the facility is incinerated at an on-site incinerator. Approximately 1100 tons of ash per year is produced and sent to a copper smelter in Arizona.

The San Jose/Santa Clara Wastewater Plant treats wastewater from San Jose, Santa Clara, Milpitas, most of Cupertino, Campbell, Los Gatos, Saratoga, Monte Sereno, and surrounding unincorporated areas. The plant performs primary, secondary, and tertiary treatment of wastewater. The plant generates approximately 34,000 tons per year of dry sewage sludge. The generated sludge is spread over 640 acres of lagoons. Dried sludge is stockpiled and tested for physical and chemical parameters and suitability for agricultural uses.

The Sunnyvale Water Pollution Control Plant treats wastewater from the City of Sunnyvale, portions of Cupertino, half of Moffett Field Naval Air Station, and surrounding unincorporated areas. The plant performs primary, secondary, and tertiary treatment of wastewater. The plant generates approximately 1,050 tons of dry sewage sludge per year. The sewage sludge is spread over two sludge lagoons and is stockpiled at the plant.

Because County unincorporated area wastewater is exported to treatment plants in other jurisdictions (Gilroy, Palo Alto, San Jose, and Sunnyvale) quantities of sewage sludge that could be attributed to the County are actually generated outside the County. For purposes of AB 939 planning, sewage sludge is generated in the jurisdiction which hosts the wastewater treatment plant.

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 of the landfill. Whole waste tires have been prohibited from landfill disposal in California by state law since January 1, 1993. Tires which have been shredded or otherwise permanently reduced in volume may be disposed at landfill facilities.

Used tires accepted for disposal should be placed flat at the base of the active face in order to inhibit the tendency of tires to float to the surface of the landfill cell. To prevent differential settlement, tires should not be buried in high concentrations in one area of the landfill. Tires can also be shredded to reduce volume before being landfilled in order to make burial easier.

Used tires generated in the County are currently either landfilled or are diverted to a tire recycler for one of several uses, including reuse, tire-derived products, or tire-derived fuel. Many landfills in Santa Clara County separate used tires and stockpile them until a specific quantity are collected. Once a specific quantity of used tires are collected, they are sold to a tire recycler.

Some used tires generated in the County are sold to Oxford Tire Recycling (OTR) of Northern California in Union City. The tires are inspected and those that are suitable for reuse or retreading are manually separated. Remaining tires are transported to Oxford Energy Company's Tire-to-Energy Plant in Westley, California for incineration. OTR estimates that 11 percent of the collected tires are resold, 14 percent are used as casings for retreaded tires, and 75 percent are used as tire-derived fuel for the generation of electricity.

The tire incinerator in Westley is fueled, in part, by tires stored on an adjacent site. The current rate of deliveries to OTR is insufficient to fuel the incinerator at its full rated capacity. OTR is constantly seeking new sources of used tires.

The Solid Waste Generation Study identified a total of 1,374 tons of used tires generated in the County in 1990, with 296 tons identified as diverted from disposal.

White goods.

White goods are large appliances (such as washers, dryers, and refrigerators) that have entered the waste stream. White goods require special handling because of their size and weight; in addition, their components may contain hazardous chlorofluorocarbons (CFCs) and polychlorinated biphenyls (PCBs). CFC exposure has been shown to cause arrythmia (irregular heartbeat), lung infections, kidney damage, rare tumors, nosebleeds, hypertension, dizziness, and forgetfulness. CFCs also break down the stratospheric ozone layer. PCBs are rarely found in white goods that are less than 15 years old. PCBs are a known human carcinogen.

Proper handling and disposal of white goods includes removal of electrical capacitors and cooling units from items by trained personnel before crushing (to

prevent release of PCBs and CFCs when items are crushed), crushing items with compacting equipment, placing items in the lower portion of the advancing lift of the landfill cell, and separating items to prevent uneven settlement and compaction of refuse.

White goods generated in the County are currently managed through a combination of source reduction (repair and reuse), collection by haulers for recycling of metals (usually for a fee), landfill salvaging, and disposal. Many white goods generated in the County are ultimately shipped to the LMC Metals shredding facility in Redwood City. At this facility, the white goods are shredded, and the valuable metals are compacted and baled for sale to various markets.

The solid waste generation study identified a total of 386 tons of white goods generated in the County in 1990 with 217 tons being diverted from disposal.

Additionally, AB 1760 prohibits, after January 1, 1994, a solid waste facility from accepting for disposal any major appliance or other metallic discard which contains enough metal to be economically feasible to salvage. Most white goods are currently salvaged by landfills throughout Santa Clara County. This new law will affect the existing solid waste management system by mandating that facility operators salvage white goods if it is economically feasible.

Other Special Waste.
Other types of special waste that are generated in Santa Clara County are agricultural waste, small household appliances, and mattresses. In 1990, 245 tons of agricultural waste were generated in the County and landfilled in accordance with regulations. Small household appliances (115 tons generated in 1990) and mattresses (3 tons) are generally managed through source reduction (reuse and repair), recycling (primarily landfill salvaging), and landfilling. Landfill handling methods for these waste types are considered adequate at this time.

Future Status of Programs.
None of the special waste activities and programs identified above are expected to be phased out or discontinued in the short- and medium-term planning periods.

EVALUATION OF ALTERNATIVES

Special waste management practices should always be developed with the health and safety of workers and the general public in mind. Management practices should also take advantage of all viable markets and end uses for recyclable special wastes. In Santa Clara County, all recyclable special waste types are recycled at some level, although it is difficult to obtain documentation of current diversion levels. The special waste management alternatives in this section are evaluated according to a range of criteria mandated by the regulations governing AB 939.

Sewage Sludge

Alternative 1 - Sewage Sludge Composting

Composting is the controlled biological decomposition of solid organic materials. The end product of composting is a stable humus or soil-like material that can be used as a soil conditioner, mulch, or fertilizer, depending on its physical properties. Sewage sludge generated in the County could be composted and sold to the general public for non-agricultural uses. The market for sewage sludge compost could be limited by the amount of public acceptance for the end-product. 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 - Land Application of Sewage Sludge

Sewage sludge generated in the County could be used beneficially as a soil amendment or fertilizer for agricultural purposes. Other benefits include reduced need for inorganic fertilizers, improved soil fertility and tilth, decreased consumption of energy, and reduced hazardous air emissions. Sewage sludge can also be used in projects requiring a large amount of fill.

Alternatives 1 and 2 are evaluated below.

Effectiveness. These alternatives could be effective in diverting sewage sludge from disposal in the County. Sewage sludge diversion could not be counted towards

achievement of AB 939 goals because in 1990 it was not a waste normally disposed of at landfills in the County.

Hazard. Because of the presence of a significant number of computer-related manufacturing operations in the County, the presence of heavy metals in sewage sludge could cause problems for both composting and land applications. Composted sewage sludge containing unhealthy levels of heavy metals could not be applied to agricultural crops. Sewage sludge compost would need to be tested to determine its suitability for land application at a particular site.

Ability to Accommodate Change. The ability of these alternatives to accommodate change could be limited by the amount of composted sludge that can be stockpiled during unfavorable market conditions. These alternatives could also be limited if there is a lack of public acceptance of the use of sewage sludge for land application.

Consequences to the Waste Stream. These alternatives will not shift the waste stream toward non-recyclable or unmarketable materials.

Implementation Period. Because of limitations imposed by potential hazards, and the general public's limited acceptance of sewage sludge products, implementation of these alternatives could be hindered in the short-term. Implementation could be achieved in the medium-term.

Facility Requirements. Additional composting facilities could be needed if current sites are deemed to be inadequate as sewage sludge storage and compost sites.

Consistency with Local Plans and Policies. These alternatives are generally not consistent with local plans and policies. New plans and policies could be needed to implement these alternatives.

Institutional Barriers. There could be some institutional barriers to these alternatives. The Palo Alto Water Pollution Control Plant plans to continue incinerating their sewage sludge. Implementation of these alternatives could require the acceptance of regulatory agencies, local elected officials, citizens, farmers, and farm bureaus.

Estimated Cost. Because composting regulations have not been issued, it is difficult to estimate costs. Composting sewage sludge is anticipated to require minimal implementation and operating costs. Annual operating expenses are expected to range between $50,000 and $100,000. Testing the end-product for levels of heavy

metals could significantly add to the cost. Land application costs are anticipated to be minimal, with the cost of transporting the sewage sludge to the site of application being the most significant. Depending on composting regulations, testing costs, and the exact quantities of sludge diverted, current sludge handling costs could increase 10 to 20 percent.

End Uses. A relatively stable market for compost could be available. Available markets could include local government agencies (Public Works, Parks and Recreation, Facility Maintenance and Road Operations) farmers, and the general public. The southern portion of Santa Clara County could become a significant market due to the extensive agriculture in the area. However, large quantities of yard waste compost products are expected to be marketed in Santa Clara County and sewage sludge compost would be competing in the marketplace with a product that is more readily accepted by the general public.

Tires

Alternative 3 - Prohibit Disposal of Used Tires at Landfills

Used tires could continue to be accepted for recycling at landfills used by the County, but would be banned from disposal. The landfills 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 4 - Encourage Used Tire Recycling

Used tires generated in the County could be reused, recycled or transformed into a variety of end products including retread tires, floor tiles, dock bumpers, playground equipment and covering, used in rubberized asphalt for roads, and as a combustible feedstock for energy plants (tire-derived fuel). An important component of this alternative is the availability of storage areas to stockpile used tires in quantities large enough to warrant collection by a private recycler. The County does not have a permitted storage facility at this time because it neither owns nor operates any solid waste facilities. However, at privately owned and operated solid waste facilities, facility operators have developed contractual arrangements with Oxford Tire Recycling of Northern California (OTR) to collect used tires. Tires collected by OTR are generally resold, retreaded, or used as a feedstock (tire-derived fuel) for the generation of electricity at the Oxford Energy Company energy plant in Westley, California. The County could encourage used tire recycling by working

cooperatively with haulers, landfills, and tire retailers. If diversion needs to be further increased , public education materials could be distributed to the public and/or special used tire collection days could be scheduled.

Alternatives 3 and 4 are evaluated below.

Effectiveness. These alternatives could be effective in diverting used tires from the waste stream.

Hazard. There is some hazard potential for both alternatives. Prior to being transported for processing, used tires are stored at landfills until a sufficient quantity is on hand. When exposed to the elements, stored tires can collect rainwater and serve as breeding grounds for disease vectors. Stored used tires can also become a fire hazard. To minimize the hazard potential, tire storage times should be limited, and storage should be in accordance with all health, safety, and fire codes.

Ability to Accommodate Change. The ability of these alternatives to accommodate change is limited to the quantity of tires that could be stored at landfills during unfavorable market conditions. As long as there is storage capacity available for used tires at a regional waste tire facility or at local landfills during unfavorable market conditions, this alternative could accommodate changing conditions.

Consequences to the Waste Stream. These alternatives will not shift the waste stream toward non-recyclable or unmarketable materials.

Implementation Period. Implementation of these alternatives could be achieved in the short-term planning period. Implementation could be hindered if a regional facility permitted to accept used tires is unavailable. It is anticipated that the Oxford Tire facility will be available.

Facility Requirements. In the short-term planning period, these alternatives could require a storage area at each landfill for used tires, but a new facility would not be needed. In the medium-term planning period, a regional waste tire facility for storage and processing of used tires could be needed. A facility could be developed and permitted in accordance with the requirements of Assembly Bill 1843. If needed, the County would participate in cooperative efforts to establish a facility.

Consistency with Local Plans and Policies. These alternatives are generally consistent with local plans and policies. Cooperation between the County, other

jurisdictions, each landfill operator, and local enforcement agencies would be needed for implementation.

Institutional Barriers. If a regional waste tire facility is deemed necessary, siting and permitting will require cooperation by the State, County, other local jurisdictions, local enforcement agencies, elected officials, and the public.

Estimated Cost. For some facility operators, there are significant costs associated with this alternative. It is estimated that these alternatives could cost up to $67 per ton of tires diverted. This cost could be covered by an increase in landfill fees of approximately $0.50 per tire.

End Uses. Used tires in good condition could be resold, and casings that are usable for retreaded tires could be marketed to tire distributors. Used tires could also provide the raw material for tire-derived products such as playground equipment and coverings, floor mats, dock bumpers, floor tiles, asphalt rubber and rubber-modified asphalt. Additionally, tires could be shredded at a shredding facility and used for tire-derived fuel.

Tires not recycled or re-treaded could be used for tire-derived products or fuel. The remaining whole tires could be taken to a power plant such as the one located in Westley, California. These tires are incinerated to produce steam to generate electricity. Power plants can recover incineration byproducts that include fly ash and gypsum. Fly ash could be shipped to a smelting facility; gypsum could be used for nonagricultural land applications. Slag from the steel and fiberglass belts in the tires could be recovered and used for road base (i.e., under asphalt). There is currently a stable and growing market for used tires in northern California, as OTR is currently not able to obtain sufficient quantities to meet the demand for used tires at the Westley power plant.

White Goods

Alternative 5 - Prohibit Disposal of White Goods at Landfills

White goods could be banned from disposal at all landfills located in Santa Clara County. Landfill operators could require waste haulers to identify white goods in the incoming loads. As incoming loads containing white goods arrive at the landfill gate, landfill operators could reject or accept the white goods for recycling. If the white goods are rejected, the hauler could be directed to a scrap metal recycler. If the

white goods are accepted for a fee, the white goods could be inspected for CFCs, and the hauler could be directed to a separate white goods storage location at the landfill. At the white goods storage area, landfill personnel could assist in unloading the white goods, and remove the CFCs, electrical capacitors, cooling units, insulation, and wiring, if necessary. The electrical capacitors and cooling units could be recycled and the insulation and wiring landfilled. The unit could then be sold to a scrap metal dealer. Landfill operators could also sell the units "as is" to a scrap metal dealer who would assume responsibility for CFC removal. The white goods could be delivered by landfill personnel or picked up by the scrap metal dealer. To reduce the labor involved, landfill operators could require that capacitors and cooling units be removed by a certified technician prior to acceptance at the landfill. The remaining unit could be sold to a scrap metal recycler.

Recent State and Federal legislation will affect the way in which white goods will be managed in the future. The Federal Clean Air Act, which went into effect on July 1, 1992, bans the deliberate release of all chlorofluorocarbons (CFCs) into the atmosphere. This Act requires that all CFCs (usually Freon) be removed from white goods before they are processed for recycling. After January 1, 1994, State law (AB 1760) prohibits a solid waste facility from accepting for disposal any major appliance or other metallic discard which contains enough metal to be economically feasible to salvage. Since this law does not go into effect until January 1, 1994, jurisdictions could take action to ban disposal of white goods at an earlier date.

Alternative 6 - Encourage White Goods and Auto Body Recycling

Under this alternative the County would not take action to prohibit disposal of white goods, but would encourage the recycling of white goods at all solid waste facilities located in the County. Additionally the County would cooperate with other jurisdictions, private companies engaged in towing and salvaging autos, and scrap metal recyclers to encourage recycling of auto bodies. By working cooperatively with haulers, landfills, and other jurisdictions, the County could encourage a cost-effective approach to white goods and auto body recycling and marketing of the scrap metal. If diversion needs to be further increased , public education materials could be distributed to the public and/or specialwhite goods collection days could be scheduled.

Alternatives 5 and 6 are both evaluated below.

Effectiveness. These alternatives could be effective in diverting white goods from disposal.

Hazard. Potential hazards include risk of injury to landfill personnel from unloading and handling white goods, working around heavy equipment, and in handling and removal of white goods components. White goods contain CFCs (freon) in their cooling units, and older units may contain PCBs in their electrical capacitors and in the ballasts of their fluorescent light bulbs. Exposure to PCBs occurs rarely and usually the amount of PCB contamination is minimal. CFC exposure has been shown to cause arrythmia (irregular heartbeat), lung infections, kidney damage, rare tumors, nosebleeds, hypertension, dizziness, and forgetfulness. CFCs also break down the stratospheric ozone layer. PCBs are a known human carcinogen. To reduce the potential for hazard, workers should be properly equipped and trained in handling and removal of white goods components, PCBs, and CFCs. To reduce the risk, landfill operators could specify that all white goods be inspected (and if necessary, the PCBs and CFCs removed), by a certified technician prior to acceptance at the landfill. Once removed from white goods, CFCs are generally recycled, and PCBs are incinerated in a hazardous waste incinerator.

Ability to Accommodate Change. The ability of these alternatives to accommodate change may be limited if large quantities of white goods need to be stored at sites during unfavorable market conditions.

Consequences to the Waste Stream. These alternatives would not shift the waste stream toward non-recyclable or unmarketable materials.

Implementation Period. Either alternative could be implemented in the short-term planning period.

Facility Requirements. These alternatives could require a storage area at each landfill for white goods, but do not require any new facilities.

Consistency with Local Plans and Policies. These alternatives are consistent with local plans and policies.

Institutional Barriers. A countywide ban on the disposal of white goods would require passage of a County ordinance. Both alternatives would require the cooperation of other local jurisdictions, landfills, and local enforcement agencies.

Because of the State law mentioned above, any institutional barriers to either alternative would not exist after January 1, 1994.

Estimated Cost. There are some costs associated with these alternatives. White goods could be unloaded and placed in a storage area by existing landfill personnel, but additional labor and equipment would be required to remove CFCs (freon) before processing. An additional staff person at each landfill on a part-time basis would probably be sufficient. Additional labor costs at each landfill probably would not exceed $15,000 per year. The cost for CFC removal equipment is estimated to be between $5,000 and $10,000. A countywide ban on white goods would require a County ordinance. Staff time of 40 to 120 hours could be needed to prepare a recommendation and ordinance for the Board of Supervisors.

End Uses. White goods can be repaired and reused; they can also be used for scrap metal following the removal of CFCs, electrical capacitors, and cooling units. The metal components of the white goods are processed for reuse in mills and foundries to produce new steel.

Alternative 7 - Evaluate Need for Programs to Minimize Illegal Disposal

The County could work cooperatively with the County of Santa Clara Department of Environmental Health-Solid Waste Enforcement (the Local Enforcement Agency for all cities except San Jose), and the City of San Jose Department of Neighborhood Preservation (the Local Enforcement Agency for San Jose), to monitor illegal disposal of special waste. The County could work with landfill operators, haulers, and other jurisdictions to monitor illegal disposal of special waste, identify problems, and evaluate the need for special programs to minimize illegal disposal. The County could complete a needs assessment which would focus on the need to develop specific programs that could minimize illegal disposal of special waste. Monitoring illegal disposal and evaluating the need for programs to minimize it could become crucial as landfill tipping fees increase and landfill cost recovery fees are implemented which recover the cost of handling special waste.

Effectiveness. This alternative could result in the development of effective programs to minimize the illegal disposal of special waste.

Hazard. There are no hazards associated with this alternative.

Ability to Accommodate Change. This alternative could be adapted to changing conditions.

Consequences to the Waste Stream. This alternative would not shift the waste stream toward non-recyclable or unmarketable materials.

Implementation Period. This alternative could be implemented in the short-term planning period.

Facility Requirements. This alternative would not require any new facilities.

Consistency with Local Plans and Policies. This alternative is consistent with local plans and policies.

Institutional Barriers. There are no institutional barriers to implementation of this alternative.

Estimated Cost. Cost to implement this alternative could include staff time of approximately 40 to 80 hours to perform a needs evaluation and prepare a recommendation on whether a program is needed. If a program is necessary, additional staff time would be needed to implement and staff a program.

End Uses. Not applicable.

SELECTION OF PROGRAMS

In the previous section, seven alternatives were presented for consideration; each was evaluated according to a range of criteria mandated by the regulations governing AB 939. Each alternative has inherent qualities that makes it either more or less attractive to the County. In addition, each alternative has aspects that may be more or less appropriate to the County's goals, objectives, policy environment, waste stream, and solid waste management system.

In this section, the County presents the results of the evaluation of the alternatives presented in the previous section. In selecting among alternatives and programs, the County has 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.

Based on the results of this evaluation and assessment, the County has selected the following alternatives to meet the goals and objectives of this component:

Short-Term and Medium-Term Planning Periods

In order to meet the goals and objectives outlined in this component, the County will divert approximately 4.3% of the total waste stream in the short-and medium-term planning periods through countywide implementation of the following selected programs:

Program 1: Encourage used tire recycling.
Program 2: Encourage white goods and auto body recycling.
Program 3: Evaluate need for programs to minimize illegal disposal.

Program 1: Encourage Used Tire Recycling

Selection Rationale: The County wishes to encourage the recovery of as many used tires as are feasibly separated and marketable by area landfills and tire retailers.

Potential Diversion: This program will divert an estimated 1,182 tons by 1995 (0.9% of the total waste stream) and 1,483 tons by 2000 (1.1% of the total waste stream).

Handling Methods: The County will encourage the proper handling of used tires by privately owned landfills and tire retailers. The City of San Jose Department of Neighborhood Preservation is responsible for enforcing regulations concerning the proper handling of used tires at San Jose landfills and the County of Santa Clara Health Department is responsible for enforcing these regulations at all other landfills.

Required Facilities: Currently no new facilities are needed to implement this program. If a regional tire facility is needed in the future, the County will encourage and/or participate in cooperative efforts to site a regional facility.

Program 2: Encourage White Goods and Auto Body Recycling

Selection Rationale: The County will encourage the recovery of as many white goods and auto bodies as are feasibly separated and marketable by area recyclers, landfills, and appliance retailers.

Potential Diversion: This program will divert an estimated 4,865 tons per year by 1995 (3.6% of the total waste stream) and 5,108 tons by 2000 (3.6% of the total waste stream).

Handling Methods: The County will encourage the proper handling of white goods by privately owned landfills and appliance retailers. The City of San Jose Department of Neighborhood Preservation is responsible for enforcing regulations concerning the proper handling of white goods at San Jose landfills and the County of Santa Clara Health Department is responsible for enforcing these regulations at all other landfills.

Required Facilities: Currently no facilities are needed to implement this program. If a regional white goods processing facility is needed in the future, the County will encourage and/or participate in cooperative efforts to site a regional facility.

Program 3: Evaluate Need for Programs to Minimize Illegal Disposal

Selection Rationale: The County wishes to ensure that illegal disposal of special waste does not become a problem. The County wishes to address the potential problem through ongoing monitoring of the need to establish programs to minimize illegal disposal.

Potential Diversion: This program will not divert any materials from the total waste stream.

Handling Methods: The County will encourage the proper handling of special waste by residents, landfills and retailers. The City of San Jose Department of Neighborhood Preservation is responsible for enforcing regulations concerning the proper handling of special waste by residents, landfills and retailers in San Jose, and the County of Santa Clara Health Department is responsible for enforcing these regulations in all other areas of Santa Clara County.

Required Facilities: No new facilities are needed to implement this program.

Program Implementation

Table VI - 2 details how the County will implement the special waste programs selected. It defines the tasks necessary for implementing each program, identifies the party responsible for completing each task, and establishes an implementation schedule. Table VI - 3 estimates the County's cost for implementing each program.

Multi-Jurisdictional Special Waste Efforts. Multi-jurisdictional special waste efforts could be needed to implement some programs. Privately operated landfills are used by a number of jurisdictions. Each jurisdiction has AB 939 goals and objectives to achieve and is likely to have selected similar programs to meet their special waste objectives. The County intends to work cooperatively with landfill operators, haulers, and other jurisdictions in developing special waste programs.

MONITORING AND EVALUATION

This section establishes systems for monitoring and evaluating the selected special waste programs. The responsible agency, funding requirements, revenue sources and shortfall measures are specified for each program.

Responsibility for Monitoring. The County of Santa Clara Office of Toxics and Solid Waste Management is responsible for the implementation, monitoring, and evaluation of special waste programs. The office will work cooperatively with the County Department of Environmental Health to implement, monitor, and evaluate the selected programs.

Monitoring Methods. The Office of Toxics and Solid Waste Management will monitor achievement of special waste program objectives and maintain accurate diversion data using one or more of the following: (1) Solid Waste Generation Studies, (2) targeted Solid Waste Characterization Studies, (3) Product Assessments, and (4) information from the Local Enforcement Agency (County Department of Environmental Health-Solid Waste Enforcement).

Criteria for Evaluating Programs. The Office of Toxics and Solid Waste Management will annually assess ongoing special waste programs using the

following criteria to determine if a program should be continued, revised, updated, or discontinued.

1. Does the program divert, in volume and/or weight, the quantity of material expected and/or sufficient to meet program objectives?

2. Is program participation by residents and businesses adequate?

3. Has the promotion of the program been sufficient?

4. Has the program made a measurable difference in the amount of waste disposed?

5. Have the markets for the materials been stable; will the markets continue to be stable?

6. Have the costs been proportionate to the diversion achieved?

7. Has illegal disposal increased/decreased; are additional prevention programs needed?

Funding Requirements. Funding for the monitoring and evaluation program described in this section will be provided by the AB 939 fee, rate increases, sale of materials, and grants. Costs include (1) administrative activities, (2) recordkeeping, (3) program monitoring and surveying, (4) tracking of survey results, and (5) annual report-writing.

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

- Introduce additional waste acceptance procedures at landfills in order to divert special wastes from disposal.

- Locate new/additional markets for recovered recyclable special wastes.

- Amend special waste disposal practices.

- Perform analysis of existing programs and obstacles to successful implementation.

- Modification of selected alternatives, including degree, scope, or extent of special waste program and implementation schedule.
- Seek additional funding and/or staffing.
- Select additional alternatives.
- Consider regulatory programs or mandatory programs.
- Discontinue the program.

Monitoring and Evaluation Reporting Schedule. As required by AB 939, the County will prepare annual reports (through the year 2000) to be submitted to the CIWMB summarizing the findings of the monitoring and evaluation activities described above. The report will contain the written criteria for evaluating the effectiveness of the special waste alternatives.

Table VI - 1.
Special Waste Types and Quantities Diverted By Existing Programs (1990)

Existing Programs	Waste Category and Type	Quantity Diverted
• Reuse and Recycling	Used Tires	296 tons
• Recycling	Auto Bodies	2,520 tons
• Recycling	White Goods	1,555 tons
• Reuse and Recycling	Mattresses	3 tons

Table VI - 2.
Special Waste Implementation Plan

Task	Responsible Agency	Implementation Date
Short- and Medium-Term		
• Encourage used tire recycling	Office of Solid Waste Management	2nd quarter 1994 - ongoing
• Encourage white goods and auto body recycling	Office of Solid Waste Management	1st quarter 1992 - ongoing
• Evaluate need for programs to minimize illegal disposal	Office of Solid Waste Management	2nd quarter 1994 - ongoing

Table VI - 3.
Special Waste Implementation Costs

Selected Programs	Costs
Short- and Medium-Term	
• Encourage used tire recycling	$1,000
• Encourage white goods and auto body recycling	$4,000
• Evaluate need for programs to minimize illegal disposal	$7,400

Section VII

Public Education and Information Component

INTRODUCTION

Public Education and Information is an essential part of ensuring the success of Santa Clara County's Recycling, Source Reduction and Composting programs. Public awareness of solid waste management issues within the County plays a critical role in meeting the needs of the County and satisfying state-mandated diversion goals. In addition, there is a direct relationship between public awareness and program participation. High levels of public awareness of a particular program are more likely to lead to higher levels of program participation.

The County of Santa Clara is unique and dynamic with a wide variety of ethnic groups, languages, and socio-economic levels. As a result, it is important that educational materials be appropriately developed to meet the needs of all segments of the population. It is equally important, practical, and economical, that public educational efforts be undertaken at a countywide level as opposed to specifically for the unincorported areas of the county, as much of the unincorporated areas are geographically scattered throughout the county. An exception would be promotional efforts for programs developed specifically for the unincorporated areas of the County.

OBJECTIVES

This component documents current education and public information activities for the County of Santa Clara and describes how participation in reduction, recycling, and composting activities will be stimulated through supporting and expanding existing programs and implementing new programs.

Establishing clear goals and objectives for educational efforts provides an understanding of the program to governmental agencies, residents, and the business community. In addition, monitoring, evaluation, and improvement of public education become easier when the goals and objectives are specified.

Short-term and medium-term objectives identified for the Unincorporated area of Santa Clara County include:

Objective 1: Support existing and planned source reduction, recycling, and composting programs and services through education and public information activities;

Objective 2: Continue and expand countywide educational efforts.

Objective 3: Encourage and support regional public education efforts.

Objective 4: Increase county employees' awareness of diversion goals and solid waste management issues.

EXISTING CONDITIONS

County-Sponsored Events and Activities

The following public education efforts are initiated and supported by the County, and are not considered countywide efforts.

Earth Day

The County of Santa Clara has held an Earth Day Information Fair at the County Government Administration Center annually since 1990. The fair features informational booths by local, state, national environmental organizations, governmental agencies, and private businesses that are concerned with environmental issues including solid waste. In 1992, panel discussions were held on environmental topics.

County Recycling Committee

This committee consists of representatives from various county departments. According to the mission statement the purpose of the committee:

... is to recommend policies, develop and expand activities in County facilities that support waste reduction, reuse, recycling, the purchase of products with recycled content, and help the County achieve State-mandated waste reduction and recycling goals.

Program Promotion

Hauler Activities

Each collection service provider is responsible for promoting participation in residential curbside recyling programs for its service area. In addition, each must distribute a minimum of one mailing per year at no cost to the County. For example, one company in conjunction with the County developed a neighborhood recycling program, and the company distributed informational brochures and flyers and set up a Hotline to answer questions and take suggestions regarding the program.

County Office and Facility Recycling Program

A white, mixed and computer paper recycling program was established for the County Administration Center through the network of recycling coordinators in each department, and have promoted this program through the dissemination of posters and flyers to county employees and at each Earth Day Information Fair.

Holiday Tree Collection

Each County franchise agreement provides for holiday tree recycling. Countywide collection opportunities are promoted through public service announcements on TV, radio, and in the newspaper. Holiday tree recycling usually includes curbside collection for two weeks following January 1st, and there are also several drop off locations.

Community-Based Educational Efforts

Business Environmental Network

The Business Environmental Network is a Bay Area organization that promotes source reduction and recycling by businesses. The Network holds monthly workshops and conferences.

Santa Clara County Manufacturing Group

The Manufacturing Group developed a "Guide to Commercial Recycling," now in its third edition, and distributes it to assist businesses in establishing recycling programs. This group has also established two committees, the Environmental and the Solid Waste Committees, with members from various local companies. The Solid Waste Committee recently hosted the "Recycling Guide Workshop" in June 1992, and also makes presentations to interested groups.

Sierra Club

The Loma Prieta Chapter of the Sierra Club produces and distributes two solid waste brochures, "Where to Recycle in Santa Clara County" and "Buy Recycled." Santa Clara County distributes these brochures by mail and at events such as the Earth Day Information Fair and the County Fair. Other jurisdictions also distribute these brochures.

The Sierra Club is involved in various school activities. In addition to public speaking, they developed a list of recycling facilities available for field trip visits, and they distribute and show the film "Reuse It or Lose It," which is available in English and Spanish.

Countywide Solid Waste Planning Program

The Countywide Planning Program participates in various countywide public education and information efforts. The Program includes all fifteen jurisdictions within the County. Each jurisdiction is represented on the Technical Advisory Committee and the Solid Waste Commission which plans and funds joint projects.

County Fair Booth

The Countywide Planning Program, in cooperation with local cities, developed a recycling information booth for the 1990 and 1991 Santa Clara County Fairs. Information on all recycling programs in the County was provided and the booth was staffed by representatives from the County, cities, haulers, recyclers, and environmental groups. The booth received awards both years. In 1992, the County did not participate in the Fair, but will reconsider this option in 1993.

Center for Development of Recycling

On behalf of the Countywide Planning Program, Santa Clara County contracts with the Center for Development of Recycling (CDR) at the San Jose State University Foundation to research, develop and disseminate information related to solid waste management, waste reduction, and recycling. This information is generated by the County, cities, CDR, and other organizations and is distributed to County residents and businesses as well as private and corporate entities outside the County via mail, phone, fax, or personal contact. CDR maintains two telephone lines, one of which is a toll-free 800 number. These services are intended to increase public awareness of solid waste management issues, enhance each jurisdiction's ability to meet targeted diversion goals, and provide a central location for public education materials.

Telephone Book Collection

The Countywide Planning Program coordinated planning for a countywide collection and recycling program for outdated telephone books with PacBell, the cities, haulers, and recyclers. New phone books are distributed in bags that give the locations where old telephone books may be recycled. Public service announcements on TV, radio, and in the newspaper are used to encourage county residents and businesses to recycle their old telephone books.

Regional Educational Activities

Association of Bay Area Governments (ABAG) Solid Waste Coordinating Committee

The ABAG Solid Waste Coordinating Committee is composed of representatives of each of the nine Bay Area counties. It serves as a network for sharing information and ideas, and addressing common problems. The

Committee is beginning to consider options for regional cooperation in public education efforts. A Source Reduction Task Force has been formed to assess options for a regional source reduction public education program.

EVALUATION OF ALTERNATIVES

Program Alternatives provide descriptions of programs the County of Santa Clara has considered for educating unincorporated area residents, businesses, institutions, and county employees in solid waste issues.

Alternative 1:	Program Promotion
Alternative 2:	Countywide Educational Efforts
Alternative 3:	Regional Educational Efforts
Alternative 4:	Logo & Slogan Campaign
Alternative 5:	Speakers Bureau
Alternative 6:	School Education
Alternative 7:	Purchasing Workshops and/or Directory
Alternative 8:	Waste Minimization Directory
Alternative 9:	Waste Minimization Hotline
Alternative 10:	County Employee Campaign
Alternative 11:	Developers Guide
Alternative 12:	Public and Private Partnership

Alternative 1: Program Promotion

Program education efforts could include promoting existing and new collection, recycling, and source reduction programs directly, through door hangers, direct mailings, flyers, posters, public service announcements on the radio, and news releases to residential and commercial customers. Annual brochures or newsletters could be sent to residents and businesses to reinforce participation and announce any program changes. In addition, the County could provide information and technical assistance to businesses interested in developing or implementing recycling and waste reduction programs.

Alternative 2: Countywide Educational Efforts

Under this program the Countywide Planning Program could work cooperatively with the cities to develop a countywide educational campaign, and coordinate

educational efforts. A countywide educational effort is expected to be more effective and practical in comparison with a program designed specifically for the unincorporated area, since unincorporated area residents live in and adjacent to incorporated cities. This approach would also reduce the costs to local jurisdictions for public education efforts, allow the use of electronic media, and ensure the consistency of information being disseminated.

Many of the other alternatives listed below will be considered for countywide implementation, such as a speakers bureau, logo & slogan campaign, waste minimization directory and hotline, Developers Guide, and school education.

Alternative 3: Regional Educational Efforts

This program proposes that the Countywide Planning Program continue working with the Association of Bay Area Governments (ABAG) Solid Waste Coordinating Committee to develop a regional educational campaign and to exchange educational materials and ideas. Regional public education, similar to the countywide efforts discussed in Alternative 2, would be more cost effective and thus would provide for a higher level of public education and information. Such a program would focus on solid waste issues for which the same approach will work on either a local, countywide, or regional basis.

Alternative 4: Logo and Slogan Campaign

A logo and slogan Campaign could be developed to promote source reduction, recycling and composting programs in the County. Logos and slogans can be very helpful in gaining recognition and support for programs.

Alternative 5: Speakers Bureau

A speakers bureau could be established to offer specialized information for specific sectors of the community such as schools, service groups, businesses, and government workshops. The County is currently involved in such activities on a small scale.

Alternative 6: School Education

In cooperation with local school boards and the state, the Countywide Planning Program could help to establish special programs for schools. Countywide assistance could vary from provision of curriculum, speakers, and assemblies, to providing technical assistance to help students, teachers, and/or administrators to establish source reduction, recycling and composting programs at their schools. The County could also ensure that the local school boards are aware of and have access to public educational resources on environmental topics, and assist the boards in developing a Recycling/Reuse and Source Reduction Workshop for elementary school teachers. Topics could include "Making Recycled Paper" and "Creating Holiday Ornaments with Recycled Materials."

Alternative 7: Purchasing Workshops and/or Directory

The Countywide Planning Program could offer workshops and prepare a directory for local businesses, institutions, and government agencies on how to establish effective purchasing guidelines that will encourage the use of recycled products. Information on how to obtain information on available materials could also be provided.

Alternative 8: Waste Minimization Directory

A Waste Minimization Directory could be developed to inform residents and businesses on source reduction options in the home and workplace, information on recycling and reuse facilities such as thrift stores, repair shops, diaper services, local recycling centers/drop-offs, local recycling programs, private haulers that collect recyclables, document shredders that recycle, yard waste drop-offs, recyclers that handle demolition and construction debris, government agencies that oversee recycling, recycled product vendors.

Alternative 9: Waste Minimization Hotline

In addition to a Waste Minimization Directory, a waste minimization hotline could be developed. This hotline would be available to all sectors of the public to provide specific information on where and how to reduce waste.

Alternative 10: County Employee Campaign

The County could develop diversion goals specifically for county-owned and operated facilities, and establish purchasing guidelines and programs to meet these goals. Flyers or brochures could be used to accompany employees' payslips to announce or promote new and existing countywide recycling or source reduction programs in the workplace and share the success of those programs already in existence. Additional information could also include legislative updates and impacts of state mandates on the county. Employee suggestions for new programs and feedback on existing ones could be solicited.

Alternative 11: Developers' Guide

The County could provide an informational packet or 'Developers Guide' to prospective developers to assist them in incorporating recycling and waste reduction ideas in the architectural and landscape design of new projects. For example, providing adequate space for recycling bins/dumpsters and including the recycling of construction and demolition debris and landscaping waste in design plans. This guide could be provided at the time building permits are requested at the County Department of Planning and Development. A generic guide could be used by all local departments in the County.

Alternative 12: Public and Private Partnership

The County, in cooperation with environmentally concientious local corporations, could sponsor brief radio and television public service announcements on the need to recycle and reduce the amount of waste generated. The County could share information with corporations and their employees on successful programs developed for County facilities.

SELECTION OF PROGRAMS

This section describes the specific programs selected for implementation. The alternatives are selected based on the County's waste stream characteristics as identified in the Waste Generation Study, existing conditions, and the program's ability to support source reduction, recycling, composting, and special waste programs. The programs selected below are described in the preceding section, Program Alternatives.

Short-Term and Medium-Term Planning Periods

Program 1: Program Promotion
Program 2: Countywide Educational Efforts
Program 3: Regional Educational Efforts
Program 4: County Employee Educational Campaign

Existing Programs: Existing programs are expected to continue in the short- and medium-term planning periods.

PROGRAM IMPLEMENTATION

The program implementation section details how the County of Santa Clara will implement the public education and information programs selected. Table VII - 1 (See VII - Appendix) defines the tasks necessary for implementing the program, identifies the party responsible for completing each task, and establishes an implementation schedule. Estimated costs for implementation are presented in Table VII - 2 (See VII - Appendix).

Program 1: Program Promotion

Program Promotion consists of promotional activities directly related to specific source reduction, recycling, composting, special waste, and other educational programs. Therefore, the tasks, responsibility, and implementation schedules for these promotional activities have been included in the implementation tables of the respective programs these activities are designed to promote.

The following recycling programs will be promoted:

San Jose
- Expanded Curbside Collection
- Multi-Family Collection
- Encourage Independent Commercial/Industrial Recycling
- Consider Franchising Commercial/Industrial Collection

South Valley
- Expanded Curbside Collection
- Encourage Independent Commercial/Industrial Recycling
- Consider Franchising Commercial/Industrial Collection

West Valley
- Expanded Curbside Collection

Lexington Hills
- Curbside Collection
- Increased Drop-Off Recycling Centers

North County
- Expanded Curbside Collection
- Multi-Family Collection
- Encourage Independent Commercial/Industrial Recycling
- Franchised Commercial/Industrial Collection

Countywide
- Divert Inerts
- Change Zoning and Code Practices
- Market Development

The following composting programs will be promoted:

San Jose
- Residential Yard Waste Collection
- Permanent Yard Waste Drop-Offs

South Valley
- Permanent Yard Waste Drop-Offs
- Commercial/Industrial Wood Waste Collection

West Valley
- Residential Yard Waste Collection
- Permanent Yard Waste Drop-Offs

North County
- Residential Yard Waste Collection
- Permanent Yard Waste Drop-Offs

Countywide
- Debris Box Composting
- County Facilities Wood and Yard Waste Collection
- Market Development

The following special waste programs will be promoted:

Tire Recycling
Minimize Illegal Dumping

The following source reduction programs will be promoted:

Volume-Based Garbage Rates
Backyard Composting
Multi-Jurisdictional Approaches
County Facilities Source Reduction Programs
County Facilities Recognition and Awards
Advance Disposal Fees
Xeriscaping Ordinances

Program 2: Countywide Educational Efforts

This program will provide for participation on behalf of the unincorporated area in multi-jurisdictional and/or countywide cooperative efforts in the planning and implementation of public education and information programs. Through the Solid Waste Commission, the Technical Advisory Committee, and the County Solid Waste Program, the Countywide Planning Program will oversee the expansion, development, and implementation of such programs.

Program 3: Regional Educational Efforts

County staff will continue to participate in ABAG Solid Waste Committee meetings to assist in identifying new opportunities for regional cooperation and encourage existing efforts in coordinating educational efforts. County staff will also seek ideas from other jurisdictions to address issues specific to the unincorporated area. The cost of these programs are unknown as no specific programs have been identified at this time.

Program 4: County Employee Campaign

In cooperation with the County Recycling Committee, approval from the Office of the County Executive, and the endorsement from the Board of Supervisors, the County of Santa Clara will establish a target diversion goal and develop a Recycling and Source Reduction Campaign for over 16,000 county employees. County employees are a representative population of Santa Clara County. Employees live in all areas of the County, incorporated as well as unincorporated, and are of all ethnic groups. A successful employee information campaign would thus affect more than County facilities and the unincorporated area. It would impact communities throughout the County.

The campaign could target purchasing of reusable and recyclable products, expansion of existing recycling programs at all county facilities, and increasing employee awareness of diversion goals through brochures and workshops.

The costs for implementing this program range from $15,510 to $25,850. Preliminary discussions and the experience of other jurisdictions indicate that there will be administrative, printing, and reproduction costs.

MONITORING AND EVALUATION

The Monitoring and Evaluation section establishes systems for monitoring and evaluating the selected programs. The responsible agency, funding requirements, revenue sources, and shortfall measures are specified for each program. Details for the programs have been included in the implementation tables of the respective programs these activities are designed to promote.

Monitoring Methods

The Santa Clara County Office of Toxics and Solid Waste Management will annually assess ongoing education and public information programs using the following criteria to determine if a program should be continued, altered, updated, or discontinued.

Criteria for Evaluating Program Effectiveness:

The following criteria are to be used to evaluate the effectiveness of educational programs where applicable. This could be accomplished through public surveys via the telephone, direct mailings or in shopping malls.

1. What percent of the public is aware of the program?
2. Is information being presented in a clear and interesting method? How many residents understand the information?
3. Are a sufficient number of residents and/or businesses being reached by the program? Is their behavior changing as a result?
4. Is the education program making a noticeable impact on the participation, contamination level or whatever it is directed at achieving?
5. Is the County reaching diversion goals?
6. Is the feedback from the community supportive?

7. Is the frequency of program events sufficient to meet objectives?
8. Is the program effective enough to justify the expenditure?

Responsible Agency

The Santa Clara County Office of Toxics and Solid Waste Management will be responsible for the implementation and evaluation of all educational programs selected.

Funding Requirements and Revenue Sources

Due to the nature of the programs selected, the required funding has not been determined. When specific countywide and regional programs are selected, the County will fund these programs, and their monitoring and evaluation costs, through collection rates, surcharges, and/or AB939 fees.

Shortfall Measures

If the monitoring and evaluation process identifies a shortfall in obtaining the established objectives of each selected program, then the County will do one or more of the following:

1. Analyze the evaluation reports and perform necessary follow-up studies to discover the reasons why the objectives were not achieved.
2. Revise and/or expand the program to improve results.
3. Modify the objective to reflect the capabilities of the program.
4. Discontinue the program if it is decided that the program cannot be modified to achieve an acceptable level of success.
5. Consider other programs to accomplish the objective.

Monitoring and Reporting Schedule

The Santa Clara County Office of Toxics and Solid Waste Management will prepare an annual report to be submitted to the CIWMB for each calendar year through the year 2000 as required by AB 939 regulations.

Table VII - 1

Public Education and Information Implementation Plan

Task	Responsible Agency	Implementation Date
Countywide Educational Efforts		
• Participate in Countywide Planning Efforts	Solid Waste Program	1992-On going
Regional Educational Efforts		
• Participate in ABAG Solid Waste Committee Meetings	Solid Waste Program	1992-On going
County Employee Campaign		
Short-Term		
• Participate in County Recycling Committee Meetings	Solid Waste Program	1992 - On going
• Establish Target Diversion Goals	Solid Waste Program General Services Agency	1st Quarter 1993
• Develop Diversion Campaign	Solid Waste Program General Services Agency	2nd Quarter 1993
• Approval from Board of Supervisors	General Services Agency	3rd Quarter 1993
Medium-Term		
• Develop Purchasing Guidelines	Finance Agency	1st Quarter 1995
• Develop Recycling Programs	Solid Waste Program	2nd Quarter 1995
• Develop Informational Materials	Solid Waste Program	3rd Quarter 1995
• Start Purchasing and Recycling Programs	Solid Waste Program	4th Quarter 1995

Table VII - 1

Public Education and Information Implementation Plan

Task	Responsible Agency	Implementation Date
Program Promotion		
Short-Term		
• Develop Educational Materials for Inerts	Solid Waste Program	1st Quarter 1993
• Distribute Education Materials on Inerts	Planning Department	2nd Quarter 1993
• Review State Regulations on Zoning Codes	Planning Department	3rd Quarter 1994
• Make Recommendation on Zoning Codes	Planning Department	To be determined
• Adopt Zoning Code Changes	Board of Supervisors	To be determined
• Review County Procurement Policies	GSA/Purchasing	To be determined
• Consider Market Development Zones	Countywide Planning Program	1994 - On going
• Participate in Countywide Market Development Efforts	Solid Waste Program	1992 - On going

Table VII - 2

Public Education and Information Implementation Costs

Task	Cost
Countywide Educational Efforts	$22,500
Regional Educational Efforts	$9,400
County Employee Educational Campaign	$3,500
Program Promotion	Costs included in programs promoted

Section VIII

Disposal Facility Capacity Component

INTRODUCTION

Landfilling is the process of disposing of municipal solid waste onto land. Waste is compacted in layers and covered with soil or a suitable alternative. As the most common method of solid waste disposal today, landfilling will continue as the primary method of disposal of non-recyclable/non-reusable wastes in Santa Clara County.

Because the amount of landfill capacity is declining throughout California and the amount of municipal solid waste is increasing, many landfills in the State have reached or are approaching capacity. The Source Reduction and Recycling Element includes a solid waste facility capacity component to ensure that there is adequate landfill capacity for disposing of the solid waste that cannot be diverted by recycling or composting.

The specific purpose of the Disposal Facility Capacity Component is to calculate the amount of disposal capacity required to meet the needs of Santa Clara County for the next 15 years. This component contains a description of the permitted solid waste disposal facilities currently used by the county. It includes projections of the county's waste capacity needs for the next 15 years, and describes how the county will satisfy future capacity needs. The solid waste reduction goals and implementation schedules described in the Source Reduction, Recycling, Composting, and Special Waste sections of the Source Reduction and Recycling Element are incorporated into the projections of the county's future disposal facility capacity needs.

This Component also identifies disposal facilities used by the county that will be closed in the next 10 years, and describes plans to establish new or expanded disposal facilities during the next 10 years.

EXISTING PERMITTED SOLID WASTE DISPOSAL FACILITIES

There are nine permitted landfills in operation in Santa Clara County: Guadalupe, Kirby Canyon, Mountain View (Vista Site), Newby Island, Pacheco Pass, Palo Alto,

Santa Clara (All Purpose Landfill), 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.

In addition, Owens-Corning Fiberglas Corporation owns and operates a non-permitted disposal site in northern San Jose for the disposal of wastes generated at their Santa Clara operations. The facility is not open for public use and is undergoing permitting procedures through the City of San Jose, LEA for the site.

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 then current rate of fill of approximately 1.8 million tons per year, and an annual growth rate of 1.1%, the Plan projected 24 years of remaining capacity. With achievement of a 25% reduction in wastes landfilled by 1995, the Plan projected 32 years of remaining capacity.

Disposal Facilities Located in the Unincorporated Area

Pacheco Pass Sanitary Landfill

The Pacheco Pass Landfill is owned and operated by South Valley Refuse Disposal, Incorporated. Opened in 1965, the site initially operated only during summer months. In 1974 after extensive site preparation, the landfill opened year-round to accommodate wastes previously disposed of at the Gilroy Landfill. The facility accepts only franchised residential and commercial and agricultural wastes from the cities of Gilroy and Morgan Hill, and adjacent unincorporated areas.

The 97-acre landfill is located in an unincorporated area on a hillside east of Gilroy, off of Pacheco Pass Highway and Bloomfield Road. The property, zoned for agriculture, is surrounded by rural agricultural land uses. Site access is provided by a 4,000 foot paved road originating at the Pacheco Pass Highway.

The Class III landfill accepts garbage, rubbish, dry cannery wastes, street refuse, brush, stumps, and demolition wastes for disposal. No hazardous or designated wastes may be accepted. According to reports submitted to the Regional Water

Quality Control Board (RWQCB), the facility landfilled 81,641 tons (136,000 cubic yards) of waste in 1990. Tipping fees are $24.00 per ton (as of January 1991). In early 1985, a 60-acre expansion into Parcel III of the site received final approval from the California Integrated Waste Management Board (CIWMB). During site development, an earthquake fault was discovered and reported to the Central Coast RWQCB by the site owner. In response to this discovery, 20 acres of the 60-acre expansion site were redesigned to include a double liner, and are currently being developed for future disposal use. South Valley Refuse plans to utilize the remaining acreage for recycling activities and disposal of inert materials. The company anticipates that this will help to extend the life of the fully-permitted 20 acres.

With limited expansion into Parcel III, the permitted and remaining capacity of the landfill is 2.1 million cubic yards (as of January 1, 1991) and the projected closure date is 2002. Input tonnage is converted to in-place cubic yards by using a compaction factor of 1,260 pounds per cubic yard and a refuse to cover ratio of 3 to 1. After closure, the site is proposed for agricultural uses.

A hydrogeologic report for the site was done by EMCON Associates in January 1984. Operating permits issued to the site include

- CIWMB Solid Waste Facility Permit (#43-AA-0004 - June 20, 1985);
- RWQCB Waste Discharge Permit (#78-09 - September 8, 1978); and
- County Land Use Permit (#2102 - June 22, 1984).

Other Disposal Facilities Used by the County

Guadalupe Rubbish Disposal Site

The Guadalupe Rubbish Disposal Site 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 is located off Guadalupe Mines Road in San Jose. It is situated 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 1991, public disposal fees were $6.00 per cubic yard, with a minimum charge of $8.00. Tipping fees were $27.82 per ton.

The landfill supports aggressive recycling activities, including salvaging of aluminum, newspaper, cardboard, ferrous metals, and batteries; wood chipping; and the re-use of wood, concrete, asphalt, and soil. An on-site methane recovery system, produces 2,500 kilowatts of power (enough to serve 4,000 homes) which is sold to PG&E.

Guadalupe's permitted capacity is 16.5 million cubic yards. As of January 1, 1991, the landfill has a remaining capacity of 14.2 million cubic yards with closure projected for 2013. An expansion of the site was approved in 1990. Proposed use after closure is open space.

A hydrogeologic report for the site was done by EMCON Associates in January 1987, and revised in November 1987. Current operating permits issued to the site include

- CIWMB Solid Waste Facilities Permit (#43-AN-0015);
- California Regional Water Quality Control Board San Francisco Bay Region Waste Discharge Requirements and Self-Monitoring Program, Order No. 99-139 dated September 27, 1993;
- California Regional Water Quality Control Board San Francisco Bay Region National Pollution Discharge Elimination System General Permit No. CAG612001 covering discharge of storm water runoff from industrial facilities to South San Francisco bay and its tributaries (Storm Water Pollution Prevention Program);

- Bay Area Air Quality Management District Permit to Operate No. 30486 for gas recovery operations, and numerous permits to operate Plant No. 3294; and

- City of San Jose, Planned Development Permit No. PD90-06-044.

Kirby Canyon Sanitary Landfill

Kirby Canyon Sanitary Landfill is owned and operated by Waste Management, Incorporated (WMI). WMI has secured a long-term lease from the property owner, Oceanic California, Incorporated. The 827-acre disposal site (327 acres to be used for disposal purposes), opened in July 1986. The landfill presently receives some franchised waste from the City of San Jose, and self-hauled waste from residents of Santa Clara County.

The landfill is located on a hill-face in south San Jose, east of Highway 101 at the Scheller Avenue interchange. The site is bordered by Highway 101 and the Coyote Park open space chain to the west. The land adjacent to the site is designated Non-Urban Hillside and an open space buffer surrounds the entire property. Access is provided from Scheller Avenue.

The Class III landfill accepts only garbage, rubbish, demolition, brush, and stumps for disposal. No hazardous or designated wastes may be accepted.

According to the landfill operator, the facility landfilled 91,408 tons (approximately 137,112 cubic yards) of waste in 1990. The input tonnage is converted to in-place cubic yards by using a compaction factor of 1,400 pounds per cubic yard and a refuse to cover ratio of 1.4 to 1. Tipping fees are $21.95 per ton (as of January 1991). Public disposal fees are also $21.95 per ton.

WMI has long-term disposal agreements with the cities of Sunnyvale, Palo Alto and Mountain View for the use of Kirby Canyon Landfill. Solid wastes generated in the three cities are delivered by contract haulers to the Sunnyvale Materials Recovery and Transfer (SMaRT) Station. Recyclables will be recovered by manual picking and automatic sorting before the residues are transported to Kirby Canyon Landfill in transfer trailers. The average throughput from the SMaRT Station to Kirby Canyon is presently (1994) 900 tons per day.

Kirby Canyon's permitted capacity is approximately 24.3 million tons (36.4 million cubic yards). With a remaining capacity of approximately 21.75 million tons (over 32 million cubic yards), the landfill is expected to remain in operation until at least 2022. A 13-million ton expansion of the landfill is being considered by WMI. Proposed use of the site after closure is open space.

A hydrogeologic report for the site was done by EMCON Associates in July 1983. Current operating permits include

- CWMB Solid Waste Facility Permit (#43-AN-008 - October 31, 1984);
- RWQCB Waste Discharge Permit (#85-47 - April 30, 1985);
- City of San Jose Land Use Permit (#PD84-5-55 - August 8, 1984); and
- City of San Jose Planned Development Permit (#PD85-7-57 - September 26, 1985).

Newby Island Sanitary Landfill

The Newby Island Landfill is owned and operated by International Disposal Corporation, a wholly-owned subsidiary of Browning-Ferris Industries (BFI). The site was opened around 1930 as an open burning dump before being converted to a sanitary landfill in 1956. The facility presently accepts waste from the cities of San Jose, Milpitas, Cupertino, Los Altos, Mountain View, Santa Clara, the Town of Los Altos Hills, surrounding unincorporated areas, independent contractors, and the general public.

Located at the west end of Dixon Landing Road in north San Jose, the 342-acre site is bounded by Coyote Creek on the west, north, and east, and a slough tributary to Coyote Creek on the south. Surrounding land uses include salt evaporation ponds to the west, a wildlife refuge to the north, and sludge beds to the south. The property is zoned R3 - Residential. Access is provided via the Dixon Landing Road interchange off of Interstate 880.

The Class III landfill accepts garbage, rubbish, small dead animals, demolition, brush, stumps, large containers, and street refuse. No hazardous or designated wastes may be accepted.

According to the landfill operator, the facility landfilled 980,477 tons (approximately 4.7 million cubic yards) of waste in 1990. Input tonnage is converted to in-place cubic yards by using a compaction factor of 1,750 pounds per cubic yard and a refuse to cover ratio of 5 to 1. Public disposal fees (as of January 1991) range from $2.35 to $17.00 per cubic yard, with a minimum charge of $12.90 per load. Tipping fees are $15.05 per ton for franchised waste from the City of San Jose and $20.50 per ton for franchised waste from Cupertino, Los Altos, Los Altos Hills, Mountain View, and Santa Clara.

In August 1988, a proposed recycling facility, called The Recyclery, received final CoSWMP approval for construction adjacent to the Newby Island Landfill. In early 1991, The Recyclery received final permits and began operations. The Recyclery is capable of processing up to 800 tons of refuse daily, recovering more than half for recycling. The landfill site also has a methane recovery system in place with a design capacity of 2,000 kw.

BFI currently has contracts with the communities of Cupertino, Los Altos, Los Altos Hills, and their adjacent unincorporated areas to provide 30 years of disposal capacity. These communities began using the landfill in November 1988. The cities of Santa Clara and San Jose also have 30-year contracts for disposal capacity at Newby Island.

Newby Island has a permitted capacity of approximately 50.8 million cubic yards. With a remaining capacity of approximately 27.1 million cubic yards, and the opening of The Recyclery, the site is expected to remain in operation until at least 2020. Proposed use after closure is as an open space park.

A hydrogeologic report for the site was done by EMCON Associates in 1972 and by Purcell, Rhodes and Associates in 1979 and 1982. Current operating permits issued to the site include

- CIWMB Solid Waste Facility Permit (#43-AN-003 - Feb. 7, 1989); and
- RWQCB Waste Discharge Permit (#75-22, as amended by #82-4, #82-63, #82-64, and #87-152 - November 30, 1987)

Zanker Road Class III Landfill

Zanker Road Class III Landfill is independently owned and operated by Zanker Road Resource Management, Limited. Prior to 1992 it was owned and operated by Zanker

Road Resource Recovery, Incorporated, a wholly owned subsidiary of Norcal Solid Waste Systems. Formerly known as the Nine Par Disposal Site, the facility was operated by the Nine-Par Company from 1934 to 1977. Zanker Road Resource Recovery reopened it in 1985. The facility currently serves northern San Jose and surrounding communities.

Located west of the intersection of Zanker Road and Los Esteros Road in northern San Jose, the 70-acre site is bound by a wetland habitat to the north, the Leslie Salt Company evaporation ponds to the north and west, the Artesian Slough to the northwest, the San Jose/Santa Clara Water Pollution Control Plant to the south, and sludge ponds to the east. Access is provided via Los Esteros Road.

The Class III landfill accepts rubbish, brush/stumps, and demolition wastes for recycling and disposal of residual wastes. No garbage, hazardous, or designated wastes may be accepted, except asbestos (under certain conditions). According to the landfill operator, the facility landfilled 158,192 tons (263,653 cubic yards) of waste in 1990. Input tonnage is converted to in-place cubic yards by using a compaction factor of 1,200 pounds per in place cubic yard and a refuse to cover ratio of 4 to 1. Public disposal fees are $3.00 to $9.00 per cubic yard with a minimum charge of $9.00.

Zanker Road Resource Management conducts extensive recycling activities at the site, accepting incoming recyclable materials and pulling recyclables directly from the waste stream. On average, 80% of the total incoming waste stream is recycled.

The present 46-acre landfill has a permitted capacity of 3.2 million cubic yards. The site has a remaining capacity of 800,000 cubic yards (as of January 1, 1991), and is expected to remain in operation until 2005. The proposed use after closure is open space.

Hydrogeologic reports were done on the site by William C. Ellis, Consulting Geologist, in June 1975 (reviewed in August 1985), and by Woodward-Clyde. Current operating permits include

- CIWMB Solid Waste Facility Permit (43-AN-007 - March 7, 1985);
- RWQCB Waste Discharge Permit (#85-132 as amended by #87-032 - May 1, 1987); and
- City of San Jose Land Use Permit (#PD87-1-7 - July 25, 1987).

DISPOSAL FACILITY CAPACITY NEEDS PROJECTION

The disposal facility capacity needs projection provides an estimate of the disposal capacity (in cubic yards/year) needed to accommodate projected solid waste generation for a 15-year period commencing in 1991. Section II 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 County of Santa Clara's projected capacity needs (expressed in cubic yards) over the next 15 years.

Capacity Needs Projection Equation:

$$\text{Annual Capacity}_{\text{Year } n} = [(G + I) - (D + TC + LF + E)]_{\text{Year } n}$$

where:

G = the amount of solid waste projected to be generated in the County of Santa Clara.

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 with other cities or counties, or through agreements with disposal site owners

D = the amount of solid waste diverted by implementation of proposed source reduction, recycling and composting programs

TC = the amount of volume reduction occurring through available, permitted transformation facilities

LF = the amount of permitted solid waste disposal capacity which is available for disposal in the jurisdiction, for solid waste generated in the jurisdiction

E = the amount of solid waste generated in the jurisdiction which is exported to solid waste disposal facilities in another jurisdiction

n = each year of a 15-year period commencing in 1991.

The above formula can be written as:

Capacity Needed =	waste	waste	waste	waste	available	waste
Year 1	(generated +	imported) --	(diverted +	transformed +	capacity +	exported)

Results of the solid waste disposal facility needs projection are shown in Table VIII-1 (See VIII - Appendix). These results indicate that the County of Santa Clara will not require additional disposal capacity during the 15-year planning period. This assumption is contingent upon the achievement of AB 939 diversion goals.

The County's current disposal contracts with Newby Island Landfill together with achievement of the projected waste diversion goals, will provide adequate disposal capacity at this site through the year 2020. Additionally, the County uses Pacheco Pass Landfill for waste generated in the southern portion of the County and Guadalupe Landfill for disposal of waste generated in the western portion of the County. Guadalupe Landfill is projected to remain open until 2013, and Pacheco Pass Landfill is projected to remain open until 2002. Additionally, Kirby Canyon Landfill (which is nearest to Pacheco Pass Landfill and is not currently utilized by the County) is expected to remain open until 2022. It is anticipated that this facility will have remaining capacity available if needed by the County for disposal of waste generated in the southern portion of the County.

DISPOSAL FACILITY PHASE-OUT OR CLOSURE

No disposal facilities are expected to be phased out or closed in the short- and medium-term planning periods.

NEW OR EXPANDED DISPOSAL FACILITIES

No new or expanded facilities are planned for the short- and medium-term planning periods in Santa Clara County at this time.

Table VIII - 1 Disposal Facility Needs Projection

With Existing Conditions
Restricted Materials Eliminated

YEAR	GENERATED	IMPORTED	TOTAL	DIVERTED	TRANS-FORMED	AVAILABLE CAPACITY	EXPORTED
1990	120005	65313	185318	8201	0	81641	95476
1991	121229	65979	187208	8285	0	82474	96449
1992	122466	66652	189118	8369	0	83315	97434
1993	123715	67332	191047	8455	0	84165	98427
1994	124977	68019	192996	8541	0	85023	99431
1995	126164	68665	194829	8622	0	85831	100376
1996	127362	69317	196679	8704	0	86646	101329
1997	128572	69976	198548	8786	0	87470	102292
1998	129794	70640	200434	8870	0	88300	103264
1999	131027	71311	202338	8954	0	89139	104245
2000	131721	71689	203410	9002	0	89612	104797
2001	132419	72069	204488	9049	0	90087	105353
2002	133121	72451	205572	9007	0	90564	106001
2003	133827	72835	206662	9146	0	91044	106472
2004	134536	73221	207757	9194	0	91527	107037
2005	135249	73609	208858	9243	0	92012	107604

With Implementation of the SRRE
Restricted Materials Eliminated

YEAR	GENERATED	IMPORTED	TOTAL	DIVERTED	TRANS-FORMED	AVAILABLE CAPACITY	EXPORTED
1990	120005	65313	185318	8201	0	81641	95476
1991	121229	65979	187208	12346	0	82474	92388
1992	122466	66652	189118	16547	0	83315	89256
1993	123715	67332	191047	23124	0	84165	83758
1994	124977	68019	192996	27526	0	85023	80447
1995	126164	68665	194829	31800	0	85831	77198
1996	127362	69317	196679	36680	0	86646	73353
1997	128572	69976	198548	41425	0	87470	69653
1998	129794	70640	200434	55752	0	88300	56382
1999	131027	71311	202338	61408	0	89139	51791
2000	131721	71689	203410	67067	0	89612	46731
2001	132419	72069	204488	67634	0	90087	46767
2002	133121	72451	205572	68435	0	90564	46573
2003	133827	72835	206662	69225	0	91044	46393
2004	134536	73221	207757	70628	0	91527	45602
2005	135249	73609	208858	71436	0	92012	45410

Section IX

Integration Component

INTRODUCTION

This Integration Component explains how existing programs and the new programs selected for implementation in the Source Reduction, Recycling, Composting, and Special Wastes components combine to achieve diversion of 25 percent of the solid waste generated in the unincorporated area of Santa Clara County by 1995. It relates solid waste management practices and plans for the unincorporated area to the integrated waste management hierarchy of (1) source reduction, (2) recycling and composting, and (3) environmentally safe transformation and disposal. In addition, this component summarizes how priorities were established among selected programs in the different components consistent with the requirements of AB 939.

INTEGRATED SOLID WASTE MANAGEMENT PRACTICES

Consistent with the hierarchy, the County will promote source reduction activities in order to decrease the amount of solid waste generated in the County. For wastes that continue to be generated in the County, recycling and composting programs will contribute to diverting wastes from disposal at landfills. For wastes that cannot be diverted, the County will assure that they are transformed or disposed in an environmentally responsible manner.

COMPONENT INTEGRATION

Implementation of the Source Reduction, Recycling, Composting, and Special Wastes components has been planned so that the maximum diversion potential of selected programs will be reached. Mutually exclusive objectives and target materials for each component were developed to minimize overlapping or duplication of existing or new activities. The County will thus be able to maximize the use of feasible source reduction, recycling, and composting options, while making the best use of resources available for support of waste reduction programs.

Provision of public education and information, and funding for source reduction, recycling, and composting activities and programs will be integrated for efficiency

and cost-effectiveness. Staff time required for public education and information will be shared among programs designated for implementation or expansion in the various components. Education and information programs for the unincorporated area will build upon countywide and multi-jurisdictional programs.

COMPLIANCE WITH DIVERSION MANDATES

In 1990, waste diversion in the unincorporated area of Santa Clara County totaled approximately 6.8 percent of the solid wastes generated in the unincorporated area. The source reduction, recycling, composting, and special wastes activities and programs selected for expansion and/or implementation are designed to achieve a minimum additional diversion of 18.4 percent in the short term and 44.12 percent in the medium term in order to meet state diversion mandates.

Table IX - 1 lists the selected programs from each component and estimates the corresponding diversion targets for each program to be implemented in the short- and medium-term planning periods.

COMPONENT PRIORITIES

In the selection and integration of programs for the unincorporated area, the County considered cost-effectiveness of programs, whether programs would be complementary or conflicting, and comparability of programs with those implemented or planned for implementation in adjacent jurisdictions. Based on these criteria, the components of the County's SRRE were prioritized to effectively achieve the mandated diversion goals. Diversion priorities for materials for which a variety of diversion methods are feasible were generally guided by the waste diversion heirarchy.

INTEGRATION CRITERIA

Criteria used in integrating the selected programs for the unincorporated area considered whether the programs are:

> Cost-effective: The type and scale of selected programs is tailored to the specific service area that they will serve. Expansion of existing programs was given preference over development of new programs.

Complementary: Programs which enhance overall success by building on other programs are considered to be complementary and are given preference. For example, a program to divert source separated recyclables can be enhanced when accompanied by public education and market development programs for those same recyclables.

Comparable: Where possible, recommended programs are comparable to those in adjacent jurisdictions. Implementation of comparable programs simplifies the education needed to support the programs, increases the opportunities for multi-jurisdictional cooperation, and provides for increased acceptance of programs by unincorporated area residents, and thus contributes to the success of programs in both the unincorporated area and in adjacent cities.

Comply with the waste diversion heirarchy: High volume materials for which a number of diversion methods are feasible may be addressed by several components and through several programs. For example, yard wastes can be diverted from disposal through landscaping plans which specify plantings that minimize generation of yard wastes, through such measures as use of composting lawn mowers which chop clippings and leave them in place in the yard, through home-composting, and through collection at curbside for composting at a centralized composting facility or processing for use to generate energy.

INTEGRATION SCHEDULE

The schedule for implementing programs during the short term and medium term planning periods is shown in Table IX - 1. Materials to be diverted by each sector during the short- and medium-terms are shown in Tables IX - 2 through IX - 7.

Table IX - 1
Diversion Targets

Task	Diversion Target	Date
Reduction		
Short-Term		
• Volume Based Garbage Rates	2%	1993
• Backyard Composting	to be determined	1994
• Multijurisdictional Programs	to be determined	1994
• County Facility Source Reduction	to be determined	1994
• County Facility Recognition Awards	to be determined	1994
Medium-Term		
• Evaluate Advance Disposal Fees	to be determined	1996
• Xeriscaping Recommendations	to be determined	1996
Recycling		
Short-Term		
• Curbside Collection (Burbank)	0.2%	1994
• Expanded Curbside Collection	9.6%	1993-1994
• Multifamily Recyclables Collection	0.1%	1994
• Encourage Independent Commercial/ Industrial Recycling	9.2	1994
• Increase Drop-Off Recycling	1.9%	1994
• Divert Inert Materials	1.6%	1994
• Change Zoning and Code Practices	NA	1994
Medium-Term		
• Consider Franchising Commercial/ Industrial Collection	2%	1997

Table IX - 1
Diversion Targets
continued

Task	Diversion Target	Date
Composting		
Short-Term		
• County Facility Yard and Wood Waste Collection	unknown	1994
• Market Development for Compost End Products	NA	1994
• Residential Curbside Collection	4%	1993-1994
• Permanent Drop-Off Centers	0.4%	1993-1994
• Commercial/Industrial Yard and Wood Waste Collection	0.1%	1994
Medium-Term		
• Evaluate Need for Regional Composting	NA	1995
• Residential Curbside Collection	7.2%	1995
• Co-composting Food Waste	1.4%	1996
Special Waste		
Short-Term		
• Encourage Used Tire Recycling	0.9%	1994 ongoing
• Encourage White Goods and Auto Body Recycling	3.6%	1992 ongoing
• Evaluate Programs to Minimize Illegal Disposal	NA	1994 ongoing

Table IX - 2 Residential Diversion 1995 and 2000 (Restricted Materials Eliminated)

	SHORT-TERM PLANNING PERIOD (1995)				MEDIUM-TERM PLANNING PERIOD (2000)			
MATERIAL TYPE	DIVERSION	GENERATION	PERCENT DIVERSION	DIVERSION AS % OF TOTAL WASTE GENERATED	DIVERSION	GENERATION	PERCENT DIVERSION	DIVERSION AS % OF TOTAL WASTE GENERATED
1) TOTAL PAPER	4039	13015	31.0%	3.20%	7682	13589	56.53%	5.83%
OCC/Kraft	804	2199	36.6%	0.64%	1468	2296	63.94%	1.11%
Newspaper	1716	2655	64.6%	1.36%	1393	2772	50.25%	1.06%
High Grade	29	202	14.4%	0.02%	76	211	36.02%	0.06%
Mixed Paper	786	4642	16.9%	0.62%	3541	4846	73.07%	2.69%
Other Paper	704	3317	21.2%	0.56%	1204	3463	34.77%	0.91%
2) TOTAL PLASTIC	117	2920	4.0%	0.09%	477	3049	15.64%	0.36%
HDPE containers	6	302	2.0%	0.00%	159	315	50.48%	0.12%
PET containers	94	192	49.0%	0.07%	103	200	51.50%	0.08%
Film Plastics	17	1207	1.4%	0.01%	138	1260	10.95%	0.10%
Other Plastics		1220	0.0%	0.00%	77	1274	6.04%	0.06%
3) TOTAL GLASS	1938	3395	57.1%	1.54%	2287	3544	64.53%	1.74%
Refillable Beverage	16	315	5.1%	0.01%	44	329	13.37%	0.03%
CA Redemption Value	1050	1471	71.4%	0.83%	1236	1537	80.42%	0.94%
Other Recyclable	858	1478	58.1%	0.68%	970	1543	62.86%	0.74%
Other Non-Recyclable	14	130	10.8%	0.01%	37	135	27.41%	0.03%
4) TOTAL METAL	638	2526	25.3%	0.51%	816	2638	30.93%	0.62%
Aluminum Cans	497	615	80.8%	0.39%	591	642	92.06%	0.45%
Bi-metal				0.00%		0	0.00%	0.00%
Tin	141	549	25.7%	0.11%	225	573	39.27%	0.17%
Other Ferrous		310		0.00%		324	0.00%	0.00%
Other Non-Ferrous		376		0.00%		393	0.00%	0.00%
White Goods		139		0.00%		145	0.00%	0.00%
5) YARD WASTE	4436	11105	39.9%	3.52%	9546	11594	82.34%	7.25%
6) OTHER ORGANIC	970	6560	14.8%	0.77%	1812	6849	23.54%	1.22%
Food Waste	364	3554	10.2%	0.29%	728	3711	19.62%	0.55%
Tires/Rubber	488	611	79.9%	0.39%	601	638	94.20%	0.46%
Wood Wastes	71	540	13.1%	0.06%	232	564	41.13%	0.18%
Agric Crop Residue		0		0.00%			0.00%	0.00%
Manure		0		0.00%			0.00%	0.00%
Textiles/Leather	47	733	6.4%	0.04%	51	765	6.67%	0.04%
Other Misc		1429	0.0%	0.00%		1492	0.00%	0.00%
7) OTHER WASTE	38	899	4.2%	0.03%	79	938	8.42%	0.06%
Inert Solids		797	0.0%	0.00%		832	0.00%	0.00%
Hazardous Waste	38	100	38.0%	0.03%	79	105	75.24%	0.06%
8) SPECIAL WASTE	7	13	53.8%	0.01%	9	14	64.29%	0.01%
mattresses				0.00%			0.00%	0.00%
other special waste				0.00%			0.00%	0.00%
9) UNIDENTIFIED WASTE				0.00%			0.00%	0.00%
TOTALS	12183	39584	30.8%	9.66%	22508	41327	54.46%	17.09%

Table IX - 3 Commercial Diversion 1995 and 2000 (Restricted Materials Eliminated)

	SHORT-TERM PLANNING PERIOD (1995)				MEDIUM-TERM PLANNING PERIOD (2000)			
MATERIAL TYPE	DIVERSION	GENERATION	PERCENT DIVERSION	DIVERSION AS % OF TOTAL WASTE GENERATED	DIVERSION	GENERATION	PERCENT DIVERSION	DIVERSION AS % OF TOTAL WASTE GENERATED
1) TOTAL PAPER	4331	10306	42.0%	3.43%	7884	10760	73.27%	5.99%
OCC/Kraft	2269	3615	62.8%	1.80%	2974	3775	78.78%	2.26%
Newspaper	304	969	31.4%	0.24%	842	1012	83.20%	0.64%
High Grade	147	464	31.7%	0.12%	350	484	72.31%	0.27%
Mixed Paper	1042	2972	35.1%	0.83%	2211	3103	71.25%	1.68%
Other Paper	569	2285	24.9%	0.45%	1507	2386	63.16%	1.14%
2) TOTAL PLASTIC	147	2371	6.2%	0.12%	862	2475	34.83%	0.65%
HDPE containers	70	259	27.0%	0.06%	143	270	52.96%	0.11%
PET containers	4	27	14.8%	0.00%	11	29	37.93%	0.01%
Film Plastics	73	945	7.7%	0.06%	389	986	39.45%	0.30%
Other Plastics		1140	0.0%	0.00%	319	1189	26.83%	0.24%
3) TOTAL GLASS	442	872	50.7%	0.35%	596	910	65.49%	0.45%
Refillable Beverage		168	0.0%	0.00%	27	175	15.43%	0.02%
CA Redemption Value	197	355	55.5%	0.16%	276	371	74.39%	0.21%
Other Recyclable	188	271	69.4%	0.15%	224	283	79.15%	0.17%
Other Non-Recyclable	57	77	74.0%	0.05%	69	80	86.25%	0.05%
4) TOTAL METAL	95	852	11.2%	0.08%	166	889	18.67%	0.13%
Aluminum Cans	56	75	74.7%	0.04%	69	78	88.46%	0.05%
Bi-metal				0.00%			0.00%	0.00%
Tin	39	418	9.3%	0.03%	97	437	22.20%	0.07%
Other Ferrous		434		0.00%		453	0.00%	0.00%
Other Non-Ferrous		104		0.00%		109	0.00%	0.00%
White Goods				0.00%			0.00%	0.00%
5) YARD WASTE	403	1767	22.8%	0.32%	1534	1845	83.14%	1.16%
6) OTHER ORGANIC	583	6020	9.7%	0.46%	1884	6285	29.98%	1.43%
Food Waste		3606	0.0%	0.00%	1121	3765	29.77%	0.85%
Tires/Rubber	354	405	87.4%	0.28%	378	423	89.36%	0.29%
Wood Wastes	202	262	77.1%	0.16%	215	273	78.75%	0.16%
Agric Crop Residue				0.00%			0.00%	0.00%
Manure				0.00%			0.00%	0.00%
Textiles/Leather	27	373	7.2%	0.02%	76	390	19.49%	0.06%
Other Misc		394	0.0%	0.00%	94	412	22.82%	0.07%
7) OTHER WASTE	128	314	40.8%	0.10%	203	327	62.08%	0.15%
Inert Solids		69	0.0%	0.00%		72	0.00%	0.00%
Hazardous Waste	128	251	51.0%	0.10%	203	262	77.48%	0.15%
8) SPECIAL WASTE	17	433	3.9%	0.01%	18	452	3.98%	0.01%
mattresses	8	20		0.01%	18		0.00%	0.01%
other special waste				0.00%		21	0.00%	0.00%
9) UNIDENTIFIED WASTE				0.00%			0.00%	0.00%
TOTALS	6146	24461	25.1%	4.87%	13147	25539	51.48%	9.98%

Table IX - 4 Industrial Diversion 1995 and 2000 (Restricted Materials Eliminated)

	SHORT-TERM PLANNING PERIOD (1995)				MEDIUM-TERM PLANNING PERIOD (2000)			
MATERIAL TYPE	DIVERSION	GENERATION	PERCENT DIVERSION	DIVERSION AS % OF TOTAL WASTE GENERATED	DIVERSION	GENERATION	PERCENT DIVERSION	DIVERSION AS % OF TOTAL WASTE GENERATED
1) TOTAL PAPER	2695	6263	43.0%	2.14%	4691	6539	71.74%	3.56%
OCC/Kraft	1113	2239	49.7%	0.88%	1842	2338	78.79%	1.40%
Newspaper	106	377	28.1%	0.08%	272	394	69.04%	0.21%
High Grade	330	694	47.6%	0.26%	527	725	72.69%	0.40%
Mixed Paper	643	1727	37.2%	0.51%	1403	1803	77.81%	1.07%
Other Paper	503	1225	41.1%	0.40%	647	1279	50.59%	0.49%
2) TOTAL PLASTIC	76	2539	3.0%	0.06%	320	2651	12.07%	0.24%
HDPE containers	26	170	15.3%	0.02%	78	178	43.82%	0.06%
PET containers	3	11	27.3%	0.00%	13	11	118.18%	0.01%
Film Plastics	47	409	11.5%	0.04%	156	427	36.53%	0.12%
Other Plastics		1949	0.0%	0.00%	73	2035	3.59%	0.06%
3) TOTAL GLASS	106	341	31.1%	0.08%	209	356	58.71%	0.16%
Refillable Beverage		34	0.0%	0.00%	17	35	48.57%	0.01%
CA Redemption Value	29	74	39.2%	0.02%	54	77	70.13%	0.04%
Other Recyclable	77	169	45.6%	0.06%	117	177	66.10%	0.09%
Other Non-Recyclable		64	0.0%	0.00%	21	67	31.34%	0.02%
4) TOTAL METAL	91	1665	5.5%	0.07%	146	1738	8.40%	0.11%
Aluminum Cans	58	70	82.9%	0.05%	68	74	91.89%	0.05%
Bi-metal				0.00%			0.00%	0.00%
Tin	33	135	24.4%	0.03%	78	141	55.32%	0.06%
Other Ferrous		1548		0.00%		1616	0.00%	0.00%
Other Non-Ferrous		95		0.00%		99	0.00%	0.00%
White Goods		2		0.00%		2	0.00%	0.00%
5) YARD WASTE	141	2468	5.7%	0.11%	1541	2577	59.80%	1.17%
6) OTHER ORGANIC	2299	5813	39.5%	1.82%	3437	6069	56.63%	2.61%
Food Waste		781	0.0%	0.00%		816	0.00%	0.00%
Tires/Rubber	294	386	76.2%	0.23%	328	403	81.39%	0.25%
Wood Wastes	2005	3659	54.8%	1.59%	3109	3820	81.39%	2.36%
Agric Crop Residue				0.00%			0.00%	0.00%
Manure				0.00%			0.00%	0.00%
Textiles/Leather		549	0.0%	0.00%		573	0.00%	0.00%
Other Misc		711	0.0%	0.00%		742	0.00%	0.00%
7) OTHER WASTE	91	3202	2.8%	0.07%	135	3343	4.04%	0.10%
Inert Solids		3010	0.0%	0.00%		3142	0.00%	0.00%
Hazardous Waste	91	181	50.3%	0.07%	135	189	71.43%	0.10%
8) SPECIAL WASTE		1	0.0%	0.00%		1	0.00%	0.00%
mattresses				0.00%			0.00%	0.00%
other special waste				0.00%			0.00%	0.00%
9) UNIDENTIFIED WASTE				0.00%			0.00%	0.00%
TOTALS	5499	22039	25.0%	4.36%	10479	23010	45.54%	7.96%

Table IX - 5 Self Haul Diversion 1995 and 2000 (Restricted Materials Eliminated)

	SHORT-TERM PLANNING PERIOD (1995)				MEDIUM-TERM PLANNING PERIOD (2000)			
MATERIAL TYPE	DIVERSION	GENERATION	PERCENT DIVERSION	DIVERSION AS % OF TOTAL WASTE GENERATED	DIVERSION	GENERATION	PERCENT DIVERSION	DIVERSION AS % OF TOTAL WASTE GENERATED
1) TOTAL PAPER	241	1688	14.3%	0.19%	860	2075	41.45%	0.65%
OCC/Kraft	85	734	11.6%	0.07%	404	766	52.74%	0.31%
Newspaper	42	94	44.7%	0.03%	67	98	68.37%	0.05%
High Grade	15	155	9.7%	0.01%	45	161	27.95%	0.03%
Mixed Paper	14	138	10.1%	0.01%	77	145	53.10%	0.06%
Other Paper	85	867	9.8%	0.07%	267	906	29.47%	0.20%
2) TOTAL PLASTIC	18	858	2.1%	0.01%	15	896	1.67%	0.01%
HDPE containers	7	16	43.8%	0.01%	9	16	56.25%	0.01%
PET containers	11	24	45.8%	0.01%	6	25	24.00%	0.00%
Film Plastics		416	0.0%	0.00%		434	0.00%	0.00%
Other Plastics		403	0.0%	0.00%		420	0.00%	0.00%
3) TOTAL GLASS	4	97	4.1%	0.00%	8	102	7.84%	0.01%
Refillable Beverage		4	0.0%	0.00%		4	0.00%	0.00%
CA Redemption Value	2	9	22.2%	0.00%	3	9	33.33%	0.00%
Other Recyclable	2	13	15.4%	0.00%	5	13	38.46%	0.00%
Other Non-Recyclable		72	0.0%	0.00%		75	0.00%	0.00%
4) TOTAL METAL	18	1261	1.4%	0.01%	49	1317	3.72%	0.04%
Aluminum Cans	1	3	33.3%	0.00%	2	3	66.67%	0.00%
Bi-metal		29		0.00%		31	0.00%	0.00%
Tin	17	101	16.8%	0.01%	47	105	44.76%	0.04%
Other Ferrous		602		0.00%		629	0.00%	0.00%
Other Non-Ferrous		424		0.00%		443	0.00%	0.00%
White Goods		35		0.00%		37	0.00%	0.00%
5) YARD WASTE	615	3701	16.6%	0.49%	3001	3864	77.67%	2.28%
6) OTHER ORGANIC	1601	4245	37.7%	1.27%	2721	4432	61.39%	2.07%
Food Waste		162	0.0%	0.00%		169	0.00%	0.00%
Tires/Rubber	17	24	70.8%	0.01%	22	25	88.00%	0.02%
Wood Wastes	1584	3493	45.3%	1.26%	2631	3646	72.16%	2.00%
Agric Crop Residue		257		0.00%		268	0.00%	0.00%
Manure				0.00%			0.00%	0.00%
Textiles/Leather		267	0.0%	0.00%	68	279	24.37%	0.05%
Other Misc		241	0.0%	0.00%		252	0.00%	0.00%
7) OTHER WASTE		4628	0.0%	0.00%	202	4832	4.18%	0.15%
Inert Solids		4356	0.0%	0.00%		4547	0.00%	0.00%
Hazardous Waste		257	0.0%	0.00%	202	269	75.09%	0.15%
8) SPECIAL WASTE	3	3	100.0%	0.00%	3	3	100.00%	0.00%
mattresses	3	3		0.00%	3	3	100.00%	0.00%
other special waste				0.00%		0	0.00%	0.00%
9) UNIDENTIFIED WASTE				0.00%	0	0	0.00%	0.00%
TOTALS	2500	16646	15.0%	1.98%	6859	17379	39.47%	5.21%

Table IX - 6 Stanford Diversion 1995 and 2000 (Restricted Materials Eliminated)

	SHORT-TERM PLANNING PERIOD (1995)				MEDIUM-TERM PLANNING PERIOD (2000)			
MATERIAL TYPE	DIVERSION	GENERATION	PERCENT DIVERSION	DIVERSION AS % OF TOTAL WASTE GENERATED	DIVERSION	GENERATION	PERCENT DIVERSION	DIVERSION AS % OF TOTAL WASTE GENERATED
1) TOTAL PAPER	2811	8492	33.1%	2.23%	6741	8866	76.03%	5.12%
OCC/Kraft	511	1469	34.8%	0.41%	1133	1533	73.91%	0.86%
Newspaper	541	1258	43.0%	0.43%	2476	1314	188.43%	1.88%
High Grade	298	593	50.3%	0.24%	457	619	73.83%	0.35%
Mixed Paper	1461	2881	50.7%	1.16%	2675	3008	88.93%	2.03%
Other Paper		2291	0.0%	0.00%		2392	0.00%	0.00%
2) TOTAL PLASTIC	2	937	0.2%	0.00%	56	978	5.73%	0.04%
HDPE containers		88	0.0%	0.00%	37	92	40.22%	0.03%
PET containers	2	25	8.0%	0.00%	19	26	73.08%	0.01%
Film Plastics		429	0.0%	0.00%		448	0.00%	0.00%
Other Plastics		394	0.0%	0.00%		412	0.00%	0.00%
3) TOTAL GLASS	498	1150	43.3%	0.39%	823	1201	68.53%	0.62%
Refillable Beverage			0.0%	0.00%			0.00%	0.00%
CA Redemption Value	205	439	46.7%	0.16%	386	459	84.10%	0.29%
Other Recyclable	293	630	46.5%	0.23%	437	658	66.41%	0.33%
Other Non-Recyclable		81	0.0%	0.00%		85	0.00%	0.00%
4) TOTAL METAL	23	448	5.1%	0.02%	67	468	14.32%	0.05%
Aluminum Cans	13	68	19.1%	0.01%	59	71	83.10%	0.04%
Bi-metal		139	0.0%	0.00%		145	0.00%	0.00%
Tin	10	11	90.9%	0.01%	8	11	72.73%	0.01%
Other Ferrous		232	0.0%	0.00%		242	0.00%	0.00%
Other Non-Ferrous		89	0.0%	0.00%		93	0.00%	0.00%
White Goods			0.0%	0.00%			0.00%	0.00%
5) YARD WASTE		800	0.0%	0.00%	1783	835	213.53%	1.35%
6) OTHER ORGANIC	198	2947	6.7%	0.16%	478	3077	15.53%	0.36%
Food Waste		2111	0.0%	0.00%		2204	0.00%	0.00%
Tires/Rubber		20	0.0%	0.00%	58	21	276.19%	0.04%
Wood Wastes	198	805	24.6%	0.16%	420	841	49.94%	0.32%
Agric Crop Residue			0.0%	0.00%			0.00%	0.00%
Manure			0.0%	0.00%			0.00%	0.00%
Textiles/Leather		133	0.0%	0.00%		139	0.00%	0.00%
Other Misc		15	0.0%	0.00%		15	0.00%	0.00%
7) OTHER WASTE		370	0.0%	0.00%	47	386	12.18%	0.04%
Inert Solids		333	0.0%	0.00%		348	0.00%	0.00%
Hazardous Waste		36	0.0%	0.00%	47	37	127.03%	0.04%
8) SPECIAL WASTE		63	0.0%	0.00%		469	0.00%	0.00%
mattresses			0.0%	0.00%		0	0.00%	0.00%
other special waste		387	0.0%	0.00%		469	0.00%	0.00%
9) UNIDENTIFIED WASTE			0.0%	0.00%		0	0.00%	0.00%
TOTALS	3532	15032	23.5%	2.80%	9995	15694	63.69%	7.59%

Table IX - 7 Moffett Field Diversion 1995 and 2000 (Restricted Materials Eliminated)

	SHORT-TERM PLANNING PERIOD (1995)				MEDIUM-TERM PLANNING PERIOD (2000)			
MATERIAL TYPE	DIVERSION	GENERATION	PERCENT DIVERSION	DIVERSION AS % OF TOTAL WASTE GENERATED	DIVERSION	GENERATION	PERCENT DIVERSION	DIVERSION AS % OF TOTAL WASTE GENERATED
1) TOTAL PAPER	1746	4016	43.5%	1.38%	3221	4193	76.82%	2.45%
OCC/Kraft	1450	505	287.1%	1.15%	2726	527	517.27%	2.07%
Newspaper	143	63	227.0%	0.11%	288	66	436.36%	0.22%
High Grade	153	130	117.7%	0.12%	71	136	52.21%	0.05%
Mixed Paper		122	0.0%	0.00%	92	127	72.44%	0.07%
Other Paper			0.0%	0.00%	44		0.00%	0.03%
2) TOTAL PLASTIC	15	625	2.4%	0.01%	18	653	2.76%	0.01%
HDPE containers	5		0.0%	0.00%	15		0.00%	0.01%
PET containers	10	3	333.3%	0.01%	2	3	66.67%	0.00%
Film Plastics			0.0%	0.00%			0.00%	0.00%
Other Plastics			0.0%	0.00%			0.00%	0.00%
3) TOTAL GLASS	47	231	20.3%	0.04%	13	241	5.39%	0.01%
Refillable Beverage			0.0%	0.00%			0.00%	0.00%
CA Redemption Value	47	17	276.5%	0.04%	13	18	72.22%	0.01%
Other Recyclable			0.0%	0.00%			0.00%	0.00%
Other Non-Recyclable			0.0%	0.00%			0.00%	0.00%
4) TOTAL METAL	14	726	1.9%	0.01%	4	758	0.53%	0.00%
Aluminum Cans	14	6	233.3%	0.01%	4	7	57.14%	0.00%
Bi-metal			0.0%	0.00%			0.00%	0.00%
Tin			0.0%	0.00%			0.00%	0.00%
Other Ferrous		414	0.0%	0.00%		433	0.00%	0.00%
Other Non-Ferrous		44	0.0%	0.00%		46	0.00%	0.00%
White Goods			0.0%	0.00%			0.00%	0.00%
5) YARD WASTE		735	0.0%	0.00%	402	767	52.41%	0.31%
6) OTHER ORGANIC	118	1389	8.5%	0.09%	421	1450	29.03%	0.32%
Food Waste		825	0.0%	0.00%		862	0.00%	0.00%
Tires/Rubber	29	137	21.2%	0.02%	96	143	67.13%	0.07%
Wood Wastes	89	412	21.6%	0.07%	325	430	75.58%	0.25%
Agric Crop Residue			0.0%	0.00%			0.00%	0.00%
Manure			0.0%	0.00%			0.00%	0.00%
Textiles/Leather		80	0.0%	0.00%		83	0.00%	0.00%
Other Misc			0.0%	0.00%			0.00%	0.00%
7) OTHER WASTE		795	0.0%	0.00%		830	0.00%	0.00%
Inert Solids			0.0%	0.00%			0.00%	0.00%
Hazardous Waste			0.0%	0.00%			0.00%	0.00%
8) SPECIAL WASTE			0.0%	0.00%			0.00%	0.00%
mattresses			0.0%	0.00%			0.00%	0.00%
other special waste			0.0%	0.00%			0.00%	0.00%
9) UNIDENTIFIED WASTE			0.0%	0.00%			0.00%	0.00%
TOTALS	1940	8402	23.1%	1.54%	4079	8772	46.50%	3.10%

Table IX - 8 Implementation Schedule

Component	Area	Program	Task	Responsible Agency	Start Date Year/Quarter	Completion Date Year/Quarter
Special Waste	Countywide	White goods and auto body recycling	Encourage	Solid Waste Program	92 - 1st	ongoing
Public Education	Regional	Regional educational efforts	Participate in ABAG Solid Waste Committee meetings	Solid Waste Program	92 - 1st	ongoing
Special Waste	Countywide	Minimize illegal disposal	Evaluate need for programs	Solid Waste Program	92 - 2nd	ongoing
Public Education	Countywide	Countywide educational efforts	Participate	Solid Waste Program	92 - 2nd	ongoing
Public Education	Countywide	County employee campaign	Participate in County recycling meetings	Solid Waste Program	92 - 2nd	ongoing
Public Education	Countywide	Program promotion	Participate in Countywide market development efforts	Solid Waste Program	92 - 3rd	ongoing
Recycling	San Jose	Expanded curbside collection	RFP	Solid Waste Program	92 - 4th	92 - 4th
Source Reduction	San Jose	Volume-based garbage rates	Develop RFP	Solid Waste Program	92 - 4th	94 - 4th
Recycling	San Jose	Expanded curbside collection	Review bids	Solid Waste Program	93 - 1st	93 - 2nd
Composting	South County	Permanent drop-off centers	Open center	Franchisee	93 - 1st	ongoing
Public Education	Countywide	County employee campaign	Establish target diversion goals	Solid Waste Program / General Services Agency	93 - 1st	93 - 2nd
Public Education	Countywide	Program promotion	Develop educational materials for inerts	Solid Waste Program	93 - 1st	93 - 2nd
Source Reduction	San Jose	Volume-based garbage rates	Review bids	Solid Waste Program	93 - 1st	93 - 1st
Recycling	Countywide	Divert inert materials	Develop educational materials	Solid Waste Program	93 - 2nd	93 - 2nd
Composting	San Jose	Residential curbside collection	Start collection	Franchisee	93 - 2nd	ongoing
Composting	San Jose	Permanent drop-off centers	Open center	Franchisee	93 - 2nd	ongoing
Composting	North County	Permanent drop-off centers	Open center	Franchisee	93 - 2nd	ongoing
Public Education	Countywide	County employee campaign	Develop diversion campaign	Solid Waste Program / General Services Agency	93 - 2nd	ongoing
Public Education	Countywide	Program promotion	Distribute educational materials on inerts	Planning Department	93 - 2nd	ongoing
Source Reduction	San Jose	Volume-based garbage rates	Select contractor	Solid Waste Program	93 - 2nd	93 - 3rd
Recycling	San Jose	Expanded curbside collection	Negotiate contract	Solid Waste Program	93 - 3rd	93 - 3rd
Recycling	San Jose	Expanded curbside collection	Develop public education	Franchisee	93 - 3rd	ongoing
Recycling	Burbank	Curbside collection	Start collection	Franchisee	93 - 3rd	ongoing
Recycling	Countywide	Divert inert materials	Distribute education materials	Solid Waste Program	93 - 3rd	ongoing
Composting	North County	Residential curbside collection	Start collection	Franchisee	93 - 3rd	ongoing
Public Education	Countywide	County employee campaign	Board of Supervisors' approval	Board of Supervisors	93 - 3rd	93 - 3rd
Source Reduction	Countywide	Backyard composting	Participate in development of Countywide program and RFP	Solid Waste Program	93 - 3rd	93 - 4th

Table IX - 8 Implementation Schedule

Component	Area	Program	Task	Responsible Agency	Start Date Year/Quarter	Completion Date Year/Quarter
Source Reduction	County facilities	County facilities source reduction	Perform waste audits of County facilities	GSA/SWP	93 - 3rd	
Recycling	San Jose	Expanded curbside collection	Start collection	Franchisee	93 - 4th	ongoing
Recycling	West Valley / North County	Expanded curbside collection	Evaluate	Solid Waste Program	93 - 4th	94 - 1st
Source Reduction	San Jose	Volume-based garbage rates	Implement volume-based service	Contractor	93 - 4th	ongoing
Recycling	West Valley/ North County	Expanded curbside collection	Develop public education materials	Franchisee	94 - 1st	ongoing
Source Reduction	Countywide	Volume-based garbage rates	Review all existing rate structures	Solid Waste Program	94 - 1st	94 - 2nd
Source Reduction	Countywide	Backyard composting	Select contractor	Solid Waste Program	94 - 1st	
Source Reduction	Countywide	Multi-jurisdictional approaches	Participate	Solid Waste Program	94 - 1st	ongoing
Source Reduction	County facilities	County facilities source reduction	Evaluate non-procurement programs	Finance/Purchasing	94 - 1st	
Source Reduction	County facilities	County facilities source reduction	Review County procurement program	Finance/SWP	94 - 1st	
Source Reduction	County facilities	County facilities source reduction	Consider yardwaste recovery at Civic Center	General Services Agency	94 - 1st	
Source Reduction	County facilities	County facilities source reduction	Design educational materials	GSA/SWP	94 - 1st	ongoing
Composting	Countywide	County facilities yard and wood waste collection	Begin collection	County agencies	94 - 2nd	ongoing
Recycling	Lexington Hills	Increased drop-off recycling centers	Evaluate	Solid Waste Program	94 - 2nd	94 - 3rd
Recycling	Countywide	Support market development	Consider market development zones	Solid Waste Program	94 - 2nd	95 - 3rd
Special Waste	Countywide	Used tire recycling	Encourage	Solid Waste Program	94 - 2nd	ongoing
Public Education	Countywide	Program promotion	Consider market development zones	Planning Department	94 - 2nd	ongoing
Source Reduction	Countywide	Backyard composting	Implement backyard composting program	Solid Waste Program	94 - 2nd	ongoing
Source Reduction	County facilities	County facilities source reduction	Evaluate use of property disposal, promote reuse	Finance/SWP	94 - 2nd	
Source Reduction	County facilities	County facilities source reduction	Distribute educational materials to County employees	Solid Waste Program	94 - 2nd	ongoing
Recycling	Lexington Hills	Increased drop-off recycling centers	Contract for services	Solid Waste Program	94 - 3rd	94 - 4th
Recycling	South County	Expanded curbside collection	Evaluate	Solid Waste Program	94 - 3rd	94 - 3rd
Recycling	Countywide	Change zoning and code practices	Review state regulations on zoning codes	Planning Department	94 - 3rd	ongoing
Composting	West Valley	Permanent drop-off centers	Open center	Franchisee	94 - 3rd	ongoing
Public Education	Countywide	Program promotion	Review State regulations on zoning	Planning Department	94 - 3rd	94 - 4th
Recycling	Lexington Hills	Increased drop-off recycling centers	Develop public education materials	Contractor	94 - 4th	95 - 2nd

Table IX - 8 Implementation Schedule

Component	Area	Program	Task	Responsible Agency	Start Date Year/Quarter	Completion Date Year/Quarter
Recycling	Lexington Hills	Increased drop-off recycling centers	Open drop-off sites	Contractor	94 - 4th	95 - 1st
Recycling	South County	Expanded curbside collection	Develop public education materials	Franchisee	94 - 4th	ongoing
Recycling	South County	Expanded curbside collection	Collect additional materials	Franchisee	94 - 4th	ongoing
Recycling	West Valley / North County	Expanded curbside collection	Collect additional materials	Franchisee	94 - 4th	ongoing
Recycling	San Jose	Multi-family collection	Develop RFP	Solid Waste Program	94 - 4th	
Recycling	San Jose	Commercial/Industrial recycling	Encourage	Solid Waste Program	94 - 4th	
Recycling	San Jose	Change zoning and code practices	Recommend zoning changes	Planning Department	94 - 4th	
Composting	Countywide	County facilities yard and wood waste collection	Market development for compost end products	Solid Waste Program	94 - 4th	
Composting	West Valley	Residential curbside collection	Start collection	Franchisee	94 - 4th	ongoing
Composting	West Valley	Permanent drop-off centers	Open center	Franchisee	94 - 4th	ongoing
Composting	Lexington Hills	Commercial/Industrial yard and wood waste collection	Begin collection	Franchisee	94 - 4th	ongoing
Composting	North County	Regional composting	Evaluate need	Solid Waste Program	94 - 4th	
Composting	North County	Commercial/Industrial yard and wood waste collection	Start collection	Franchisee	94 - 4th	ongoing
Source Reduction	County facilities	County facilities recognition awards	Initiate County facilities awards program	Solid Waste Program	94 - 4th	ongoing
Recycling	Countywide	Expanded curbside collection	Develop educational materials	Franchisee	94 -1st	
Recycling	West Valley / North County	Change zoning and code practices	Adopt new zoning codes	Board of Supervisors	95 - 1st	
Public Education	Countywide	County employee campaign	Develop purchasing guidelines	Finance Agency	95 - 1st	
Recycling	San Jose	Multi-family collection	Review bids	Solid Waste Program	95 - 2nd	
Public Education	Countywide	County employee campaign	Develop recycling programs	Solid Waste Program	95 - 2nd	
Recycling	San Jose	Multi-family collection	Negotiate contract	Solid Waste Program	95 - 3rd	
Composting	South County	Residential curbside collection	Consider	Solid Waste Program	95 - 3rd	
Public Education	Countywide	County employee campaign	Develop informational materials	Solid Waste Program	95 - 3rd	
Recycling	San Jose	Multi-family collection	Develop public education materials	Franchisee	95 - 4th	
Recycling	San Jose	Multi-family collection	Start collection	Franchisee	95 - 4th	ongoing
Public Education	Countywide	County employee campaign	Begin purchasing and recycling programs	Solid Waste Program	95 - 4th	ongoing
Recycling	North County	Commercial/Industrial recycling	Evaluate	Solid Waste Program	96 - 1st	
Composting	San Jose	Commercial/Industrial yard and wood waste collection	Begin collection	Franchisee	96 - 1st	ongoing

Table IX - 8 Implementation Schedule

Component	Area	Program	Task	Responsible Agency	Start Date Year/Quarter	Completion Date Year/Quarter
Source Reduction	Countywide	Advance disposal fees	Evaluate	Solid Waste Program	96 - 1st	
Source Reduction	County facilities	Xeriscaping	Evaluate xeriscaping requirements	Planning Department	96 - 1st	
Composting	Burbank	Residential curbside collection	Begin collection	Franchisee	96 - 2nd	ongoing
Composting	South County	Co-composting food waste	Consider	Solid Waste Program	96 - 2nd	
Source Reduction	County facilities	Xeriscaping	Implement xeriscaping requirements	Planning Department	96 - 3rd	ongoing
Recycling	San Jose	Commercial/Industrial recycling	Evaluate	Solid Waste Program	97 - 1st	
Recycling	San Jose	Commercial/Industrial recycling	Produce technical assistance guide	Solid Waste Program	97 - 2nd	
Recycling	San Jose	Commercial/Industrial recycling	Technical support	Solid Waste Program	97 - 2nd	ongoing
Recycling	Countywide	Support market development	Review County procurement policies	Purchasing Department	to be determined	
Public Education	Countywide	Program promotion	Recommend zoning changes	Planning Department	to be determined	
Public Education	Countywide	Program promotion	Adopt zoning changes	Board of Supervisors	to be determined	
Public Education	Countywide	Program promotion	Review County procurement procedures	Purchasing	to be determined	

Section X

Funding Component

INTRODUCTION

The preceding components describe County plans for development and implementation of source reduction, recycling, composting, special waste, and education programs which will comply with state-mandated recycling requirements. California diversion objectives, 25 percent by 1995 and 50 percent by 2000, and the threat of $10,000 per day fines, make the planning and implementation of these programs a necessity.

This component provides a cost schedule which lists the programs selected for implementation in the short-term planning period (through 1995), describes revenue sources to be used to support implementation of the selected programs, and lists contingency funding sources.

COST SCHEDULE

Program	1993	1994	1995
SOURCE REDUCTION			
Volume-Based Garbage Rates	$35,000		
Backyard Composting		$7,500	$7,900
Multi-Jurisdictional Efforts		$2,800	$2,800
County Facility Source Reduction		$2,800	$2,800
Recognition Awards		$2,800	$2,800
RECYCLING			
Burbank Curbside Collection	$1,000		
Expanded Curbside Collection	$2,800	$8,600	
Multi-Family Recyclables Collection		$4,900	$4,900
Promote Industrial/Commercial Recycling	$2,800	$3,000	$3,000
Evaluate Drop-off Recycling - Lexington Hills		$5,700	
Divert Inert Materials	$1,400	$1,400	$1,400
Evaluate Zoning and Code Practices		$4,200	$3,300
Support Market Development		$1,400	$3,200
COMPOSTING			
County Facilities Yard and Wood Waste Collection		$1,400	unknown
Market Development		$1,400	unknown
Residential Curbside Collection	$9,800	$5,000	
Permanent Drop Off Centers		$1,400	unknown
SPECIAL WASTE			
Encourage Used Tire Recycling		$1,000	
Encourage White Goods/Auto Body Recycling	$2,000	$1,000	$1,000
Evaluate Need for Programs to Minimize Illegal Disposal		$4,200	$3,200
PUBLIC EDUCATION			
Program Promotion costs		included in program	
Countywide Educational Efforts	$5,000	$7,500	$10,000
Regional Educational Efforts	$1,400	$3,000	$5,000
County Employee Educational Campaign	$500	$1,500	$1,500
TOTALS	$61,700	$72,500	$52,800
GRAND TOTAL $187,000			

FUNDING SOURCES

Funding requirements for implementation of this SRRE make two major assumptions:

1. Waste-related services to unincorporated area residents will continue to be provided through permit, contract, or franchise agreement with private companies. This is a realistic assumption, since Santa Clara County has a diverse solid waste management system in which many companies compete for the opportunity to provide residential and commercial waste collection, disposal, and recycling services.

2. Funding of major capital investments in such projects as materials recovery and disposal facilities is not necessary. Major facilities are currently in operation and sufficient capacity is expected to be available to handle materials from the unincorporated area.

Selected programs are limited to expansions of existing services and implementation of new services for unincorporated area residents and businesses. Start up costs for new services which are delivered to each household and/or each business are expected to be amortized over several years and added to the rates for the customers who receive the services. Revenue from sales of recyclable materials will be used to offset the cost or a portion of the cost of recycling programs for those materials.

Staffing costs for overall unincorporated area integrated waste management program administration, program planning and implementation, and some costs of public information and education will be funded from an administrative surcharge assessed as part of collection rates and from the unincorporated area share of the Countywide AB 939 Implementation Fee. These funding sources are consistent with funding methods that are used to support current services.

In addition, the County will seek grant funding to support special one-time costs and/or costs of pilot and demonstration projects.

Countywide AB 939 Implementation Fee

On behalf of Santa Clara County jurisdictions, the County collects the Countywide AB 939 Implementation Fee, which is assessed on each ton of waste disposed at landfills located within the County. The fee is apportioned among each jurisdiction according to a formula which considers each jurisdiction's documented tonnage and

population. The initial fee was set at $1.00 per ton for the period of July 1, 1992 to June 30, 1994. Prior to expiration, jurisdictions have the option of extending the fee, changing the amount of the fee, revising the formula, or making other changes.

Most jurisdictions in the county have expressed an interest in funding some cooperative countywide programs, such as public education, from their share of the revenues.

The County share of the Fee is estimated at 5 percent of the total revenue. This will result in revenue of approximately $60,000 to $80,000 per year for the unincorporated area.

Rate Increases

Approved programs are generally funded from adjustments to collection rates for unincorporated area residents and businesses. At the time that the Board of Supervisors authorizes County staff to negotiate with service providers for a new program or program expansion, a funding source for that service is also identified. When the program receives its final approval, the Board of Supervisors also authorizes a rate adjustment to fund the necessary costs of the program. As noted above, some costs may be amortized over several years.

Revenue from Sale of Materials

Sales of recovered materials are used to help offset the cost of curbside recycling programs currently provided to unincorporated area residents. Revenue from the sale of recyclable materials has the potential of providing a major source of funding for future programs. However, the low value of many materials and unpredictable markets have limited their importance as a realistic funding source.

Over the short-term planning period, the County will continue to shift the risk of decreasing values of commodities and sudden changes in market demand for commodities to the collection service provider. The County will also seek to improve markets for recyclable commodities (see market development sections of other components for details). Over the medium- to long-term, the County will evaluate market conditions to determine when and for which commodities revenues can be used as a major source of funding for recycling programs.

Grant Funding

Grant funding may be available for certain types of projects from the California Department of Conservation (CDC), Division of Recycling, and from the California Integrated Waste Management Board (CIWMB). The County will seek grant funding to support pilot programs, demonstration projects, and other programs.

CONTINGENCY FUNDING SOURCES

As noted above, no major capital costs are anticipated. In the event that a major capital project is planned, funding could be obtained from a number of sources, as listed below. Potential funding sources would be evaluated with respect to the project and the level of need, to determine which sources are appropriate for the project under consideration.

Bond Issues

The County of Santa Clara could raise revenues through the sale of public bonds to support integrated waste management programs.

CDBG Grants

Grants could be issued under the Economic Development Allocation of the Community Development Block Grant Program (CDBG). CDBG monies 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.

CDC and CIWMB Grants

Grants may be available from the California Department of Conservation (CDC), Division of Recycling, and from the California Integrated Waste Management Board (CIWMB). The California Department of Commerce, Office of Competitive Technology may fund technological projects that show promise for commercialization.

Development Impact Fees

Development impact fees may be imposed to offset increased waste management costs resulting from new, large-scale developments that will generate significant

amounts of additional solid waste. This option could assure that the costs associated with growth are paid for by the developer. Implementation could require changes in ordinances and zoning laws.

Market Development Zones

An economic development program could identify, create, support, and promote local/regional recycling programs. This economic development program could include the creation of market development zones for secondary materials. Industries that utilize post consumer materials would be encouraged to operate within the County. This program could be implemented in cooperation with other jurisdictions and include the participation of private sector organizations such as Chambers of Commerce, local manufacturing and food processing associations, agricultural agencies, farm bureaus, Private Industry Council, public sector economic development agencies, and the California Integrated Waste Management Board.

Pollution Control and Waste Disposal Facilities Tax-Exempt Loans (CPCFA)

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, tax-exempt funding is limited to the useful life of the project.

Advance Disposal Fees

Short-term special taxes or advanced disposal fees could be imposed to support recycling of difficult-to-recycle materials such as tires or plastic packaging materials. Special taxes or fees could be placed on materials or products that have been identified as difficult-to-recycle or in some other way pose a special disposal problem. Assessment should be tied to funding of programs designed to alleviate the identified disposal problems.

While most such taxes or fees would be most effective at the State or Federal level, adoption of special user fees at the point of sale could be considered. Such a program would require cooperation among the jurisdictions throughout Santa Clara County, since most businesses are located in cities, and would therefore be difficult to implement and administer.

Potential Funding Sources Identified by the League of California Cities

The following potential funding sources will be evaluated if needed to fund projects in Santa Clara County to meet AB 939 requirements.

- Federally tax-exempt facilities
- Mello-Roos community facilities districts
- Current revenue capital financing
- Public enterprise revenue bonds
- General obligation bonds
- Certificates of participation
- Tipping fee increases
- Bank loans
- Financial leasing
- Leveraged leasing
- FHA industrial development grants
- Small Business Administration loans
- EPA solid waste disposal research grants
- EPA solid waste management assistance grants
- FHA technical assistance and training grants
- FHA grants and loans for rural communities
- California Beverage Container recycling and Litter Reduction Program
- California Integrated Waste Management Board Loan Guarantee Program
- Employee Training Programs